

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 YATES PETROLEUM)	CASE NO. 11,421
CORPORATION FOR THE PROMULGATION OF)	
SPECIAL RULES AND REGULATIONS FOR THE)	
SOUTH PECOS SLOPE-ABO GAS POOL,)	
CHAVES COUNTY, NEW MEXICO)	
)	
APPLICATION OF YATES PETROLEUM)	CASE NO. 11,422
CORPORATION FOR THE PROMULGATION OF)	
SPECIAL RULES AND REGULATIONS FOR THE)	
WEST PECOS SLOPE-ABO GAS POOL,)	
CHAVES COUNTY, NEW MEXICO)	
)	
IN THE MATTER OF CASE NOS. 10,793,)	CASE NOS. 10,793
10,981 AND 11,004 BEING REOPENED)	10,981, 11,004
PURSUANT TO THE PROVISIONS OF DIVISION)	
ORDER NOS. R-9976 and R-9976-A)	
)	

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS
EXAMINER HEARING

BEFORE: MICHAEL E. STOGNER Hearing Examiner

November 2nd, 1995
Roswell, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MICHAEL E. STOGNER, Hearing Examiner, on Thursday, November 2nd, 1995, at the Roswell City Hall, 425 North Richardson Street, Roswell, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

I N D E X

November 2nd, 1995

Examiner Hearing

CASE NOS. 11,421, 11,422, 10,793, 10,981 and 11,004
(Consolidated)

	PAGE
EXHIBITS	3
APPEARANCES	4
APPLICANT'S WITNESSES:	
<u>MECCA MAURITSEN</u> (Landman)	
Direct Examination by Mr. Carr	8
Cross-Examination by Mr. Kellahin	14
Examination by Examiner Stogner	16
<u>DARRICK STALLINGS</u> (Engineer)	
Direct Examination by Mr. Carr	18
Cross-Examination by Mr. Kellahin	53
Redirect Examination by Mr. Carr	96
Recross-Examination by Mr. Kellahin	103
Examination by Examiner Stogner	107
CLOSING STATEMENTS:	
By Mr. Carr	119
By Mr. Kellahin	121
By Mr. Carr	124
REPORTER'S CERTIFICATE	128

* * *

E X H I B I T S

Yates	Identified	Admitted
Exhibit 1	10	14
Exhibit 2	11	14
Exhibit 3	11, 22	14
Exhibit 4	12	14
Exhibit 5	13	14
Exhibit 6	30	52
Exhibit 7	33	52
Exhibit 8	33	52
Exhibit 9	34	52
Exhibit 10	34	52
Exhibit 11	34	52
Exhibit 12	34	52
Exhibit 13	34	52
Exhibit 14	36	52
Exhibit 15	39, 40	52
Exhibit 16	39, 43	52
Exhibit 17	39, 45	52

* * *

A P P E A R A N C E S

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By: WILLIAM F. CARR

FOR TIDE WEST OIL COMPANY
and GREAT WESTERN DRILLING COMPANY:

KELLAHIN & KELLAHIN
117 N. Guadalupe
P.O. Box 2265
Santa Fe, New Mexico 87504-2265
By: W. THOMAS KELLAHIN

ALSO PRESENT:

JAMES EAKIN and BILLIE L. EAKIN
Elephant Butte, New Mexico
Royalty Interest Owners

JIM WALKER
Plains Radio Petroleum Company
Amarillo, Texas
Royalty Interest Owner

* * *

1 WHEREUPON, the following proceedings were had at
2 10:18 a.m.:

3 EXAMINER STOGNER: At this time I'll call Case
4 11,421.

5 MR. CARROLL: Application of Yates Petroleum
6 Corporation for the promulgation of special rules and
7 regulations for the South Pecos Slope-Abo Gas Pool, Chaves
8 County, New Mexico.

9 EXAMINER STOGNER: At this time I'll call for
10 appearances.

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

14 We represent Yates Petroleum Corporation in this
15 matter and would request that Case 11,421, which relates to
16 special rules for the South Pecos Slope-Abo Gas Pool, be
17 consolidated for purposes of hearing with the Application
18 of Yates for similar rules for the West Pecos Slope-Abo --
19 that's Case 11,422 -- and also that these two cases be
20 consolidated with the three cases, 10,793, 10,981, and
21 11,004, which have been reopened pursuant to Division
22 Orders Numbers R-9976 and R-9976-A.

23 EXAMINER STOGNER: Are there any objections to
24 consolidation of these matters?

25 Then at this time I will call Case Number 11,422

1 and the re-opened cases 10,793, 10,981 and 11,004.

2 MR. CARROLL: Application of Yates Petroleum
3 Corporation for the promulgation of special rules and
4 regulations for the West Pecos Slope-Abo Gas Pool, Chaves
5 County, New Mexico; and in the matter of Case Numbers
6 10,793, 10,981 and 11,004 being reopened pursuant to the
7 provisions of Division Order Numbers R-9976 and R-9976-A,
8 which orders established a "pilot infill drilling program"
9 in the Pecos Slope-Abo Gas Pool, Chaves County, New Mexico.

10 EXAMINER STOGNER: Okay. Other than Mr. Carr
11 with Yates Petroleum, any other appearances in these
12 matters?

13 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of
14 the Santa Fe law firm of Kellahin and Kellahin, appearing
15 on behalf of Tide West Oil Company and Great Western
16 Drilling Company.

17 EXAMINER STOGNER: Other appearances?

18 If you'll please stand and state your name and
19 place of residence, if anybody would care to enter an
20 appearance in this matter at this time.

21 JAMES EAKIN: We'd like to be recognized. We're
22 royalty owners in this area, James Eakin and Billie L.
23 Eakin, E-a-k-i-n. We're from Elephant Butte, New Mexico.

24 EXAMINER STOGNER: That's James, and what's the
25 other name?

1 MR. EAKIN: Billie, B-i-l-l-i-e.

2 EXAMINER STOGNER: And you reside in Elephant
3 Butte, New Mexico?

4 MR. EAKIN: At the present, yes. But we've
5 ranched in this area out here since 1944.

6 EXAMINER STOGNER: And you are a royalty interest
7 owner?

8 MR. EAKIN: Yes, sir.

9 EXAMINER STOGNER: Okay. There will be an
10 opportunity for you later on to make a statement if you
11 would care to. Thank you, sir.

12 Any other appearances? Or recognition?

13 JIM WALKER: Jim Walker, Plains Radio Petroleum
14 Company, Amarillo, Texas.

15 EXAMINER STOGNER: Mr. Walker, are you a royalty
16 interest owner, mineral interest or operator or all, or
17 what?

18 MR. WALKER: Not as Plains Radio. Individually I
19 have some royalty.

20 EXAMINER STOGNER: Okay. Any other appearances,
21 or anybody like to be recognized?

22 Okay. In that case, are there any opening
23 statements?

24 MR. CARR: May it please the Examiner, I don't
25 have an opening statement.

1 I do have two witnesses.

2 EXAMINER STOGNER: Mr. Kellahin?

3 MR. KELLAHIN: I have no witnesses to be sworn,
4 Mr. Examiner.

5 EXAMINER STOGNER: Okay. With that, would the
6 witnesses please stand at this time to be sworn?

7 (Thereupon, the witnesses were sworn.)

8 EXAMINER STOGNER: Mr. Carr?

9 MR. CARR: At this time, Mr. Stogner, we would
10 call Mecca Mauritsen.

11 MECCA MAURITSEN,
12 the witness herein, after having been first duly sworn upon
13 her 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. It's Mecca Mauritsen.

18 Q. And where do you reside?

19 A. In Artesia, New Mexico.

20 Q. By whom are you employed?

21 A. By Yates Petroleum Corporation.

22 Q. Ms. Mauritsen, what is your current position with
23 Yates Petroleum Corporation?

24 A. I'm a landman.

25 Q. Have you previously testified before this

1 Division?

2 A. Yes.

3 Q. At the time of that testimony, were your
4 credentials as a petroleum landman accepted and made a
5 matter of record?

6 A. Yes.

7 Q. Are you familiar with the Applications filed on
8 behalf of Yates Corporation in each of the consolidated
9 cases?

10 A. Yes.

11 Q. And are you familiar with the Pecos Slope-Abo Gas
12 Pool, the West Pecos Slope-Abo Gas Pool and the South Pecos
13 Slope-Abo Gas Pool and the status of the lands in and
14 around those pools?

15 A. Yes.

16 MR. CARR: Are the witness's qualifications
17 acceptable?

18 EXAMINER STOGNER: Any objection?

19 MR. KELLAHIN: No objection.

20 EXAMINER STOGNER: Ms. Mauritsen is so qualified.

21 Q. (By Mr. Carr) Ms. Mauritsen, would you initially
22 summarize what Yates Petroleum Corporation seeks with these
23 Applications?

24 A. Okay, the Cases 10,793, 10,981 and 11,004 were
25 reopened pursuant to Division Orders R-9976 and R-9976-A,

1 and those established a pilot infill drilling program for
2 the Pecos Slope-Abo Gas Pool. The order directed Yates to
3 report the results of this pilot project, and we will
4 present results of the project and make recommendations for
5 the -- to the Division for special pool rules, which
6 authorize infill drilling of these pools.

7 Then Case Number 11,421 seeks the adoption of the
8 same rules for the South Pecos Slope-Abo Gas Pool, and Case
9 11,422 also seeks adoption of those rules for the West
10 Pecos Slope-Abo Gas Pool.

11 Q. What are the current rules governing development
12 of these pools?

13 A. The current rules are 160-acre spacing, you get
14 one well per spacing unit, and the wells have to be 660
15 feet from the outer boundary of the spacing units.

16 Q. There's also a requirement, is there not, for a
17 330-foot setback from any inner boundary or quarter-quarter
18 section line?

19 A. That's correct.

20 Q. When did Yates first propose a pilot project for
21 the West Pecos Slope-Abo Gas Pool?

22 A. It was the summer of 1993. The hearing was on
23 August 12th of 1993. We received Order Number R-9976,
24 dated September 24th, 1993, which granted our application
25 for the pilot project, and that is Yates Exhibit Number 1.

1 Q. What did the Division actually approve with that
2 order?

3 A. It gave us the approval for the pilot project to
4 drill six infill wells.

5 Q. And did that order actually require Yates to
6 return in two years and report to the Division the results
7 of their pilot project in the Pecos Slope-Abo Gas Pool?

8 A. Yes, it did.

9 Q. Was the project as approved by Order Number
10 R-9976 subsequently expanded?

11 A. Yes, 1994 we asked for permission to expand the
12 project, and we received Order Number R-9976-A, which is
13 Exhibit 2 here, and authorized us to drill 20 additional
14 infill wells in the Pecos Slope-Abo Pool.

15 Q. And that order did not change, however, the date
16 that Yates was required to return and report to the
17 Division the results of this pilot project?

18 A. No, the date stayed the same.

19 Q. Have you prepared certain exhibits for
20 presentation here today?

21 A. Yes, I have.

22 Q. Let's turn to what has been marked for
23 identification as Yates Petroleum Corporation Exhibit
24 Number 3.

25 A. Exhibit Number 3 is a pool map that shows Chaves

1 County. It shows the outlines of each of the pools we're
2 talking about. South Pecos Slope Pool is in the blue
3 outline, Pecos Slope is in the purple, West Pecos Slope is
4 shown with the green boundary.

5 The red boundary shows the infill pilot project
6 area, and the wells that are highlighted in red are the
7 infill wells that we actually drilled.

8 Q. This is offered for general orientation purposes
9 at this time; is that right?

10 A. That's correct.

11 Q. Mr. Stallings will again refer to this and go
12 into more detail about which wells have actually been
13 drilled within the pilot project area?

14 A. Yes, he will.

15 Q. Would you identify what has been marked Yates
16 Petroleum Corporation Exhibit Number 4?

17 A. Exhibit Number 4 is the lease map that we have
18 hung on the wall over here. It's just for orientation
19 also. The boundaries of each pool and the infill drilling
20 project are marked on that map, and they'll correspond to
21 this smaller computer-generated map.

22 Q. And this shows, actually, current operators of
23 wells in tracts in the pool within a mile of the pool?

24 A. Yes, it does.

25 Q. And how current is Exhibit Number 4?

1 A. It's updated weekly, so it should be fairly
2 current.

3 Q. Has notice of each of these Applications been
4 provided to the affected interest owners as required by Oil
5 Conservation Division rules?

6 A. Yes, it has.

7 Q. And to whom has notice actually been provided?

8 A. We gave notice to all operators in each of the
9 pools, all unleased mineral owners in each of the pools,
10 and all operators of an Abo well that were outside of the
11 pool but within a mile of any of the boundaries.

12 Q. Is Yates Petroleum Corporation Exhibit Number 5
13 an affidavit signed by you with attached to it copies of
14 the notice letters that were actually mailed out, a list of
15 the parties to whom notice was provided, and then copies of
16 any letters that were returned as -- or envelopes that were
17 returned as undeliverable?

18 A. Yes, it is.

19 Q. Approximately how many interest owners were
20 notified of this Application?

21 A. I think there was approximately 300 that were
22 notified.

23 Q. Will Yates call an engineering witness to review
24 the results of the pilot project and review the technical
25 portions of this case?

1 A. Yes, we will.

2 Q. Were Exhibits 1 through 5 either prepared by you
3 or compiled at your direction?

4 A. Yes, they were.

5 MR. CARR: At this time, Mr. Stogner, we would
6 move the admission into evidence of Yates Petroleum
7 Corporation Exhibits 1 through 5.

8 EXAMINER STOGNER: Any objection?

9 MR. KELLAHIN: No objection.

10 EXAMINER STOGNER: Exhibits 1 through 5 will be
11 admitted into evidence at this time.

12 MR. CARR: That concludes my direct examination
13 of Ms. Mauritsen.

14 EXAMINER STOGNER: Thank you, Mr. Carr.

15 Mr. Kellahin?

16 MR. KELLAHIN: Thank you, Mr. Examiner.

17 CROSS-EXAMINATION

18 BY MR. KELLAHIN:

19 Q. Ms. Mauritsen, a point of clarification. If
20 you'll turn to Exhibit Number 3 --

21 A. Yes.

22 Q. -- the Division's 1993 order for the original
23 six-well pilot --

24 A. Yes.

25 Q. -- involved 6 South, 25 East, I believe, is that

1 not true?

2 A. That's correct, that's correct.

3 Q. So when we look at this display and find those
4 six well symbols that are highlighted in red, those will
5 represent the drilling of the first six wells for the first
6 pilot in 1993?

7 A. That's correct.

8 Q. All right. Subsequently, the second pilot, if
9 you will --

10 A. Right.

11 Q. -- of which an additional 20 wells were
12 authorized, would have been Townships other than 6 South,
13 25 East?

14 A. That's correct, the other ones are outlined,
15 that's correct.

16 Q. And for those that you have drilled, there's a
17 gas-well symbol that shows a red outline?

18 A. Right, uh-huh.

19 Q. And if you had approval for but did not drill
20 those second pilot wells on an infill basis, they are still
21 shown, then, as open red circles?

22 A. That's correct.

23 Q. All right. And neither one of those orders
24 addressed or approved or otherwise allowed infill drilling
25 to take place in the West Pecos Slope or in the South Pecos

1 Slope Pools?

2 A. That's correct.

3 MR. KELLAHIN: Okay, no further questions, Mr.
4 Examiner.

5 EXAMINER STOGNER: Thank you, Mr. Kellahin.

6 EXAMINATION

7 BY EXAMINER STOGNER:

8 Q. Exhibit A on Number 4, this was your
9 notification -- I'm sorry, Exhibit Number 5 -- that was
10 your notification.

11 A. Yeah.

12 Q. This represents the royalty interest owners in
13 all three pools?

14 A. It's the operators in all three pools and the
15 unleased mineral owners, and then all the operators
16 within -- of an Abo well within a mile of the boundaries,
17 that are outside the actual pools.

18 Q. Okay. Is the Bureau of Land Management and State
19 Land Office included in that list?

20 A. I believe so. I'm not sure what page that would
21 be on.

22 Q. Is that in alphabetical order or --

23 A. No, I don't believe it is. It's about -- about
24 the eighth page. It has the BLM and the OCD, is listed.

25 Q. Could you give me a little brief detail of how

1 you compiled this list?

2 A. We started with our lease maps, and from those we
3 checked the county records for unleased mineral owners or
4 anything that didn't have a well on it at that time.

5 We also had a list of operators that was given to
6 us from the Oil Conservation Division, I think, a couple of
7 years ago when we initially asked for the pilot project.
8 And once we compiled all the names of operators and
9 unleased mineral owners, we then checked phone records and
10 county records for old leases or anything that would give
11 us an address that we could use.

12 We also checked our computer system, which had,
13 you know, quite a few of these people on there.

14 Q. Do you have a breakout of how many operators,
15 actual operators, there are in each of the three pools?

16 A. I don't have that. I'm sure we can furnish that
17 to you.

18 EXAMINER STOGNER: Mr. Carr, just for the record,
19 I would like a list of that by operator and pools and
20 perhaps the number of wells. Your other witness may cover
21 the number of wells but --

22 DARRICK STALLINGS: I have an exhibit that covers
23 that.

24 EXAMINER STOGNER: Okay.

25 MR. CARR: Mr. Stogner, we will check that with

1 you following the hearing and be certain that if you would
2 like it, we can certainly provide that and --

3 Q. (By Examiner Stogner) Okay. Do you know what
4 number of acreage there is in each pool?

5 A. I believe that's in our Application.

6 Q. Okay.

7 A. I don't -- The Pecos Slope-Abo Pool has
8 approximately 199,000 acres, the West Pecos Slope has
9 approximately 92,480 acres, South Pecos Slope 73,440 acres.

10 EXAMINER STOGNER: I have no other questions of
11 this witness at this time. She may be excused.

12 MR. CARR: At this time I would call Mr. Darrick
13 Stallings.

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

17 DIRECT EXAMINATION

18 BY MR. CARR:

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

20 A. Darrick Stallings.

21 Q. And where do you reside?

22 A. In Artesia, New Mexico.

23 Q. By whom are you employed?

24 A. Yates Petroleum Corporation.

25 Q. And what is your current position with Yates

1 Petroleum Corporation?

2 A. I'm a petroleum engineer.

3 Q. Have you previously testified before the New
4 Mexico Oil Conservation Division?

5 A. Yes, sir.

6 Q. At the time of that prior testimony, were your
7 credentials as a petroleum engineer accepted and made a
8 matter of record?

9 A. Yes, they were.

10 Q. Are you familiar with the applications filed on
11 behalf of Yates Petroleum Corporation for the initial
12 infill pilot project in the Pecos Slope-Abo Gas Pool?

13 A. Yes, I am.

14 Q. Are you also familiar with the Applications that
15 have been filed on behalf of Yates, seeking the
16 establishment of special pool rules for the West Pecos
17 Slope-Abo Gas Pool and the South Pecos Slope-Abo Gas Pool?

18 A. Yes.

19 Q. Mr. Stallings, are you actually the person at
20 Yates Petroleum Corporation who's primarily responsible for
21 this infill pilot project in the Abo formation?

22 A. Yes.

23 Q. And are you prepared to report the results of
24 this pilot project to the Oil Conservation Division as
25 required by Division Orders R-9976 and R-9976-A?

1 A. Yes.

2 MR. CARR: Are the witness's qualifications
3 acceptable?

4 EXAMINER STOGNER: Any objection?

5 MR. KELLAHIN: No objection.

6 EXAMINER STOGNER: So qualified.

7 Q. (By Mr. Carr) I think initially, Mr. Stallings,
8 if you would, it would be helpful if you could briefly
9 summarize the purpose of your testimony here today.

10 A. We're here to report on our findings from the
11 infill drilling pilot project in the Pecos Slope-Abo Gas
12 Pool and to recommend that the field rules be amended to
13 permit an optional second well on each 160-acre spacing
14 unit.

15 We recommend that these special pool rules apply
16 to the Pecos Slope-Abo Pool, as well as the South Pecos
17 Slope-Abo Pool and the West Pecos Slope-Abo Pool.

18 Q. Why are you here reporting at this particular
19 time?

20 A. We received approval for the infill drilling
21 pilot project in September of 1993, and as part of that
22 approval we were required to report back to the Oil
23 Conservation Division in two years to report our findings
24 for the pilot and to make any recommendations concerning
25 amendments to field rules, and so we're here at this time

1 to fulfill that requirement.

2 Q. At the August, 1993, hearing, Yates advised the
3 Division that it expected to gather additional geological
4 data on the pilot project area. Initially, would you
5 describe for Mr. Stogner the general nature of the Abo
6 formation in this area?

7 A. The Abo in this area produces from sandstones.
8 They are channel fill deposits and point bar deposits.
9 Generally in the field area, they have a northwesterly to
10 southwesterly trending direction, although individual
11 channels are highly tortuous and results of meandering
12 streams, we suspect.

13 And so what comprises the pool is actually
14 several if not hundreds of individual channels which act as
15 individual reservoirs. They have limited lateral extent.
16 They're generally less than a mile wide. They are
17 vertically separated, encased in shales. In a given
18 wellbore we may encounter several of these sands vertically
19 stacked on top of each other.

20 And we complete the wells out there, all the
21 zones together, and produce as one reservoir, but there
22 actually can be multiple reservoirs in a given well.

23 Q. And what we basically have are individual
24 packages, sand packages, within the formation, and these
25 are highly variable in their lateral extent; isn't that

1 fair to say?

2 A. That's true. Another key characteristic that I
3 forgot to mention is, these are tight gas sands. The
4 average permeability is variable because there are so many
5 individual packages, but the average permeability is about
6 .05 millidarcies, average porosity is about 13 percent.

7 Q. Let's go back to Exhibit Number 3 that Ms.
8 Mauritsen introduced a few minutes ago, and I would ask you
9 to refer to this and generally describe the Pecos Slope
10 area, talking about the field boundaries and the number of
11 square miles and acres involved.

12 A. The area within the pools, as shown here, is --
13 roughly covers about 600 square miles, or about 400,000
14 acres. I think those exact -- the exact acreage was in our
15 Applications.

16 There have been almost 1100 wells drilled to the
17 Abo in this area since development began in 1980. Of those
18 almost 1100 wells, almost 1000 of them have been completed
19 as Abo gas wells, and almost 900 of those are still
20 producing Abo gas wells. Cumulative production from the
21 Abo here is about 340 BCF.

22 Q. Ms. Mauritsen mentioned the approvals that Yates
23 has obtained from the Division for this pilot project.
24 Looking at Exhibit Number 3, could you describe the initial
25 efforts of Yates to test this area for infill development?

1 A. Yes, the Oil Conservation Division approved a
2 six-well infill drilling pilot in September of 1993. Those
3 six wells are located in Township 6 South, 25 East. That's
4 kind of in the upper left-hand corner of the red outline on
5 this map. The six wells are highlighted as red gas-well
6 symbols, and the well name is spotted there by the well.

7 We picked this area for our initial study of the
8 feasibility of infill drilling for a couple of main
9 reasons. One was, this was one of the best producing areas
10 in the field. Another reason is that Yates Petroleum has a
11 strong acreage position in this township.

12 And we drilled those wells, those six wells, in
13 November and December of 1993. We've come to refer to
14 those wells as Phase I pilot wells, and I may use that
15 terminology again because there was a second phase to the
16 project. But we drilled those Phase I wells at the end of
17 1993.

18 And the results -- We were encouraged by the
19 results. We had mixed results, not all successes, but we
20 did encounter gas reserves that we feel were not going to
21 be drained by the existing wells.

22 Q. Now, Mr. Stallings, those were located in One
23 township. Were these initial wells, in your opinion,
24 typical of the Abo formation through the area which is the
25 subject of today's hearing?

1 A. Well, we couldn't be sure because, like I said,
2 this is one of the best producing areas in the field, and
3 we -- one township in a field that encompasses several
4 townships -- we weren't sure if it was representative of
5 the field as a whole.

6 And -- combined with the fact that we had mixed
7 success in those six wells -- we came back to the OCD in
8 April of 1994 and requested an expansion of that original
9 pilot project to include permission to drill 20 additional
10 wells in four additional townships, in order to get more
11 data over a wider, more representative area of the field.
12 Those four townships are the remaining four townships that
13 are shown inside the red outline on this map.

14 Those 20 wells are the 20 red symbols that fall
15 inside the red boundaries, but outside of Township 6 South,
16 25 East.

17 We received approval for the expansion of the
18 project, and beginning in March of 1994, through April --
19 through March, excuse me, of this year, we drilled nine
20 additional infill wells that we will refer to as the Phase
21 II infill wells.

22 Q. And that drilling took place when? August of --

23 A. August of 1994 to March of 1995.

24 Q. Okay.

25 A. And then in March of 1995 our management made the

1 decision to defer further drilling in the Abo gas field
2 until the gas market and the gas price improves.

3 Q. Now, when your management decided to defer
4 drilling, at that time you still had approval to drill
5 certain wells, did you not?

6 A. Yes.

7 Q. And how did you go about selecting those wells at
8 that time?

9 A. We had actually drilled about five of the Phase
10 II wells when our management said that we would not drill
11 all 20. At that time we changed the order of our drilling
12 and changed which wells we were going to drill next so that
13 the wells that we ended up with drilled and get data from
14 would cover a representative area within the pilot area.

15 So we drilled to date 15 infill pilot wells, six
16 from the Phase I, which are in 6 South, 25 East, and nine
17 wells in the other four townships.

18 I'd like to review today the results of the --
19 and the data that we gathered from those 15 wells, and we
20 feel that this data will show that infill drilling can
21 result and will result in significant additional gas
22 recovery in the Pecos Slope-Abo.

23 Q. Is it also your opinion that infill drilling
24 would result in significant additional recovery from the
25 West and South Pecos Slope-Abo Gas Pools?

1 A. Yes, we feel that the results from this pilot can
2 be extrapolated to those other pools as well.

3 Q. And why do you recommend that allowing infill
4 drilling in the South Pecos Slope-Abo Gas Pool and the West
5 Pecos Slope-Abo Gas Pool will be appropriate and efficient
6 and just be confined to Pecos Slope?

7 A. Well, they're all the same formation, all three
8 pools have the same depositional environment.

9 Specifically referring to the South Pecos Slope,
10 there's no -- It's contiguous with the Pecos Slope Pool,
11 there's no geological boundaries, no geological evidence
12 that I'm aware of, to separate these pools. It's just a
13 southern extension of some of the channel sands that exist
14 up in the Pecos Slope Pool.

15 As far as the West Pecos Slope, that pool lies
16 about five miles to the west of the Pecos Slope-Abo.
17 However, the channel sands that we see in West Pecos Slope
18 look the same as the pay zones that we see over in the
19 Pecos Slope. There's just an area between the two fields
20 of poor sand development. I think that they're equivalent
21 depositionally.

22 And the main difference between those two pools
23 is that the West Pecos Slope wells in general are poorer
24 wells, and that would indicate to me that the drainage area
25 for those wells is less than Pecos Slope wells.

1 And so if 160 acres is not adequate, which I
2 think I'll be able to show, for wells in the Pecos Slope-
3 Abo, then it's certainly not adequate in the West Pecos
4 Slope-Abo to recover the remaining gas reserves.

5 Q. If we look at the average cumulative production
6 in the Pecos Slope-Abo and compare that to West Pecos
7 Slope, what kind of a comparison, generally, can you make?

8 A. The average of all the wells completed in the
9 Pecos Slope-Abo and the South Pecos Slope-Abo, average
10 cumulative production to date, 430 million cubic feet.

11 By comparison, average cumulative production from
12 the average West Pecos Slope well is 140 million cubic
13 feet.

14 Q. And this would confirm a smaller drainage area in
15 West Pecos Slope?

16 A. That's what it indicates to me, yes, sir.

17 Q. Okay. Let's turn to the pilot project
18 specifically. What did Yates set out to learn with this
19 pilot project?

20 A. Early in 1993, we began a reservoir study to
21 determine whether we were going to recover all of the gas
22 reserves from our properties at Pecos Slope-Abo with our
23 existing wells.

24 As part of that study, we developed geological
25 and engineering tools that in fact showed us some places

1 where the existing wells were apparently not going to
2 recover all the existing gas reserves. These tools
3 indicated that a second well was needed on some spacing
4 units in order to maximize economic gas recovery.

5 It was with that information that we proposed
6 this pilot project. The pilot project had two goals
7 primarily in mind.

8 The first was to determine if in fact there were
9 significant incremental gas reserves that were not being
10 drained by the existing wells on 160-acre spacing.

11 Our second objective was to see if our
12 engineering and geological tools were adequate to predict
13 where we could drill economic infill wells to recover these
14 reserves.

15 Each of the infill prospects had to meet three
16 criteria, and those were: We had to -- We expect to
17 encounter good sand thickness, based on our isopach maps;
18 they had to be in an area and on trend with good cumulative
19 production from existing wells; and they had to fall far
20 enough away from existing wells to be outside the drainage
21 area and not be depleted by the existing wells.

22 Q. Could you generally describe the geological and
23 engineering tools that you've been referring to?

24 A. We had isopach maps and cross-sections which
25 indicated to us where we could expect to encounter good

1 sand thickness.

2 We had isocum maps, based on -- showing us where
3 the best cumulative production from the existing wells was,
4 which we used to indicate sweet spots in the reservoir,
5 highly productive areas of the field.

6 We also had a drainage map that we showed in the
7 form of a circle map that showed the calculated drainage
8 areas around all of the existing wells, and thereby show
9 areas that were apparently undrained.

10 Those maps were all discussed in some detail at
11 the two hearings that we've had on this pilot, and the
12 copies of those maps were entered into evidence.

13 Q. What geologic data did you gather from the pilot,
14 and what specifically did you learn geologically from the
15 pilot project?

16 A. The data that we gathered primarily was log data.
17 We ran a standard suite of density neutron logs and dual
18 lateral logs in each of the wells that we drilled. That
19 shows us the sand thickness and the location of the sands
20 that we encountered in each well.

21 We used that data to go back and revise our
22 geological maps and therefore get a better picture of what
23 the reservoir looks like.

24 Q. So you were able, with this data, to compare the
25 actual thickness to what you had been predicting, and based

1 on that, maps were revised?

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

3 Q. Let's go to what has been marked Yates Petroleum
4 Corporation Exhibit Number 6, an isopach map. This is in
5 zone A, and it's limited to Township 6 South, 25 East, and
6 I'd ask you to take that exhibit and review that for the
7 Examiner.

8 A. All right. As I said earlier, the Abo pay in
9 this field consists of channel sands and point bar sand
10 deposits. There can be several of those, and they're of
11 varying areal extent, so that it's -- we have not been
12 successful in mapping individual sand channels.

13 The way we've historically mapped in the area and
14 the way that we've mapped on the maps presented here is, we
15 break the entire Abo section into three zones and group the
16 channels that fall into those zones and consider it one
17 package for mapping purposes.

18 This first map is an isopach map of the top zone,
19 the A zone pay sand, on Township 6-25. This is the map
20 that we presented in the original hearing and that we used
21 to justify to ourselves that we would encounter good sand
22 thickness in proposed wells. However, it has been updated
23 with the data from the six wells. The six wells are
24 supposed to be shown as bold red gas symbols.

25 I need to make a couple of drafting corrections.

1 On all three of these maps, for 6-25, this
2 Exhibit and the following two, I have two corrections. In
3 Section 1, up in the northeast corner of the map, the red
4 gas well symbol located in Unit A of Section 1 is not the
5 pilot well. The pilot infill well is the well located in
6 Unit D. That's a -- we just -- The numbers, the pay sand
7 thickness, is right. We just highlighted the wrong well.
8 That happened on all three of these maps.

9 Q. Would that pay thickness be 20 feet? Is that
10 what you --

11 A. No, the pay thickness in the infill well, which
12 is located in Unit D, is nine feet. The contouring is
13 correct. We just highlighted the wrong well.

14 There's another case where we made the same
15 mistake. The well in Section 12, one section below where
16 we just were, highlighted as a red gas well symbol is not
17 the infill well. The infill well is located in Section 11,
18 in Unit I, or in the northeast of the southeast of Section
19 11. That correction needs to be made on all three maps,
20 please. I apologize for the mistake.

21 Q. And what is the thickness at that well?

22 A. The thickness on the A sand is five feet --

23 Q. Okay.

24 A. -- of the pilot well.

25 EXAMINER STOGNER: Are those the only

1 corrections?

2 THE WITNESS: Yes. Yeah, those are the only
3 corrections that --

4 EXAMINER STOGNER: Before we move on, Mr. Carr,
5 let's see, refer down to Section 26 and refer to the big
6 map --

7 THE WITNESS: Yes, sir.

8 EXAMINER STOGNER: -- on 3, and then these maps,
9 the highlighted ones. I believe there's a discrepancy
10 there.

11 THE WITNESS: You're right, those are not the
12 only corrections. The big map is correct.

13 EXAMINER STOGNER: The big map is correct?

14 THE WITNESS: Yes, sir.

15 EXAMINER STOGNER: Okay.

16 THE WITNESS: In Section 26, the infill well is
17 located in Unit B, and its thickness in the A zone is 28
18 feet.

19 MR. KELLAHIN: Point of clarification. Is the
20 well that's incorrectly marked in red -- is that an
21 existing well, or do we remove any reference to a well at
22 that wrong location?

23 THE WITNESS: It is the existing well on that
24 spacing unit.

25 MR. KELLAHIN: So the original --

1 THE WITNESS: There is a well there, we just
2 highlighted the wrong well.

3 MR. KELLAHIN: I got you.

4 EXAMINER STOGNER: While we were on that, Mr.
5 Carr, I just wanted to bring that out, so...

6 THE WITNESS: What we learned from these wells,
7 geologically speaking, is that even on less than 160-acre
8 spacing, these sands are very hard to predict. Channel
9 sands are tortuous enough that there's going to be
10 significant risk in drilling even infill wells in this
11 field.

12 In general, we encountered less pay thickness
13 than we predicted. However, in almost every case we
14 encountered -- in every case except one in this township,
15 we encountered enough sand thickness that the well is going
16 to be -- is considered a success geologically.

17 The lone exception to that is the pilot well in
18 Section 11. It's called the Cleo "ANC" Number 1. That
19 well encountered much less sand than was predicted and will
20 not pay out.

21 Q. (By Mr. Carr) Now, we've looked at Exhibit
22 Number 6. That's the A sand. We've got exhibits for both
23 the B sand and the C sand?

24 A. Yes, sir, and those are -- those go from -- The A
25 sand is the shallowest, and the B sand is next, and the C

1 sand is the deepest group of sands. They all provide the
2 same information.

3 Q. And in your initial mapping of the Phase I area,
4 you divided the formation into these three sand groups; is
5 that correct?

6 A. That's correct. And this is just an updated
7 version of those original maps.

8 Q. Okay, let's go to what has been marked for
9 identification as Yates Exhibits 9 through 13. First,
10 explain what these are and how they differ from the three
11 isopach maps we've just examined.

12 A. Okay. Well, the similarity is that these also
13 are isopach maps. They are -- They cover the Phase II area
14 of the pilot. You can see there that Township 6 South, 25
15 East, has been omitted from these maps.

16 From the time that we mapped and drilled the
17 wells in 6 South, 25 East, we decided to change our mapping
18 philosophy slightly. We divided the reservoir into five
19 zones, rather than three. And so that's why there's five
20 maps here. Rather than having three zones, we have five
21 zones in the Phase II area of the pilot, designated from
22 top to bottom, the A zone, the B zone, C zone, C lower, and
23 the D zone.

24 Q. Now, by going to a -- or dividing the Abo into
25 more intervals, what did you hope to achieve?

1 A. We felt like that that would allow us to more
2 accurately predict the sand thickness at a given location.

3 Q. And so if we look at these five exhibits, 9
4 through 13, we have the isopachs on each of the five
5 intervals in the Phase II area?

6 A. Yes, sir, and these are the same maps, again,
7 that we presented in the August, 1994, hearing, but -- and
8 they've been updated with data from the wells that have
9 been drilled.

10 Q. And basically what did they show you, just in
11 summary?

12 A. Well, the results of the Phase II wells
13 geologically are very similar to the Phase I wells. It's
14 still very difficult to map these channel sands accurately
15 and to accurately predict where you're going to find good
16 sand thickness.

17 In fact, of the nine Phase II wells that we
18 drilled, two were dryholes, encountered inadequate sand
19 thickness to even attempt a completion.

20 Q. Let's take a look at those two dryholes.

21 A. The first one is located in Section 5 of 6 South,
22 26 East, and it's designated by a red dryhole or drilled-
23 and-abandoned symbol. This well, called the Spring Fed
24 Number 4, encountered only two feet of gas sand. Its
25 offsets in four directions have an average of 32 feet of

1 sand.

2 The second well that was drilled, that we drilled
3 and abandoned, is down towards -- it's down at the bottom
4 of the map, Section 27 of 7 South, 25 East, again
5 designated with a drilled-and-abandoned symbol. That well,
6 the Papalote "OI" State Number 5, encountered nine feet
7 poor gas sand, and its four offsets have an average of 51
8 feet of pay.

9 So again, we relearned, it's very hard to
10 accurately predict the sand thickness, even when drilling
11 on less than 160-acre spacing. I think the geological risk
12 is significant to infill drilling in this field.

13 We hope and intend that by continuing to upgrade
14 and refine our geological tools and mapping techniques,
15 that we'll be able to manage that risk and hopefully reduce
16 it.

17 Q. And the geological risk is just simply finding
18 adequate sand thickness in this reservoir at these
19 locations to make an economic well?

20 A. That's correct.

21 Q. Let's move to what has been marked for
22 identification as Yates Petroleum Corporation Exhibit
23 Number 14. Would you identify this first and then review
24 it for Mr. Stogner?

25 A. This is a table that I feel summarizes all the

1 pertinent engineering data that we've gathered from this
2 pilot project.

3 Let's go over what's included here. I won't go
4 over all the numbers.

5 Down the left-hand side of the page we have the
6 15 well names that have been drilled. They are grouped by
7 Phase I wells, which were the first six wells that were
8 drilled in 6 South, 25 East. I've then included some
9 averages of those six wells.

10 Below that are the Phase II wells, which were
11 drilled in the other four townships included in the pilot.

12 Across the top I show the well name; the location
13 of the well; the initial bottomhole pressure that we
14 measured from pressure-buildup tests upon initial
15 completion of that well; the bottomhole pressure of the
16 offsets, the average bottomhole pressure of the four
17 offsets, at the time that the infill well was drilled; the
18 initial rate of the infill well; and then we can compare
19 that to the offsets rate, current rate at the time that the
20 well was completed; and then my calculation of reserves
21 that we will recover from those infill wells and the
22 reserves that we have remaining to recover at the time the
23 well was drilled from the offsets.

24 I have maps. The following exhibits will be maps
25 that show a lot of this data posted by the wells in map

1 form, so I won't go over all of these numbers in detail
2 here.

3 I would like to point out that when we talk about
4 the pressure data, it helps to know that the original
5 virgin reservoir pressure in this field was 1125 p.s.i.

6 So if we go down to the bottom of the page and
7 just look at the total pilot averages, it says that of the
8 15 wells we drilled -- excluding the dryholes, we didn't
9 measure pressures in those -- the average pressure
10 encountered in the infill wells is 779 p.s.i.

11 At that time, the offsets had an average
12 bottomhole pressure of 269 p.s.i.

13 To me, that's the single most convincing piece of
14 data that says we are encountering new reserves that are
15 not being drained by the offset wells.

16 In addition, the average initial rate from the
17 new wells is 744 MCF per day. The offsets at that time
18 were producing an average of 87 MCF per day.

19 Now, that 744 includes zeroes from the two
20 drilled and abandoned wells. If you take out the dry wells
21 plus the uneconomic wells, which I'll point out, you end
22 up -- We drilled 10 successful wells. Those 10 wells had
23 an average initial rate of 1.1 million cubic feet per day.
24 And we estimate that those infill wells will recover an
25 average of 544 million cubic feet.

1 Let me just point out the wells that we consider
2 unsuccessful, and that's based on the economic criteria.
3 We just don't think those wells are going to pay out at
4 expected gas prices.

5 Up in Phase I there were two unsuccessful wells.

6 The Cleo "ANC" Number 1, that well encountered
7 inadequate sand thickness to produce at economic rates.

8 The Hobbs Fed Number 3 in Phase I, we consider
9 uneconomic primarily because we drilled into a depleted
10 part of the reservoir.

11 And then down in Phase II, the Spring Fed Number
12 4, I already mentioned, was a dryhole because of poor sand
13 development, as was the Papalote "OI" Number 5.

14 And then the fifth unsuccessful well is the
15 Paulette "PV" State Number 5. We completed that as a gas
16 well, but you can see there the initial rate was about 100
17 MCF per day, and we don't expect that to extrapolate out to
18 economic reserves.

19 Q. Are you ready to go now to the individual maps?

20 A. Yes.

21 Q. Let's go to what has been marked for
22 identification as Yates Petroleum Corporation Exhibits 15
23 through 17. And have you given the general background that
24 you feel is necessary to the individual maps?

25 A. Let me just state, the way these maps are

1 constructed, the base maps underlying the data here for the
2 next three exhibits are all the same. This is a -- First
3 of all, this is a blow-up of the pilot area, the red
4 outline.

5 What I've shown here are the 20 pilot wells that
6 were -- the 26 pilot wells that were approved. Around the
7 wells that we've actually drilled, the 15 wells that have
8 been drilled, I've colored in the spacing unit in purple.
9 And the four nearest offsets to the infill well I've
10 colored in green, and I'll be referring to some numbers
11 from those wells.

12 That's the general construction of all three
13 maps.

14 Q. All right. Let's go to Exhibit Number 15. This
15 is your pressure data map --

16 A. Okay.

17 Q. -- and I would ask you to review the information
18 on this exhibit for the Examiner.

19 A. This is the pressure data posted by each well.
20 The red number is the bottomhole pressure we measured
21 initially in the infill well. The green number is the
22 average bottomhole pressure in the four offset wells at the
23 time that the new pilot well was drilled. These numbers
24 are the same as the numbers on the table that we just
25 discussed.

1 I'd like -- I won't go through all those numbers
2 but I would like to point out a couple of cases that I
3 think typifies what we found out here.

4 Q. And these are the numbers that need to be
5 reviewed in the context of a virgin reservoir pressure of
6 1125?

7 A. That's right.

8 Q. Okay.

9 A. That's right. Twelve of the wells, 12 of the 15
10 wells, encountered what I consider significantly higher
11 reservoir pressure than is found in the offset wells.
12 However, none of those wells encountered virgin reservoir
13 pressure of 1125. This indicates to me that there is some
14 partial communication between the new well and the pre-
15 existing wells. I think this is explained by the geology
16 in the field.

17 Again, these are stacked pay sands, individual
18 reservoirs, if you will. However, we'd perforate and
19 complete those zones all together in these new wells. Some
20 of those pay sands that were completed are present in
21 offset wells, and some aren't.

22 I think that the zones that are not in offset
23 wells have higher pressure than what we measured, possibly
24 even virgin pressure. The zones that are in good
25 communication or that exist in offset wells have lower

1 pressure that what we measured.

2 So what we're measuring is one pressure of
3 several reservoirs, some aggregate of each of those.

4 Q. It's not possible to go down and get the
5 individual sand stringers and provide pressure information
6 on each of those?

7 A. Not with the way we complete the wells, that's
8 not available.

9 Q. Now, do you want to go over this data
10 individually, or do you want to do it in summary fashion?

11 A. I'd like to just point out a couple of examples
12 of what we found.

13 The first example is down in Section 22 of 7
14 South, 25 East. Referring to the bottomhole pressure data
15 there, the Thorpe "MI" Fed Number 15, we measured
16 bottomhole pressure of 1089 p.s.i. At the time that was
17 measured, those four offsets to that well, which are shown
18 as green gas-well symbols, had an average bottomhole
19 pressure of 189 p.s.i. We feel that the fact that this
20 well encountered near virgin reservoir pressure when its
21 offsets were at less than 200 p.s.i. indicates that this
22 well will recover incremental gas reserves.

23 On the other extreme, the other example I can
24 point out is up in Township 6 South, 25 East, Section 8,
25 the Hobbs Fed Number 3. That had reservoir pressure of 479

1 p.s.i. The offsets at that time had pressure of 249, on
2 the average. We don't think this well is ever going to pay
3 out, and we feel like it was unsuc- -- now, it encountered
4 adequate sand thickness, similar sand thickness to the
5 offset wells, but it encountered reservoir in such a
6 depleted state that I don't think it's ever going to
7 produce enough gas to pay out.

8 And this is an indication of the drainage risk or
9 the depletion risk, which is the second big risk in
10 drilling wells out here, next to the geological risk of
11 finding sand.

12 Q. Doesn't this also tell you that it would be
13 uneconomic in this field to drill a second well on each
14 proration unit in the field --

15 A. I think that --

16 Q. -- or spacing unit?

17 A. I think that would be uneconomic, to do that.

18 Just in summary, on the average out here, the
19 wells that we drilled encountered almost 800 p.s.i. at the
20 time that their offsets averaged less than 300 p.s.i., and
21 again I think that that pressure data is the strongest
22 evidence that we have that these wells are encountering new
23 gas reserves that were not being effectively drained by the
24 existing wells.

25 Q. Let's go now to Exhibit Number 16. That contains

1 the production rate.

2 A. Okay. This map is constructed very similar to
3 the previous one. The only difference is, on this map
4 we've posted in red numbers the initial production rate in
5 MCF per day of the infill pilot well. In green we have
6 posted the average current production rate of the four
7 offset wells at the time that the pilot well was completed.

8 I think that the data here is consistent with the
9 bottomhole pressure data in that wells that produced at
10 rates much higher than the offsets -- it tells me that they
11 encountered new reserves, whereas wells that produced at
12 rates similar to the offsets encountered reservoir that was
13 already in communication with the existing wells.

14 I would like to point out just a couple of -- the
15 same two examples of the wells that we talked about
16 previously, down again in Section 22 of 7-25.

17 The Thorpe Number 15, that well initially tested
18 for 1.3 million cubic feet per day. At that time, those
19 four offsets noted there in green were producing an average
20 of 70 MCF per day.

21 On the other end of the spectrum, again, is the
22 Hobbs Fed Number 3, up in Section Number 8 of 6 South, 25
23 East. That well produced a maximum rate of 100 MCF per day
24 at the time that its offsets were producing about 70 MCF
25 per day. Again, consistent with the bottomhole pressure

1 data we interpret that to be in that well, is encountering
2 practically no new reserves.

3 Q. On the contrary, however, the Thorpe "MI" Federal
4 15 would be an example of a well that was able to recover
5 reserves that otherwise were not going to be produced?

6 A. Yeah, I think that's correct. I think the
7 reserves that will be produced will be incremental reserves
8 that would not have been recovered otherwise.

9 Q. Okay. On an average, what do you see when you
10 look at these production figures?

11 A. Well, I mentioned on the table -- It's shown on
12 the table, but on the average, the infill wells can be
13 producing 750 MCF per day, approximately.

14 The surrounding wells have been on line for, in
15 general, 15 years in this field. They're down to less than
16 100 MCF per day.

17 This indicates to me that the new wells are
18 producing gas that was not going to be produced by the
19 offset wells.

20 Q. All right, Mr. Stallings, let's go to Exhibit
21 Number 17 and review the data shown on that exhibit.

22 A. Posted on the same base map, the -- our
23 calculated total reserves from the infill wells in red, and
24 the remaining reserves, the average remaining reserves of
25 the four offset wells, in green numbers.

1 These reserves were calculated using decline-
2 curve analysis. And the average -- Again, the average
3 infill well will recover 544 million cubic feet of gas.
4 That's based on all 15 wells. The 10 successful wells will
5 recover almost 800 million cubic feet of gas, compared to
6 the average remaining reserves in the offsets of less than
7 200 million cubic feet.

8 Q. Could you generally summarize the results of the
9 pilot project for Mr. Stogner?

10 A. Over the last two years, Yates Petroleum
11 Corporation has spent about \$4.5 million to drill 15 infill
12 wells covering a five-township area in the Pecos Slope-Abo
13 Gas Pool. We feel these 15 wells cover a broad enough area
14 to be representative of the entire field.

15 As I mentioned earlier, ten of those wells were
16 successful. Each of -- And by that, we feel that each of
17 those wells will recover enough new gas reserves to be
18 profitable.

19 Five of the wells we drilled are unsuccessful,
20 either because they did not encounter adequate pay sand
21 thickness or because they didn't encounter adequate
22 reservoir pressure.

23 Overall, the 15 wells, we expect to recover about
24 8 BCF of gas reserves, which would have been left in the
25 ground if these wells had not been drilled.

1 I think that with that pilot we've shown that
2 there are significant gas reserves remaining in the field
3 which will not be recovered by the existing wells. We've
4 shown that there's risk associated with drilling these
5 reserves but that if you pick your spots carefully you can
6 drill for these remaining gas reserves profitably.

7 I don't think we're going to be able to overcome
8 the inherent risks completely, at least not with the tools
9 that we've developed to date.

10 In the pilot project, one-third of our wells were
11 dry or uneconomic. This seems like an awfully high
12 percentage for an infill drilling program to me, but we
13 think that with continued emphasis and concentration on our
14 good engineering and good geology, we can reduce those
15 numbers of uneconomic wells and hopefully improve the
16 profitability of infill drilling out here beyond what we've
17 seen so far.

18 Q. What do you think the ultimate potential is for a
19 fieldwide infill drilling in each of the pools in the
20 hearing today?

21 A. In the total area, we've estimated that on
22 Yates's acreage, there could be as many as 200 spacing
23 units, which could benefit from a second well.

24 I think the average reserves that we'll recover
25 from those 200 wells is about 500 million cubic feet per

1 well. So the potential to Yates is about 100 BCF of gas
2 reserves.

3 Q. These are reserves that would, in fact, otherwise
4 not be recovered from these pools?

5 A. That's correct.

6 Q. And what is your recommendation to the Division?

7 A. We recommend that special pool rules be adopted
8 authorizing the optional second well on each spacing unit n
9 the Pecos Slope-Abo Gas Pool, the West Pecos Slope-Abo Gas
10 Pool and the South Pecos Slope-Abo Gas Pool.

11 Q. Is there any potential in this area for
12 development uphole, above the Abo?

13 A. There is some San Andres production within these
14 field boundaries. It's scattered and marginal, but it's
15 always -- there is some potential there.

16 Q. Are you making any recommendation concerning any
17 change in the well-location requirements for these infill
18 wells?

19 A. No, we recommend that the 660 feet from the
20 spacing unit boundary be maintained.

21 Q. Mr. Stallings, is there a potential, if this
22 proposal is approved by the Division, for one spacing unit
23 with one well on it to be offset by another spacing unit or
24 multiple spacing units, where there is more than one well?

25 A. Yes.

1 Q. And why would that occur?

2 A. I think the geology would dictate that. You can
3 tell from the isopach maps that we've looked at that there
4 very well could be a good economic channel sand in one
5 spacing unit, and a neighboring spacing unit might be --
6 have no sand. We found that out with the dryholes we
7 drilled.

8 Q. And this variation in the development pattern
9 could be a necessary result of just the geological
10 characteristics of the reservoir; is that not right?

11 A. That's correct.

12 Q. In your opinion, will correlative rights be
13 protected if this proposal is in fact adopted?

14 A. Yes.

15 Q. Will it, in your opinion, result in uncompensated
16 drainage that cannot be offset -- offset development?

17 A. No, I mean, by allowing any spacing to drill an
18 optional well, that allows you to put a well on any spacing
19 unit that you want, if the engineering and geology can
20 dictate that it would be profitable.

21 Q. If in fact these Applications are approved, will
22 that provide an opportunity to operators in the pool to
23 effectively produce the reserves under their own tracts?

24 A. Yes.

25 Q. If it's approved, will unnecessary drilling

1 result?

2 A. I think that if it's approved, necessary drilling
3 will result. I think that waste would occur without the
4 ability to drill infill wells in this pool.

5 Q. Is the implementation of prorationing in this
6 pool necessary if, in fact, correlative rights are to be
7 protected?

8 A. I don't think prorationing is necessary here.
9 I'm not a proration expert, but it's my understanding that
10 prorationing is appropriate when there is a market
11 constraint or a pipeline constraint whereby all the
12 producers in a given area can't sell all the gas capacity
13 that's available. To my knowledge, there's pipeline
14 capacity and markets to sell all the gas that can be
15 produced in this area, if you're willing to sell it for the
16 going price.

17 Q. If producing allowables are set for spacing units
18 in this field, would that have the tendency or the
19 potential for defeating what you're seeking here with an
20 infill drilling program?

21 A. I think it could harm the economics to the point
22 that it might not be economic to drill wells. I think we
23 have to be able to produce these wells at their maximum
24 capacity to realize an adequate return on our investment.

25 Q. Aren't you really talking about rules that in

1 fact will honor the geology and the engineering data on
2 this reservoir?

3 A. I think by allowing a second -- optional second
4 well, that's correct, you'd let the technical data dictate
5 whether and where you place the second well.

6 Q. And in effect, what you're doing is permitting or
7 giving an operator an opportunity to produce his share of
8 the reserves if in fact he has, because of the complicated
9 nature of this reservoir, more in the way of reserves under
10 his tract than may be under an offsetting tract?

11 A. Yes, sir.

12 Q. In your opinion, should these rules be adopted on
13 a permanent basis?

14 A. That's our recommendation, yes.

15 Q. Are you prepared to make any recommendation to
16 the Commission concerning any kind of numbering system that
17 ought to be employed to designate infill wells within these
18 pools?

19 A. Yes, I understand that there is a system in place
20 in some San Juan Basin fields whereby you place a letter
21 designation -- an E, maybe -- at the end of the well name,
22 the well number, to designate it as an infill well. I
23 think that would be appropriate here.

24 Q. In your opinion, will approval of these
25 Applications and the establishment of special pool rules

1 for the Pecos Slope-Abo Gas Pool, the South Pecos Slope-Abo
2 Gas Pool and the West Pecos Slope-Abo Gas Pool that would
3 permit the drilling of an optional infill well -- would
4 those rules be in the best interest of conservation, the
5 prevention of waste and the protection of correlative
6 rights?

7 A. Yes.

8 Q. Were Exhibits 6 through 17 either prepared by
9 you, or have you reviewed these exhibits and can you
10 testify to their accuracy?

11 A. Yes.

12 MR. CARR: At this time, Mr. Stogner, we would
13 move the admission into evidence of Yates Petroleum
14 Corporation Exhibits 6 through 17.

15 EXAMINER STOGNER: Any objections?

16 MR. KELLAHIN: No objection.

17 EXAMINER STOGNER: Exhibits 6 through 17 will be
18 admitted into evidence at this time.

19 MR. CARR: And that concludes my examination of
20 Mr. Stallings.

21 EXAMINER STOGNER: Thank you, Mr. Carr.

22 It looks like it's 11:30. I think now would be a
23 good time to take a lunch break.

24 Let's reconvene at 12:45.

25 (Thereupon, a recess was taken at 11:27 a.m.)

1 (The following proceedings had at 12:45 p.m.)

2 EXAMINER STOGNER: Hearing will come to order.

3 Are you ready for cross-examination of your
4 second witness, Mr. Carr?

5 MR. CARR: Yes, sir.

6 MR. KELLAHIN: All right, sir. Are you ready,
7 Mr. Stogner?

8 EXAMINER STOGNER: Yes.

9 CROSS-EXAMINATION

10 BY MR. KELLAHIN:

11 Q. Mr. Stallings, if you'll pull out Exhibit Number
12 15, let me ask you some questions about your analysis of
13 the pressure data.

14 A. All right.

15 Q. Let's just take one of these as an example.
16 Let's look at the Catterson Federal over in 7 South, 26
17 East. The top number in red is the initial bottomhole
18 pressure?

19 A. Yes, measured in the new well.

20 Q. Okay. And how is that test taken?

21 A. In all of these wells, we measure that by running
22 a five-day pressure buildup test after the well is
23 completed and flowed back and stabilized at a stabilized
24 rate, then we shut the well in and measure pressure buildup
25 for five days, and then we analyze that pressure buildup

1 test with transient analysis to come up with an average
2 reservoir pressure.

3 Q. At what point in the life of completing the well
4 and getting it ready to produce do you take the test?

5 A. The sequence of events is, we perforate the well,
6 hydraulically fracture the well, establish flow from the
7 well and recover as much of the frac fluids as we can,
8 establish a stabilized gas production rate. It may take a
9 week of flow testing, and then we'll shut the well in as
10 the final step in the completion. And then after the
11 pressure buildup test is run, we put the well -- we're able
12 to put the well on production down the line.

13 Q. When we look at the distribution of the
14 bottomhole pressure information on the map, there appears
15 to be a range of pressure differences; is that not true?

16 A. That's true.

17 Q. Is part of the explanation to the change in
18 pressure as you move from area to area explained by the
19 proximity of the infill well to existing wells?

20 A. Yes.

21 Q. So when you look at the Catterson well, the fact
22 that its initial bottomhole pressure is 438 is going to be
23 reflective of the fact that the existing wells that you've
24 averaged -- which are the four, apparently, that are shaded
25 in green? Am I understanding this right?

1 A. Yes.

2 Q. That average, then, is simply the relationship of
3 the effect of the original wells on the infill well.

4 A. Right.

5 Q. Is part of this pressure differential in the
6 reservoir explained by the low permeability of the
7 reservoir?

8 A. I don't know that -- I don't attribute a large
9 part of it, but I guess a part of it, I would say a small
10 part of it, is due to the low permeability in the
11 reservoir.

12 Q. When we're looking at the concept of infill
13 drilling, as I understand it, there's two possible
14 analyses. One is to contend geologically that the
15 reservoir is separated into multiple stringers of short
16 lateral extent, and thereby you need additional wellbores,
17 because those sands don't go very far, all right?

18 A. (Nods)

19 Q. Is that what you were talking about when you were
20 talking about a geologically justified well? I'm not sure
21 I remember the phrasing exactly. A geologic success is
22 what you said?

23 A. Well, the way we define geologic success was,
24 there was good sand thickness encountered in that wellbore,
25 whether or not it was apparently present in the offset

1 wells.

2 Q. Let me ask you the question, then. Do you see,
3 based upon your analysis, the predicate for infill being
4 based upon the fact that the infill well is going to
5 encounter new sands?

6 A. Partially, yes.

7 Q. That's not the driving factor, apparently,
8 though, is it?

9 A. We really didn't -- That was not one of our
10 objectives --

11 Q. Okay.

12 A. -- was to encounter this. And the reason was
13 because we had mapped this on an individual-sand basis.
14 It's complex enough that I think we find new sands
15 sometimes.

16 Q. Well, D'Nese Fly, when she did the first geologic
17 isopachs and had the three zones back in August and
18 September of 1993, had subdivided it into A, B and C.

19 Later on when -- Leslie Bence, I think it was --

20 A. Yes.

21 Q. -- did it in May of 1994, she now has five
22 different packages for the pool. That's apparently what I
23 saw a while ago.

24 A. (Nods)

25 Q. When you look at that combination of package,

1 then, what is the minimum total thickness criteria by which
2 you're deciding to justify the infill wells?

3 A. There's not a hard and fast answer to that
4 question, and I'm not sure that those two geologists would
5 answer it this way.

6 I think -- general rule, very general rule -- you
7 need 20 feet, minimum. You try to drill for 30 feet,
8 minimum. If you get 20, then we would run pipe and test
9 that.

10 But the reason I say it's very general is because
11 you have to take into consideration how much sand thickness
12 in the offset wells locally, in that particular area --
13 what's the sand-thickness-to-production relationship? Some
14 areas of the field, thinner sands are more productive, and
15 in some areas of the field thicker sands are more
16 productive.

17 We didn't -- I don't have a table I can show you
18 that answer. It's just a case-by-case basis. We try to
19 take all of that into consideration.

20 Q. When we looked at 6 South, 25 East, which was, as
21 I understand it, one of the very best portions of the pool
22 for the first pilot project, first phase, what kind of
23 generalizations can you make about the thickness of the
24 sand package within that section?

25 A. What kind of generalizations can I make? That

1 it's variable even in that area of the field.

2 Q. Can you characterize the range of variation? Are
3 we dealing with hundreds of feet here?

4 A. We could add up the thicknesses in a given well
5 off of the isopach maps in that township to give you an
6 answer, and I guess that's the way I'd need to do, what I'd
7 need to do. I don't know.

8 Q. All right. Is that not what you --

9 A. It's not hundreds of feet. It's less than a
10 hundred feet, is the maximum sand thickness in a given
11 well.

12 Q. All right. When you did the volumetrics in
13 August of 1993, is that what you did, is, you counted up in
14 the individual wellbore the total thickness for the
15 volumetric calculation?

16 A. Yes.

17 Q. As part of that calculation of footage, was there
18 a porosity cutoff?

19 A. No, the way that we defined pay sand was with
20 density neutron log crossover. So there really was no
21 minimum for any crossover porosity we counted as pay.

22 Q. All right. So you didn't use a cutoff on
23 porosity?

24 A. There was no minimum porosity cutoff, no, sir.

25 Q. All right. When you move from 6 South, 25 East,

1 to a thicker portion in here, over to the West Pecos Slope,
2 there's a substantial reduction in the reservoir in terms
3 of thickness, is there not?

4 A. I wouldn't be surprised if that's true. I have
5 not studied West Pecos Slope in nearly the detail, but I've
6 studied the pilot area for this project.

7 Q. When you get to West Pecos Slope, do you know how
8 many of these sand packages can be identified? Can they
9 still be put in the five?

10 A. I don't know the answer to that.

11 Q. What was your basis for arguing for infill
12 drilling in the West Pecos Slope?

13 A. I feel like that depositional environment was the
14 same, that the sand channels look similar, from what I've
15 seen, to what we see in the main Pecos Slope, and that the
16 ultimate recovery per well is lower in the West Pecos Slope
17 than it is in the Main Pecos Slope, and therefore I am
18 assuming -- having not done the calculations, I'm assuming
19 that a portion of that is due to smaller drainage areas.

20 Q. Would it also not equally be as likely to be
21 attributable to the fact that the reservoir is
22 substantially thinner?

23 A. That's correct.

24 Q. And if that's true, then, infill well drilling in
25 West Pecos Slope may not yet be justified?

1 A. I couldn't justify it to my management without
2 doing a study of the area.

3 Q. And you don't yet have that --

4 A. I have not done that study. I think -- well,
5 yeah.

6 Q. When we look at the part that you have studied,
7 tell me, when I look at Exhibit 15, what I am seeing when
8 you identify in the offsetting wells to Catterson, for
9 example, in the green symbols, what you characterize to be
10 the average current bottomhole pressure.

11 Now, my question is, for each of those wells, are
12 you taking a current bottomhole pressure and then averaging
13 among the four? Is that what you did?

14 A. That's correct.

15 Q. What is the approximate date of the data of the
16 bottomhole pressure tests for those offset wells?

17 A. In the case of Township 6-25, I believe the date
18 was October of 1993. And the reason we had the opportunity
19 to gather that data was because the wells in the field had
20 been shut in -- I don't remember how long now -- many days,
21 if not over a month. And we felt like that we had reached
22 a stabilized bottomhole pressure, and so we were able to
23 use that as the estimate. These sands are tight enough
24 that it takes a long time to get -- for the pressure to
25 build up to a stabilized point. So it's in --

1 Q. I'm losing track here, Mr. Stallings.

2 A. Okay.

3 Q. I'm looking at the vintage of the bottomhole
4 pressure data. I think you've moved me into Township 6
5 South, 25 East?

6 A. Yeah, so the vintage of those bottomhole
7 pressures was approximately October of 1993.

8 Q. Okay. So the other wells, then, within Phase II,
9 the vintage of the offset bottomhole pressure test, in
10 relation to the infill well, has got an approximate time
11 period of what?

12 A. It does, and it must have been -- I don't recall.
13 February of 1994 rings a bell.

14 Again, it was a similar situation where, due to
15 low gas prices, we had shut in those wells just because we
16 weren't selling gas from the field at that time, and a side
17 effect of that was that it allowed us to go get pressure
18 data, after having had an extended shut-in period.

19 Q. How confident are you of the reliability of that
20 shut-in pressure data for the offset wells?

21 A. We're very confident in it.

22 Q. You looked at that stuff; is it influenced by
23 fluid volumes or anything in the well, any kind of issue
24 with regards to that point?

25 A. We don't -- These wells, dry gas producers, we

1 don't see any fluid, as a general rule, there's no liquid
2 column in those wells.

3 Q. Let me go back to my first questions, then. When
4 we look at Catterson, it appears that the infill Catterson
5 well's bottomhole pressure is explained because of the
6 proximity of the existing offset wells. And had there not
7 been an influence from the existing offset wells, there
8 would be no other way to explain the fact that the
9 Catterson well did not come in at virgin pressure. Are you
10 following me?

11 A. I agree with that.

12 Q. So if the reservoir is not depleting the infill
13 location for Catterson, we could expect to see pressures of
14 the 1125, give or take?

15 A. Yes.

16 Q. So over time that gas is being depleted by the
17 offset wells?

18 A. I believe it's being partially depleted by the
19 offset wells.

20 Q. Okay, let's go up now to the north end of the
21 display, and it's the Dee -- I think that's a zero Q?

22 A. Yeah, OQ, yes, sir.

23 Q. It's an OQ. The Dee OQ State well, which is in
24 Township 5 South, 25 East -- it's down there in Section
25 32 -- do you see that one?

1 A. Yes, sir.

2 Q. All right, it's got an initial pressure of 992.
3 We're twice what we were seeing in Catterson. Is the fact
4 that we're getting a higher pressure in that infill well
5 explained by the fact that for that well the offsets are
6 substantially farther away from the Dee OQ State well than
7 in the Catterson example? Do you see what I'm saying?

8 A. I do see what you're saying. That has a lot to
9 do with it, yes.

10 One of our three criteria for picking these
11 locations was to, on the one hand -- two of our criteria --
12 on the one hand, be close enough to good wells to be in a
13 sweet spot of the reservoir, but at the same time be far
14 enough away from the existing wells to not drill a depleted
15 well.

16 So when we can maximize the distance from a
17 producing well and still feel like we're in a -- encounter
18 good sand thickness, that's the ideal situation.

19 Q. Well, look at Section 32 with me. You can find
20 within the area where the infill well exists 160 acres that
21 does not yet contain a well. So in effect, the Dee well is
22 the first well in 160 acres, and does that not explain
23 what's happening with the pressure?

24 A. Oh, I think that has a lot to do with what's
25 happening with the pressure, yes, sir.

1 Q. When you look at -- I see how you've analyzed it.
2 You've looked at the opportunities for the infill wells and
3 drilled some of those.

4 Did you correspondingly look to see if you
5 already had examples in the pool, where you had existing
6 wells in close proximity, which would be a spacing pattern
7 equivalent to what you would have if the Division allowed
8 infill drilling?

9 A. Yes, I did, and part of our original analysis
10 back in 1993 covered that, and I can show you some examples
11 in Township 6-25 that I recall. Down in Section 25 and 26
12 of 6-25, where those two sections meet, there were actually
13 four wells drilled on a 160.

14 Q. Yeah, you've got 40-acre spacing on some of them?

15 A. Yeah, effectively 40-acre spacing there.

16 I studied, though -- In that township, I studied
17 every case where there were more than two wells I could
18 draw in a 160-acre area, and I did not see evidence of
19 interference from the decline curves. I didn't see one
20 well adversely affected when another well in that close a
21 proximity started producing.

22 Q. In terms of pressure, though?

23 A. Well, in terms of production rate, because
24 pressure data is a lot harder to come by than production
25 data is.

1 Q. All right. So you didn't have pressure data to
2 analyze whether there was an equivalent pressure in the
3 well, but you could see by looking at the production data
4 that you were higher in the life of one well versus the
5 other in terms of production?

6 A. Yes, sir.

7 Q. Let me ask you that. What is the profile of a
8 typical Pecos Slope-Abo well in terms of how you would see
9 its production curve?

10 A. They exhibit hyperbolic decline, steep decline,
11 in the first year to 18 months of continuous production,
12 eventually leveling off to a shallow -- on the average, 12
13 percent per year exponential decline. And ultimately the
14 wells are very long-lived, well life approximately 15 to 20
15 years.

16 Q. Is that profile consistent with all of the wells
17 for Phase I pilot?

18 A. We looked at the production data that's available
19 on those wells. Not one exhibited abnormally steep
20 decline. Now, they're all steep, but the field
21 characteristics is a steep decline initially.

22 Q. And that's what I'm asking you. Is that
23 consistent with what you're seeing for a typical well?

24 A. Yes, they are consistent with the historical
25 average decline in the field, and that was one of the

1 things that we were very interested in seeing, what the
2 decline characteristics would be.

3 Q. All right. When you look at that signature well
4 for Pecos Slope in terms of its hyperbolic decline, what is
5 the signature of Phase II infill wells? Are they
6 exhibiting the same characteristic?

7 A. There's not enough data, decline data, on the
8 Phase II wells for me to give you a good answer on that. I
9 mentioned that the field has been shut in for most of the
10 last year and a half. So we don't have much decline data
11 from those wells.

12 Q. All right. The criteria for deciding on the
13 Phase II infill wells apparently had some kind of economic
14 threshold --

15 A. Yes.

16 Q. -- that changed as of March of 1995, and thereby
17 you stopped drilling the approved Phase II wells?

18 Prior to that occurrence, wasn't the criteria, if
19 I remember your May, 1994, testimony, the fact that you
20 were looking for 400,000 MCF of unique or new reserves as
21 the threshold to justify the infill well?

22 A. 400 million cubic feet.

23 Q. That was it.

24 A. Yes, sir.

25 Q. All right. Did that continue to be the threshold

1 in March of 1995 when you stopped drilling the approved
2 wells?

3 A. Yes.

4 Q. The price dropped in Pecos Slope-Abo, and that
5 was the decision not to drill the rest of the infill wells?

6 A. The price dropped or just continued -- The price
7 had dropped months prior, but continued low prices finally
8 resulted in my management deferring the remainder of the
9 wells.

10 Q. Okay. Is that volume still -- It was used, then,
11 for the Phase I wells and those Phase II wells that were
12 drilled; that was the threshold?

13 A. Yes.

14 Q. Okay. Let's look at Exhibit Number 17.

15 The infill drilling pilot area reserves, in red
16 you're showing total reserves?

17 A. Total reserves.

18 Q. And let me make sure I understand. The total
19 reserves are going to represent a combination of new
20 reserves, plus reserves that might otherwise be produced by
21 an offset well?

22 A. Yes.

23 Q. All right. So when I look at the Catterson well
24 and I get 728, it's a combination of the two?

25 A. Yes.

1 Q. Did you continue to use the method by which you
2 determined or allocated new reserves, based upon the
3 methodology you set forth to the Division in the May, 1994,
4 transcript?

5 A. We've -- No, we've really rethought our position
6 on that, on the infill -- on how much of the reserves are
7 new reserves and how much of the reserves are acceleration
8 reserves, if you will. It's a very debatable point.

9 And my personal feeling is that most of the
10 reserves, a large majority of the reserves in all these
11 cases, are new reserves. And the reason I believe that is
12 because the offset wells are generally at such low rates
13 and approaching their economic limit that it's just -- we
14 can't go -- they're not going to produce the gas that
15 apparently is going to be produced from the new well.

16 Q. All right. Let's go through the process, because
17 Examiner Stogner did not hear that case.

18 The methodology in March of 1994 by which you
19 allocated between existing reserves and new reserves was a
20 formula based upon -- I forgot if it was rate or pressure.

21 A. Pressure.

22 Q. It was off the pressure map, wasn't it?

23 A. Well, there were two parts. The total reserves
24 were calculated using decline-curve analysis, which is
25 production rate data --

1 Q. Yes.

2 A. -- which is what's been done here.

3 Q. And then you subdivided that based upon pressure?

4 A. And then at that time I had made an estimate of
5 the percentage of reserves that were unique reserves, or
6 new reserves, based on the bottomhole pressure as a
7 percentage of original bottomhole pressure. That was an
8 unproven relationship. There's some relationship there,
9 but I --

10 Q. You're no longer comfortable with that method?

11 A. No.

12 Q. Okay. You had a bubble map that you showed in
13 terms of drainage. Are you still using -- or did you use
14 that bubble map as the basis to then locate and drill the
15 Phase II infill wells?

16 A. Yes.

17 Q. That bubble map was constructed based upon
18 decline-curve analysis, was it not? And then you backed
19 into a drainage calculation using volumetrics?

20 A. Yes.

21 Q. Okay. When I look at the bubble map -- in fact,
22 I may have some here and we can talk about it.

23 This is Exhibit 13, Mr. Stallings, from the
24 August, 1993, hearing. But the method was the same as the
25 bubble map shown in March of 1994, if I -- is that not

1 true?

2 A. That is correct.

3 Q. All right. Help me understand what you're doing
4 here when you map or calculate drainage areas and we find
5 an area in which the circles overlap. Is that meaning that
6 the wells are competing for the same reserves, or does it
7 mean something else?

8 A. I think it's a limitation of this model, if you
9 will. Again, these wells are completed in multiple lenses
10 of sand channels. Their drainage areas are not perfect
11 circles. I don't know what shape they are. We modeled
12 them as circles for lack of a better shape.

13 These maps would suggest more than competing,
14 that they've actually drained the same reserves more than
15 once, and that can't be possible. So --

16 Q. It's simply a reflection of the fact that you've
17 got these multiple sand members crossing over the same
18 areas?

19 A. I think that's true.

20 Q. When we take the Catterson well, then, and find
21 total reserves of 728, how did you do that? It came from
22 decline-curve analysis?

23 A. That's correct.

24 Q. Do you have the decline curves for all these
25 infill wells?

1 A. No, I don't have those with me.

2 Q. You didn't bring them with you?

3 A. No, sir.

4 Q. Is that something that you're willing to provide
5 to us? May we have those?

6 A. I'd have to ask my management. We've got a lot
7 of experience in wells out here. We've got some -- what we
8 might consider proprietary methods of evaluating reserves,
9 so I don't feel at liberty to answer yes to that question.

10 MR. KELLAHIN: I'm going to make that request,
11 Mr. Examiner.

12 What we're looking for, Mr. Stallings, is the
13 documents to support the conclusion on your Exhibit 17 as
14 to what you're testifying is the total reserves
15 attributable to the infill well, and we would like -- we'll
16 leave that on the agenda as a request item. We would like
17 to have the Applicant in these cases provide us with the
18 decline curves.

19 Q. (By Mr. Kellahin) When you look at the decline
20 curve for the Catterson well now, Mr. Stallings, can you
21 subject that to a volumetric calculation and at least
22 calculate for us what you anticipate to be the acreage size
23 if we don't necessarily know the shape?

24 A. Yes, we could do that.

25 Q. All right, and have you done so?

1 A. No, sir.

2 Q. We don't know, then, what you would calculate to
3 be the drainage area for the Catterson well?

4 A. I don't have that answer, that's correct.

5 Q. Would you use the same volumetric analysis that
6 you showed us in August of 1993 in terms of how you go
7 about the methodology for the drainage calculation that was
8 Exhibit 14? Let me show that to you and make sure that
9 that's how you would go about the calculation.

10 A. That's the way I would do it.

11 Q. All right. So you take the decline curve, and
12 then you would plug in the thickness for the Catterson
13 well, and then you can back into a drainage area, if you
14 will, in terms of acres?

15 A. Yes.

16 Q. All right. And you've not done that for the
17 Catterson well or any of the infill wells?

18 A. I have not done that calculation for the infill
19 wells, that's correct.

20 Q. All right, sir. You therefore do not know
21 whether or not the infill wells are exhibiting a drainage
22 area by which we then can compare it to the average of the
23 existing wells?

24 A. No, don't know the answer.

25 Q. The existing wells, on average, are draining, if

1 I recall correctly, about 122, give or take, acres?

2 A. That's what I calculated, yes.

3 Q. Okay. So we at least know by your calculation
4 that the existing wells are draining more than 80 acres, on
5 average? You're nodding your head yes?

6 A. Yes, sir.

7 Q. All right. When you're looking at doing decline-
8 curve analysis, how does the calculated absolute open flow
9 potential of the well fit into that analysis?

10 A. That's one of the relationships that we've
11 developed. Because we have so many wells, such a large
12 database of wells in the field, we developed a relationship
13 between initial potential and estimated ultimate recovery.

14 Q. Let's look at that example for a moment, Mr.
15 Stallings. If you'll turn to Exhibit 16, let's look at the
16 production-rate data.

17 A. Okay.

18 Q. Exhibit 16, in the green for the offsetting wells
19 again, for the Catterson example, you've averaged current
20 production rate, and you get 53 MCF a day? Is that what
21 that is?

22 A. Yes -- Which well?

23 Q. On the Catterson example --

24 A. Okay, yes, sir.

25 Q. -- down there.

1 A. Yes, sir.

2 Q. All right. Again, what's the vintage when you
3 mean current producing rates?

4 A. On the rates, it was the most recent full month's
5 production for each well prior to the infill well being
6 completed. In the case of the Catterson 7, I don't recall
7 which month that was.

8 Q. If I want my engineer to verify and validate your
9 work, is that production data reported to the Division now
10 so that we can retrieve it on the ONGARD system, or is that
11 data that we're going to have to get from you, because
12 that's the only place we can get it?

13 A. No, it's the data that's reported -- It's the
14 monthly production data that's reported to the Commission.

15 Q. The C-115s, I think we are -- That's all been
16 reported for these --

17 A. I would assume so, yes.

18 Q. All right. I'm interested in the infill wells,
19 but let's use the Catterson as an example.

20 What I'm seeing in red, then, is the initial
21 producing rate, but that's really calculated absolute open
22 flow, isn't it?

23 A. No.

24 Q. On the Catterson well, that million a day?

25 A. It's not a calculated absolute open flow. It is

1 a flow rate that was achieved by -- That was the single
2 highest day's flow rate that was achieved by that well to
3 the pipeline.

4 Q. At what point in time?

5 A. On initial completion, shortly after frac.

6 Q. All right. You see what concerns me about the
7 way these wells perform, that in the first few months,
8 whether it's initial absolute open flow or not, there's a
9 substantial decline in rate as a signature for these wells,
10 isn't it?

11 A. That's true.

12 Q. So if you're trying to decide based upon rate
13 whether the infill well is truly recovering unique
14 reserves, wouldn't it affect your assumption if you used
15 the highest, earliest rate?

16 A. It might.

17 Q. Mr. Stogner heard a case between Tide West and
18 Yates on the Catterson well. It's Case 11,283. And in
19 that presentation, Mr. Fant, as your engineering witness,
20 presented some production data on that Catterson well, and
21 he demonstrated to us that in April of 1995 it was doing
22 about 900 MCF a day. But by July of 1995 it's down to 345
23 a day. It looks like a substantial drop.

24 Is that unique to Catterson, or were the other
25 wells doing the same kind of thing?

1 A. I don't know specifically about the Catterson
2 well. I know that for the wells I looked at in detail --
3 over in 6 South, 25 East, because those are the wells we
4 have the most data on -- those wells did not -- not one of
5 those wells exhibited abnormally high declines.

6 I don't know about the Catterson well, what the
7 situation was there specifically.

8 Q. When you're looking at the decline curve, are you
9 plotting these decline curves on actual data and then
10 you're forecasting in the future a decline?

11 A. Right.

12 Q. When you get to the point in this plot where
13 you're forecasting the future decline, is that on a
14 straight-line basis?

15 A. That's on -- Well, no, it's on a hyperbolic
16 decline basis.

17 Q. So your methodology is consistent with the
18 signature of this kind of well?

19 A. Yes.

20 Q. Okay. When we look at the Catterson example on
21 Exhibit 17, you've calculated total reserves of 728
22 million? Yeah, three-fourths of a BCF --

23 A. Right.

24 Q. -- from the Catterson. All right.

25 If your economic threshold is going to be

1 400,000, and if the Catterson well is positioned in its
2 spacing unit such that it would appear to get some of that
3 contribution from the offsetting tracts -- Answer that for
4 me. It appears to me that its drainage area is going to,
5 in fact, be areas outside of its spacing unit, isn't it?

6 A. Yes, it does appear that way.

7 Q. All right. Without doing the calculation, it's
8 easy to conclude that the 728 is going to come in part from
9 area outside of the spacing unit?

10 A. Assuming that there's reservoir there, and I'd
11 have to get out the sand maps, but yes, if there's
12 reservoir there it will drain outside that area.

13 Q. When we look at infill drilling on a poolwide
14 basis, when you see a 728, aren't you obligating, by the
15 infill procedure, the offset in the northeast quarter of
16 the section to now drill a protection well to the Catterson
17 well?

18 A. I don't know about obligation. I think that -- I
19 don't know what their obligation or our obligation would
20 be.

21 Q. Well, Mr. Carr asked you a while ago whether or
22 not approval of this request for poolwide infill drilling
23 was going to protect correlative rights and not afford an
24 opportunity for acreage to be drained without corresponding
25 compensating drainage.

1 And you said, yeah, this is going to work, it's
2 going to be okay for correlative rights.

3 I'm trying to give you a correlative-rights
4 example.

5 A. Yeah.

6 Q. And if the example is, the economic threshold for
7 an infill well is 400,000, there is not enough gas under
8 your calculation to support two wells. So what happens to
9 the share of gas that is off the Catterson spacing unit?
10 It's going to be produced by Yates, isn't it?

11 A. In that example it looks like that would happen,
12 yes.

13 Q. When we look at the rest of the infill wells, as
14 we move through Exhibit 17 there are a number of these that
15 have the Catterson problem in them, don't they?

16 You know, if you look at the Kilgore well up in
17 section -- I think it's 24 of 6 South, 25 East -- the
18 Kilgore well, by your calculation, has got total reserves
19 of 652. Again, we don't have 800,000, so the offsets can't
20 be drilled, and so drainage is going to occur from
21 offsetting spacing units for which there is no
22 corresponding compensation; isn't that right?

23 A. I don't necessarily agree that the offset can't
24 be drilled.

25 Q. It can't be done economically under your

1 threshold, can it?

2 A. I wouldn't recommend a well there, based on these
3 calculations.

4 Q. What the infill program would do, wouldn't it,
5 because of the hyperbolic production nature of the wells,
6 is that operator who gets the first infill well drilled in
7 one of these sweet spots is going to drill the only well
8 that recovers its cost?

9 A. I don't know that. I'm not sure that you
10 couldn't compete for those reserves.

11 Q. All right. Tell me what bothers you about what I
12 said.

13 A. Well, because the drainage area of an offset well
14 is going to be different again. The geology is complex
15 enough that another well -- there may be a whole 'nother
16 channel system in the offsetting spacing unit, for example.
17 Even if it were the same channel system, it's going to --
18 should be able to reach a different part of the reservoir
19 than this well would.

20 Q. Do you see the problem I'm having? I can't reach
21 that analysis until I see what you calculate to be the
22 acreage drained by your infill well, and that's something
23 you haven't presented. Do you see how hard that is to
24 analyze it?

25 Let me ask you -- Isn't there another way to go

1 about this than having a straight infill program? Let me
2 suggest something.

3 Couldn't you, as you've done here, on a case-by-
4 case basis, find these areas for which there is support to
5 justify the infill well, and on a case-by-case basis come
6 in and ask for a second well? Isn't that a viable
7 alternative for a solution for these 200 opportunities out
8 of a thousand, to provide the necessary second well in
9 those examples where it in fact is necessary?

10 A. It doesn't seem very efficient to me.

11 Q. What's wrong with it?

12 A. Because of having to run a show like this every
13 time. Administrative approval would be much less
14 cumbersome, if an operator wanted to become active and have
15 an active drilling program. I think that presenting every
16 location at hearing for 200 wells would be very cumbersome.

17 Q. And if that's your concern, perhaps an
18 administrative procedure could be developed as an
19 alternative to infill on a blanket basis whereby you could
20 send notice. If your offsets don't care, it would give you
21 a vehicle by which the second well is approved, and you'll
22 go about your business and you don't have to come to a
23 hearing, necessarily?

24 In the alternative, you have not created blanket
25 infill for a pool, to handle 800 spacing units for which

1 apparently it doesn't work?

2 EXAMINER STOGNER: Was that a question?

3 MR. KELLAHIN: Yes, sir.

4 Q. (By Mr. Kellahin) Comments, observation?

5 A. Our recommendation is to make this an
6 administrative procedure, and we just feel like that's the
7 most efficient way to develop these infill reserves.

8 Q. Well, you've already got approval for 11 more
9 wells that are not yet drilled? You've got those taken
10 care of, now, don't you? What's the schedule for getting
11 those done?

12 A. To my knowledge, there's no plans to drill those
13 wells. I would say that's a management decision. I would
14 assume that it would be driven by -- That, along with any
15 other gas-well drilling that we would do, would be driven
16 by an improvement in gas price.

17 Q. Describe for me the criteria that was used in
18 selecting the wells that were actually drilled, as opposed
19 to the 11 that weren't under the Phase II program.

20 A. We wanted to get a representative areal sampling
21 of wells, and we also wanted to drill wells that gave us
22 the best opportunity of being economic.

23 Q. Would these that are actually drilled, then,
24 represent the best of the 20?

25 A. No, we made some adjustments when we realized we

1 weren't going to drill all 20, so that we would get good
2 areal coverage.

3 Q. Which ones were adjusted to give you areal
4 coverage, as opposed to your best opportunity?

5 A. I don't remember that. I don't have that with
6 me.

7 Q. As you drilled the additional Phase II infill
8 wells, geologically, did you see anything different than
9 what was testified to by Ms. Fly and Ms. Bence as to their
10 geologic conclusions in the prior two hearings?

11 A. Oh, I think that we were optimistic on some of
12 our calculations and our interpretations of the reservoir.

13 Q. Is there a change between the Phase I area and
14 the Phase II in terms of thickness of reservoir?

15 A. I don't know. I don't think so. I mean, there
16 are variations throughout the field. I don't think that --
17 I'm not sure that the Phase I area was the thickest part of
18 the field. I don't know the answer to that.

19 Q. Then what, by your definition, made it one of the
20 better areas?

21 A. Strictly based on cumulative production of
22 existing wells. Some of the best producing wells are in
23 that township.

24 Q. And your analysis onto the bubble map was to find
25 infill locations that were outside the hypothetical

1 drainage circles of the existing wells?

2 A. Yes.

3 Q. And based upon that work, you have found that not
4 to be a reliable methodology?

5 A. Oh, I think it's allowed us to drill some very
6 successful wells. I would disagree that it's not reliable.
7 I don't think it's perfect.

8 Q. My definition of "reliable" was the fact that in
9 each instance, you thought you would be drilling an infill
10 well that would be outside the drainage effect of existing
11 wells by your bubble map, and yet when you complete the
12 infill well, it's at less than virgin pressure. So it has
13 been, in fact, drained by existing wells?

14 A. It's been partially depleted by offset wells,
15 yes.

16 Q. Have you gone through a method by which you can
17 analyze as an engineer a more refined method of drainage,
18 other than using the bubble map?

19 A. We have not developed a better tool than that.

20 Q. In drilling the Phase II infill wells, did you
21 find any geologic evidence that's contrary to the geologic
22 conclusions made by Ms. Fly and Ms. Bence in their prior
23 testimony?

24 A. I don't believe so.

25 Q. When we look at the performance of these infill

1 wells -- or let me -- Strike that.

2 When we look at the signature of a typical
3 existing well in this hyperbolic performance profile, can
4 you characterize what portion of its ultimate gas reserves
5 are recovered in the first 18 months or two years of
6 performance?

7 A. I'd have to calculate that. I don't know what
8 that is.

9 Q. You wouldn't know whether it was 50 percent or 75
10 percent of the well?

11 A. I wouldn't know.

12 Q. When you look at pressure in all these packages
13 of sands, your shallowest sand is what? About 2000 feet?

14 A. I'm not aware of any that shallow. Now, in
15 general, it's shallower in the West Pecos Slope, and it
16 dips steadily to the east southeast.

17 Q. All right. Let's do the 6 South, 25 East.

18 A. Okay.

19 Q. What's the shallow zone?

20 A. I believe the shallow zone there is approximately
21 3600 feet.

22 Q. And by the time we get to the deepest zone in
23 that area, where are we working?

24 A. 3900, I think, 3900.

25 Q. But you're coming in with -- The reservoir

1 pressure, the initial reservoir pressure of 1125, was
2 established with what well? Do you remember?

3 A. As I recall, it was established in a lot of
4 wells --

5 Q. Okay.

6 A. -- early in the drilling and the development of
7 the field.

8 Q. So no flaw in what we are working with as the
9 initial reservoir pressure?

10 A. I've just read the literature and looked through
11 the well files, and it seems to be pretty well accepted.

12 Q. All right. So there's no flaw with accepting
13 that number as the right number?

14 A. Not in my mind, no, sir.

15 Q. All right. Do you see any pressure difference as
16 we move vertically in these wells?

17 A. I'm not aware of any pressure testing we've done
18 of individual zones in a given well.

19 Q. So you wouldn't know whether or not there is a
20 pressure differential within the sand packages that's
21 different from another sand package?

22 A. I would expect that they do vary, but we have not
23 measured individual pressures.

24 Q. What's the criteria by -- which Yates is using to
25 support its statement that there are 200 potential

1 opportunities for infill locations out of the thousand
2 wells?

3 A. Really, that's 200 wells out of 600 Yates wells.

4 Q. Okay.

5 A. And that is strictly an estimate. We -- The
6 pilot area is the extent of the detailed analysis that
7 we've done. We have not mapped the other parts of the
8 field yet, just because of the number of wells and -- the
9 work that that entails has not been done yet.

10 So it's almost a statistical estimate of how many
11 wells we have in other parts of the field, compared to how
12 many wells we expect to be able to drill in this pilot
13 area. It's just an estimate that I came up with.

14 Q. All right. I was trying to understand what the
15 basis was for the 200.

16 A. Not a calculated number, just an estimate.

17 Q. All right, sir. Have you attempted to analyze
18 the reservoir performance by computer simulation of the
19 reservoir?

20 A. I have not done that.

21 Q. Has anyone within Yates attempted to do that?

22 A. As part of the Phase II evaluation, another
23 engineer in the company did do some computer simulations,
24 trying to calculate drainage areas with a different method.
25 What we found was that the results in general were very

1 similar to the method that I've presented here, in hearing.

2 Q. Well, that method has the same inherent flaw,
3 whether it's done by you or simulation, in that it's
4 predicated on the geologic interpretation as to the size
5 and shape of all these --

6 A. Yeah.

7 Q. -- multiple pays?

8 A. It draws circles too --

9 Q. Yeah, that's right.

10 A. -- and we know that the circles aren't exactly
11 right.

12 Q. All right. So the computer isn't going to help
13 us figure this out?

14 A. We found that it didn't give us a better answer.

15 Q. All right. As part of the Phase II program, did
16 you do any type of advanced or sophisticated reservoir
17 engineering testing of any of the wells? Proprietary
18 information?

19 A. No, all the testing we did was standard. Flow
20 testing, bottomhole pressure buildup.

21 Q. Okay, and they were all done within wellbores
22 that were completed in such a fashion that they were
23 accessing the multiple-sand packages within that wellbore?

24 A. That's right, every well was completed in all the
25 pay sands before any pressure testing or flow testing was

1 done.

2 Q. So none of those Phase I or Phase II pilot infill
3 wells was used as a science project, if you will, to
4 individually test pressures of any of the sands?

5 A. We have not tried to do that.

6 Q. All right. Did you attempt to run any kind of
7 pressure interference tests with the infill well or
8 existing offsetting wells in some combination?

9 A. No.

10 Q. You provided some geologic isopachs, Mr.
11 Stallings, and you made a comment I want to make sure I
12 understand.

13 This represents Ms. Bence's presentation in March
14 of 1994, but I thought you said it had been updated with
15 the Phase II infill wells. Did you say that?

16 A. For the Phase II maps, that's correct.

17 Q. In what way are the maps modified?

18 A. They've been recontoured -- Well, the new well
19 has been posted and the values for sand thickness of that
20 zone have been posted by that well, and the isopachs have
21 been recontoured to honor that data point.

22 Q. Okay. So when I look at the isopach exhibits
23 you've given today, they in fact have put thickness values
24 in this display for the infill wells?

25 A. Yes.

1 Q. And then recontoured?

2 A. Yes.

3 Q. Let's go to the summary sheet. There's a
4 tabulation, Exhibit 14, we have a bunch of data spread out
5 here.

6 A. Yes.

7 Q. All right. I want to understand how you've
8 analyzed this with regards to a range of pressure
9 differential.

10 First of all, when I see initial bottomhole
11 pressure for -- within that column, is that the same number
12 I'm seeing on Exhibit Number 15?

13 A. I sure hope so.

14 Q. All right, and that was --

15 A. It's intended to be, yes, sir.

16 Q. Okay. The last well in Phase I, it says the
17 Hobbs Federal 3 well, you told me that that was
18 unsuccessful, and it was attributable to the fact that, in
19 your opinion, it had been subject to drainage, as opposed
20 to the Cleo well, the one above it, which was unsuccessful
21 because it simply didn't have enough sand. Is that --

22 A. Yes.

23 Q. -- an accurate recollection of what you said?

24 A. Yes, sir.

25 Q. All right. What determines whether the well is

1 successful?

2 A. I based my statement of successful or
3 unsuccessful on what we project to be the ultimate recovery
4 from that well, i.e., an economic success.

5 Q. All right, so --

6 A. It will recover more than 400 million cubic feet.

7 Q. I just want to make sure that that's how you did
8 it. A success, by definition, then, is a well that's going
9 to recover more than the 400,000?

10 A. (Nods)

11 Q. All right. When we look at the Hobbs Federal 3
12 well, there is a pressure differential between its initial
13 bottomhole pressure and the average of the offsets by --
14 oh, I don't know, 230 pounds. Apparently that's not enough
15 pressure differential between the initial -- the infill
16 well and the offset wells whereby you consider that to be
17 unique?

18 A. Well, it's not enough to make 400 million cubic
19 feet. We've estimated the reserves there at 90 million
20 cubic feet.

21 Q. Am I reading more into the display than you
22 intended?

23 A. Well, I don't know. My intention was to say that
24 that well was unsuccessful because its ultimate recovery is
25 going to be less than 400 million cubic feet, and --

1 Q. All right. On one of these maps you're drawing a
2 comparison between the bottomhole pressure of the infill
3 well and the offset wells.

4 A. I think that primarily this well, the Hobbs Fed
5 Number 3, the sand thickness in that well is similar to the
6 offset wells. The offset wells have produced more than 400
7 million cubic feet. Therefore, if we would have
8 encountered the Hobbs Fed Number 3 at higher reservoir
9 pressure, it very well could have been an economic well.

10 Q. All right, let me make sure I'm not
11 misunderstanding.

12 Are you contending that you can look at the
13 average bottomhole pressure of the offset, get that number,
14 and read over and find the initial bottomhole pressure of
15 the infill well, and because there's a range of difference,
16 thereby conclude that the reserves for the infill well are
17 going to be new reserves? I'm not analyzing it right,
18 then?

19 A. Well, I think that most of the reserves that any
20 of these infill wells is going to produce -- can't quantify
21 it. I think a vast majority of those reserves are going to
22 be new reserves. Because with offsets, in the case of the
23 Hobbs 3, offset wells producing 70 MCF per day, we just --
24 on their current decline rate, if that's 12 percent -- I
25 don't remember in this case -- we just can't put very much

1 gas to recover from those wells.

2 Q. In terms of your EUR you're calculating based
3 upon decline curve, what are you using for an abandonment
4 pressure?

5 A. Generally we use -- It says on this sheet that
6 you handed me, the drainage calculations, the abandonment
7 pressure is 200 pounds, as a general rule. That was a
8 fieldwide assumption that I made.

9 Q. Yes, sir. And are you continuing to make that
10 same assumption?

11 A. For purposes of the bubble map --

12 Q. Yes, sir.

13 A. -- that is the way I calculated the drainage
14 areas.

15 Q. For purposes of the EUR based upon decline-curve
16 analysis for the volumes represented on Exhibit 17, I think
17 it was, 15 --

18 A. Yeah, those are based on production rate decline.

19 Q. Yeah --

20 A. And so there really is no pressure in that --
21 It's a rate, economic limit of 15 MCF per day,
22 approximately.

23 Q. What's the abandonment rate?

24 A. About 15 MCF per day, I believe, is what I used.

25 Q. Yates controls the gathering system for lots of

1 these wells, doesn't it, in this pool?

2 A. Yes.

3 Q. Are you able to handle the pipeline gathering
4 pressure and to use that as an abandonment rate?

5 I didn't say that very well. Do you understand
6 what I'm asking you?

7 A. No.

8 Q. Okay. Because you have the ability to gather the
9 gas, can you also gather it in such a fashion that you're
10 controlling the pressure differential in the pipeline so
11 that the ultimate rate at abandonment for the well can be
12 15 MCF a day?

13 A. Well, it appears that 15 MCF per day is
14 extrapolated, based on the current system pressure --

15 Q. Okay.

16 A. -- of the gathering system. And so I guess you
17 could -- you know, if you -- Someday there may be potential
18 to lower the system gathering pressure and get incremental
19 reserves that -- get incremental reserves by lowering the
20 system pressure. That's not been accounted for in these
21 calculations.

22 Q. You've answered my question, is that we have the
23 ability and, in fact, you have calculated based upon a
24 rather small abandonment rate.

25 A. Yes.

1 Q. So we don't have to worry about that changing?

2 A. It can't change very much. That's pretty low.

3 Q. When you look at Exhibit 14, this spreadsheet,
4 we're seeing examples in the Phase I and Phase II on
5 initial bottomhole pressure. In all -- Perhaps Thorpe is
6 an exception, but Thorpe and Paulette at least had rates
7 that had somewhat depleted by something, right?

8 A. Yes.

9 Q. And in Paulette with a higher rate, we simply
10 have not enough sand, apparently, and it's not going to be
11 a successful well?

12 A. Yes, sir.

13 Q. All right. In terms of making comparisons for
14 rates of the offset as to the infill well --

15 A. Uh-huh.

16 Q. -- have you looked to see if the offsetting wells
17 during the time you've averaged their rate were producing
18 against a pipeline pressure that was the same as the
19 pipeline pressure used for the infill well when you took
20 that rate?

21 A. I didn't look at that. I don't think -- I'm not
22 aware that the system pressure varies greatly, so I assumed
23 a consistent system pressure.

24 Q. So that we don't have to worry about that kind of
25 thing, fudging the numbers? We shouldn't?

1 A. Not intentionally. I don't think -- I don't
2 think that there's a wide variation.

3 Q. Okay. In terms of all of the Phase I and Phase
4 II infill wells, the logs for those wells, are they on file
5 with the OCD?

6 A. They should be. If they're not, we'll
7 certainly -- we'll get them on file.

8 Q. What I'm looking for is the opportunity to --

9 A. Yeah.

10 Q. -- to have a third party look at the footage
11 calculations so we can --

12 A. My intention is to have released them.

13 Q. All right.

14 A. Sure.

15 Q. So that's not a problem?

16 A. If you can't find them, call me.

17 Q. Yeah. And if I understood, you're not using a
18 porosity cutoff. And, in fact, there was a cross-plot
19 analysis and there was no cutoff attributed there?

20 A. Right.

21 Q. All right. I wanted to make sure that my
22 geologist is using the same method that you used.

23 Tell me one more time, Mr. Stallings, what's the
24 plan, if there is a plan, on the remaining nine infill
25 wells? Is there any schedule to get those drilled?

1 A. No. I've not heard my management mention wanting
2 to drill those wells. I assume that's because of
3 unacceptably low gas prices for a drilling project.

4 Q. Is that going to be unique to Yates, or is that
5 going to be an issue for all operators in the pool in terms
6 of going forward with infill drilling? They're all going
7 to be exposed to the same kind of market conditions, I
8 would think?

9 A. I think so.

10 Q. There's nothing unique about your operations that
11 make price constraints on you for drilling any different
12 than price constraints on other operators to initiate the
13 infill project?

14 A. Not that I'm aware of.

15 MR. KELLAHIN: Thank you, Mr. Examiner.

16 EXAMINER STOGNER: Thank you, Mr. Kellahin.

17 Mr. Carr, redirect?

18 MR. CARR: Yes, sir.

19 REDIRECT EXAMINATION

20 BY MR. CARR:

21 Q. Mr. Stallings, Yates has been working with the
22 infill project now for two years, correct?

23 A. Yes, sir.

24 Q. And during that two years, there has been a
25 decline in the gas market; is that not correct?

1 A. In general, yes.

2 Q. And the effort that you initiated back two years
3 ago is not as far along as you had anticipated; isn't that
4 also fair to say?

5 A. That's true.

6 Q. You have been looking at the Abo formation. Is
7 it fair to characterize that as a mature reservoir?

8 A. Yes.

9 Q. We are looking at a reservoir where most of the
10 160-acre spacing units and the better parts of the fields
11 have been developed, have they not?

12 A. That's correct.

13 Q. And what we're looking at now are wells, the
14 existing wells, that, if you look down the road, are only
15 going to drain a small area in addition to what's already
16 been drained; isn't that true?

17 A. Yes.

18 Q. We're talking about a highly complex reservoir,
19 are we not?

20 A. That's correct.

21 Q. A number of channels, and tract by tract they
22 vary; isn't that correct?

23 A. Yes.

24 Q. And no matter how long we study it, we're always
25 going to be able to find a tract where there's something

1 new or something different; isn't that also a fair
2 characterization?

3 A. Yes.

4 Q. Haven't you been attempting to come up with a
5 proposal whereby rules can match the flexibility of the
6 reservoir?

7 A. Yes.

8 Q. And is that what you believe you have done?

9 A. Yes.

10 Q. When we look at portions of this field where we
11 have developed bubble maps that are in gross, can that
12 possibly be an accurate interpretation of what is in fact
13 being drained?

14 A. We know it has limitations. It's the best
15 balance we've had between practicality and precision.

16 Q. Some sands may have been depleted in the area,
17 some -- when you go out and drill an infill well, some may
18 not; isn't that right?

19 A. Yeah. I mean, the data shows that it's not
20 foolproof.

21 Q. And so there's nothing, in fact, that you can do
22 to accurately determine tract by tract exactly what has
23 been drained; isn't that fair to say?

24 A. At this time, we cannot accurately -- we would
25 like to be able to do that.

1 Q. With all these doubts, though, is there any doubt
2 in your mind that there are reserves that are being left
3 behind if additional wells are not drilled?

4 A. No doubt.

5 Q. When we look at the Catterson well, do you know
6 whether or not that well has been choked back since it was
7 initially produced or initially tested?

8 A. I know that in general it has been choked back.
9 Specifically how many days, I can't really recall.

10 Q. Catterson well, you testified, you believe would
11 be draining outside the existing spacing unit, did you not?

12 A. I said that, based on that picture, it seemed
13 pretty obvious.

14 Q. Do you have any doubt that the Catterson well is,
15 in fact, necessary if those reserves under that tract are
16 ultimately to be recovered in a timely and economic
17 fashion?

18 A. No, I think that it is necessary.

19 Q. So what -- The well is a necessary well, if we're
20 going to produce the reserves in this reservoir?

21 A. For Yates to recover the gas under our lease,
22 yes, sir.

23 Q. And what in fact you're seeking here with these
24 rules is an opportunity for you to go out and drill
25 additional wells so that you're not leaving production

1 behind; isn't that fair?

2 A. Yes.

3 Q. And don't you also, by proposing these rules,
4 afford to each and every other operator in the pool the
5 very same opportunity to go out and drill wells and develop
6 their reserves?

7 A. Yes.

8 Q. And isn't it true that we could study this
9 reservoir forever and never be in a position where we could
10 accurately develop rules that would apply to every single
11 tract?

12 A. I think that's true.

13 Q. Even if you studied every single tract, you
14 really don't know, due to the nature of the reservoir, what
15 you've got under it?

16 A. That's right.

17 Q. Do you have any doubt whatsoever that if these
18 rules are adopted and infill drilling is permitted, that
19 ultimately there will be an increased recovery from the
20 Pecos Slope-Abo Pool?

21 A. I have no doubt, that's true.

22 Q. Do you have the same confidence that there will
23 be additional reserves recovered from the South Pecos
24 Slope-Abo Pool?

25 A. Yes.

1 Q. Do you have any doubt that there could be
2 additional reserves recovered from the West Pecos Slope-Abo
3 Pool?

4 A. No, there certainly could be additional reserves
5 recovered there too.

6 Q. Now, you haven't conducted a study of West Pecos
7 Slope, have you?

8 A. That's correct.

9 Q. But even if you were to perform that study, do
10 you have any doubt that your -- what you'd be recommending
11 would be any different? That is, an opportunity to drill
12 additional wells that would meet the complexities of the
13 formation?

14 MR. KELLAHIN: Objection to the form of the
15 question, Mr. Examiner. That's highly speculative,
16 particularly of a witness who has admitted that he has not
17 studied the pool. How could he possibly answer that
18 question?

19 EXAMINER STOGNER: Do you want to reform your
20 question, Mr. Carr?

21 Q. (By Mr. Carr) You have studied the West Pecos
22 Slope-Abo, have you not?

23 A. I've looked at the West Pecos Slope-Abo.

24 Q. And when you've looked at the West Pecos Slope-
25 Abo, what do you see?

1 A. I see well logs that indicate similar
2 characteristics to well logs that I see in the Pecos Slope-
3 Abo.

4 Q. Do you find a highly complex reservoir?

5 A. Yes.

6 Q. Do you believe that additional flexibility to
7 permit optional wells would be appropriate in that field?

8 A. Yes.

9 Q. Do you believe if that is authorized, additional
10 recovery could be obtained therefrom?

11 A. I believe it could, yes.

12 Q. What do you believe could be accomplished by
13 coming forward with an administrative procedure that would
14 require applications to be reviewed on a well-by-well
15 basis, for infill drilling?

16 A. Like we've recommended?

17 Q. Like has been suggested by Mr. Kellahin. Do you
18 see an increase in administrative burden?

19 A. Certainly.

20 Q. Do you see, in fact, that even if you had
21 reviewed these well by well, that you couldn't come up with
22 the kinds of doubts and questions that have been raised
23 here this afternoon on a poolwide basis?

24 A. There's risk and uncertainties in every one of
25 these wells.

1 Q. Do you believe that that would be any more
2 efficient or result in a -- prevent waste of resources any
3 better than coming forward and adopting rules that would
4 let the development of this pool follow the characteristics
5 of the formation?

6 A. No, I think it would promote administrative
7 waste.

8 MR. CARR: That's all I have, Mr. Stogner.

9 EXAMINER STOGNER: Mr. Kellahin?

10 MR. KELLAHIN: Yes, sir.

11 RECROSS-EXAMINATION

12 BY MR. KELLAHIN:

13 Q. When you characterized, in response to Mr. Carr's
14 question, that this is a mature reservoir --

15 A. Uh-huh.

16 Q. -- you testified back in August of 1993, and I
17 think you repeated it again in March of 1994, that the pool
18 initially commenced development in the Eighties?

19 A. Early Eighties.

20 Q. And the projected life of the pool was
21 approximately 15 years, I think?

22 A. Yes.

23 Q. Eighties plus 15. We're moving into the last few
24 years of this pool, are we not?

25 A. It would seem that way.

1 Q. Why couldn't you simply execute your opportunity
2 for these additional reserves, if in fact you're correct,
3 with replacement wells that would replace existing wells
4 that are now about to be abandoned, and thereby not only
5 ultimately recover this gas, but do so in a fashion that
6 doesn't disrupt the method by which it's currently being
7 depleted?

8 MR. CARR: Well, I'd object to the question if
9 it's suggesting that this witness testified that these
10 wells were about to be abandoned, because I don't believe
11 that was his testimony.

12 Q. (By Mr. Kellahin) You've agreed that this is a
13 mature reservoir?

14 A. Yes.

15 Q. All right. What is wrong with waiting until
16 these wells are abandoned and replacing the existing well
17 with the infill well within that spacing unit?

18 A. Well, the main thing I see wrong with that is
19 that -- economic opportunity. We're not ready to drill now
20 because of poor gas prices. But if gas prices improve, my
21 company feels like this is one of the best prospects we
22 have for adding gas reserves to our company's base.

23 Q. How many undrilled 160-acre spacing units are
24 left in the pool?

25 A. I'm not aware of any that are prospective to us.

1 There are some in the limits, but --

2 Q. I'm just looking at the pool map, and there
3 appears to be an easy way to identify those --

4 A. Yeah, we could count them. I don't know how many
5 there are. A lot of times there's not a well there because
6 the maps say there's no sand there.

7 Q. Let's go back to Exhibits 17 and 14, and let's
8 look at the Crandall example.

9 On Exhibit 17, the Crandall well appears in 7
10 South, 26 East. It's up in Section Number 6. Its spacing
11 unit is the northeast quarter.

12 The Crandall well, by your calculation, has total
13 reserves of 652. The offset existing wells have 308. Are
14 you with me?

15 A. Yes.

16 Q. When we look at the reserves for the Crandall
17 well, is it your contention that the 652 now represents
18 100-percent new reserves?

19 A. I wouldn't say 100 percent. I would say that it
20 is a vast majority of the reserves that will recover or
21 new, is what I believe, and that the percentage of that
22 we're not able to accurately calculate.

23 Q. And that's true of all these. We cannot, by your
24 analysis thus far, determine the volume of new reserves
25 attributable to the infill wells? You can't give me a

1 number, can you?

2 A. No.

3 Q. When you look at Exhibit 14 and you find on the
4 spreadsheet below Phase II the entry which is the fifth one
5 down, we find the Crandall well.

6 A. Uh-huh.

7 Q. And we read over and we find its initial
8 bottomhole pressure to be 773 pounds. It's 400 pounds less
9 than original virgin pressure, isn't it?

10 A. Yes.

11 Q. That well has already experienced depletion by
12 offsetting wells, hasn't it?

13 A. It has -- Yes.

14 Q. And there is no method by which you can provide
15 us today, at this hearing, what extent of drainage will
16 continue to occur with regards to that well and its
17 offsets?

18 A. That's right.

19 MR. KELLAHIN: No further questions.

20 EXAMINER STOGNER: Thank you, Mr. Kellahin.

21 Mr. Carr?

22 MR. CARR: No further questions.

23 EXAMINER STOGNER: Let's take a ten-minute
24 recess.

25 (Thereupon, a recess was taken at 2:02 p.m.)

1 (The following proceedings had at 2:12 p.m.)

2 EXAMINER STOGNER: Hearing will come to order.

3 I know I've already asked, but Mr. Carr, is there
4 any redirect of this witness?

5 MR. CARR: No redirect at this time.

6 EXAMINER STOGNER: Mr. Kellahin?

7 MR. KELLAHIN: Nothing further.

8 EXAMINATION

9 BY EXAMINER STOGNER:

10 Q. Mr. Stallings, going back to the prorationing
11 issue, because I did want to touch on that a little bit
12 more, some of the reasons for prorationing is nonstandard
13 units. i.e., the Jalmat and the Eumont is a good example,
14 over in Lea County.

15 Is that a potential, or do you know of any 80-
16 acre proration units or any sections that would lend itself
17 to interfering with the development or the natural order of
18 the 160 out here?

19 A. I'm not aware of any.

20 Q. Okay. Then of course there's the well locations
21 in multi-well units, is always an issue, like the Basin-
22 Dakota and Blanco-Mesaverde up in the southeast and of
23 course, there again, the Eumont and the Jalmat, in which a
24 proration unit is given the allowable, and then the number
25 of wells produce it in proportion to that.

1 Other than the infill drilling, have you had an
2 opportunity to see -- Because I believe historically there
3 are a few proration units out here that have more than one
4 well on them; is that correct?

5 A. I can't think of any before the infill pilot
6 wells, where the first well was not abandoned prior to the
7 second well in the proration unit.

8 Q. Okay. In your Exhibit Number -- oh, 17 -- the
9 well symbols, are they accurate and up to date as far as
10 showing active wells and plugged and abandoned wells?

11 A. According to our database, I think they generally
12 are, yes.

13 Q. Okay. If you look over in Section 20 of 6 South,
14 25 East --

15 A. Uh-huh.

16 Q. -- how many wells you've got platted -- plotted
17 there?

18 A. You're right.

19 Q. Okay. And there's a weird phenomenon too, over
20 in 6 South 22 East. I'm referring now to Exhibit Number 3.
21 If you look over in the north half of Section 23 -- that's
22 the east half of Section 23 of 6 South, 22 East -- it
23 should be two 160-acre units put together. I count four
24 wells in there, total. That would mean that each one of
25 those proration units, if the symbols are correct -- That's

1 Section 23 of 6 South, 22 East, the east half.

2 A. Either the well symbols are incorrect or, in
3 fact, there are two wells on that spacing unit. I'm not
4 sure in that particular case what the situation is.

5 Q. You had given an example earlier of four wells
6 bunched up together and that you felt that there wasn't any
7 interference that you had noticed in the study of those
8 wells or those areas; am I correct?

9 A. That's correct.

10 Q. Did you take the opportunity to go into the West
11 Pecos Slope-Abo and when you were looking at your proposal
12 and find an example there, like in section 8 of 6 South, 23
13 East, where there were four wells grouped up together?

14 A. I have not looked in any detail at the West Pecos
15 Slope-Abo.

16 Q. Okay.

17 A. My detailed study was confined to the pilot area.

18 Q. Other than the case that is pending in 11,283, I
19 believe, and 11,355, are you aware of any other unorthodox
20 locations that have become an issue in any of these pools,
21 where there was some objection?

22 A. I'm not sure what those case numbers refer to.

23 Q. Oh, it's one that's pending between Tide West and
24 Yates Petroleum --

25 A. Oh, okay, the --

1 Q. -- that was heard back --

2 A. I believe that's the Catterson Number 7 well.

3 Q. Yes.

4 A. I don't know of any others that are in issue.

5 Q. But you had mentioned earlier that the present
6 well-location requirements, 660, 330 from the intern- -- or
7 660 from the outer boundary and 330 from the inner
8 boundary, should be abided by.

9 A. That's our recommendation, yes.

10 Q. And how about if that is breached? Do you have
11 any feeling on that, and which --

12 A. Well, I think that normal -- the existing rules
13 whereby you apply for an unorthodox location, we'd
14 recommend that that procedure continue in place.

15 Q. Even for the infill well?

16 A. Yes.

17 Q. Okay. Now, how about the gas marketability --
18 the gas marketability of the production out here? Is all
19 the gas that can be produced from a well being taken?

20 A. I think so. I'm not an expert on the marketing
21 out here. I believe that there's opportunity to sell all
22 the gas that you can produce.

23 Q. Do you know how many transporters of gas are in
24 these pools?

25 A. No, I don't.

1 Q. Is there more than one?

2 A. I'm only aware of one.

3 Q. And who is that?

4 A. Agave Energy Company.

5 Q. I'm sorry, who?

6 A. Agave. Formerly it was the Transwestern Pipeline
7 System.

8 Q. Now, is that a subsidiary of Transwestern, or did
9 somebody --

10 A. No, it's a subsidiary of Yates.

11 Q. Okay. But that main line feeds into the
12 Transwestern main system?

13 A. I believe that's the way it works, yes.

14 Q. Okay. Now, does that hold true for all three
15 pools, only Agave?

16 A. Agave --

17 Q. Agave.

18 A. -- which would be -- Yeah.

19 I think so. I'm just not aware of any other
20 gatherer out here, but I'm not an expert on that.

21 Q. Should a second well -- Okay, let's talk about
22 multi-wells. Are you suggesting only one additional well
23 or a multitude of wells?

24 A. I haven't seen potential where I would recommend
25 to my management more than one well on a spacing unit.

1 What we're suggesting and what we're recommending for pool
2 rules is one additional well.

3 Q. Okay. And the placement of that well, I think
4 you had covered it, but I want to make sure I'm reading it
5 right. Should that be in a different quarter-quarter
6 section as the initial well, or is that still left up to
7 geology?

8 A. We would recommend that that flexibility be
9 retained, that it could be in any quarter-quarter, as long
10 as the distance from the boundaries be honored.

11 Q. Should there be a minimum requirement on the
12 distance from wells?

13 A. I don't think so. I think that the geology and
14 the technical data would dictate that, would be our
15 recommendation.

16 Q. If the present requirements are followed, and
17 that's 660 from the outer boundary, then the maximum
18 distance would be 1320 between wells?

19 A. If the current well is on a regular spacing. I
20 guess there's a diagonal case where it could be a little
21 more than that.

22 Q. But the bare minimum would be 1320 if they were
23 side by side with each other?

24 A. Yeah, you could move them closer, you could move
25 them more than 660 from the boundary, you could move them

1 closer together.

2 Q. Yeah, but the bare minimum would be 1320 if you
3 abided by the outer boundary rules?

4 A. I believe that's correct.

5 Q. And then closer internally, but you would be on
6 the same proration unit, correct?

7 A. Yes.

8 Q. On your abandonment rates, I believe you
9 testified that 15 MCF a day was --

10 A. I believe that's what we used. Yeah, I think
11 that's standard, what we used.

12 Q. Have you seen any relationship between pressure
13 and abandonment rate?

14 A. We've calculated all our abandonment -- or all
15 our projections, on the gathering pressure being the same,
16 being the same as it is now, and what it's been
17 historically, and so I have not made any relationship
18 comparison between those two.

19 Q. I know this bubble map was presented showing or
20 depicting at least -- What? Geometrically a drainage rate
21 or a drainage area?

22 A. Area, yeah.

23 Q. Have you had any experience or observation with a
24 channel sand such as this? And I believe the initial
25 production method is to go ahead and run a frac; is that

1 correct?

2 A. Yes, all these well have been frac'd.

3 Q. And how has your completion methods been as far
4 as perforating intervals? Have all intervals in the Abo
5 stringers been perforated, or have you went in and isolated
6 certain zones?

7 A. Our standard technique is to perforate every sand
8 with a few holes and then frac all those zones in one stage
9 with one frac job, using limited entry rates sufficient to
10 frac each of the sands.

11 Q. Now, will each of the sands be fractured -- this
12 is realistically speaking -- fractured homogeneously, or
13 will one fracture, say, be bigger than another because of
14 its thickness or, say, its permeability, porosity and --

15 Q. We design the fractures to end up with the same
16 frac length in each sand. Now, realistically, there's a
17 lot of uncertainty to that approach as well. But our
18 intent and our design is to end up with a consistent frac
19 length in each zone.

20 Q. With these sand members in a channel deposition,
21 does the fracs usually traverse or go in the same direction
22 of the channel, or do they traverse, or does it make any
23 difference?

24 A. I bet it does make some difference, and I don't
25 have any data -- That's something I'd like to know, one of

1 the many things about this field that I don't know, just
2 what the frac orientation is.

3 Q. And have you had the opportunity to study, say,
4 along a channel where there are two wells or two perforated
5 intervals that, say, match up in the same channel, if
6 you've had interference or noticed any interference either
7 in production rates or pressures, as opposed to those that
8 would, say, on either bank of the old channel?

9 A. Uh-huh. Like I said, I have not found -- and I
10 looked fairly exhaustively in the Township 6-25, and there
11 I found no evidence of interference, based on production
12 data, and there wasn't enough pressure data through time to
13 make an analysis. So in that one area I can say that there
14 was no interference.

15 In the larger area I have not looked in as much
16 detail.

17 Q. None at all? No interferences at all?

18 A. I found no evidence of interference in that
19 township.

20 Q. But you have found pressure depletions?

21 A. Yes.

22 Q. Or -- that would indicate that there was --

23 A. There's some communication.

24 Q. Do you know how many wells that Yates has
25 abandoned out here in the Pecos Slope-Abo Pool, roughly?

1 A. In the Pecos Slope-Abo Pool, my records show that
2 Yates has 470 producing gas wells and that currently active
3 we have 454. So we've abandoned -- what? Sixteen wells
4 out of 470.

5 Q. Has that just been recently, or spread out
6 between 1980 and --

7 A. It must have been spread out. We've not
8 abandoned any recently, to my knowledge.

9 Q. Now, if I remember your earlier testimony, the
10 Pecos Slope-Abo and the South Pecos Slope-Abo, they do abut
11 each other; is that right?

12 A. Yes.

13 Q. But there is several miles' distance between the
14 West Pecos Slope and the Pecos Slope, and what is the
15 barrier there that is separating those two pools?

16 A. There is just an area between the two of poor
17 sand development, is the way it's been described in the
18 literature, and that's my only explanation, is what I've
19 been able to read and talk to geologists who have worked
20 this area, that roughly five-mile strip running north to
21 south between two fields is just a shale section with poor
22 sand development.

23 EXAMINER STOGNER: Any other questions of this
24 witness?

25 You may be excused at this time.

1 Mr. Carr, do you have anything further?

2 MR. CARR: I have just a very brief statement.

3 EXAMINER STOGNER: Mr. Kellahin, I suppose you
4 have a statement?

5 MR. KELLAHIN: I have some preliminary matters,
6 Mr. Examiner --

7 EXAMINER STOGNER: Okay.

8 MR. KELLAHIN: -- and perhaps it's now time to
9 address those.

10 First issue is, we would request that this matter
11 be continued for 60 days. I'm renewing my earlier request,
12 filed with the Division.

13 The basis is to afford us an opportunity to
14 examine Mr. Stallings' work product and to determine what
15 position my clients will be taking with regards to making
16 this Application on a poolwide basis, available to all
17 operators. We are currently concerned that there is not
18 enough data to support it.

19 In addition, we are asking the Division to
20 require the Applicant to provide us the decline curves that
21 Mr. Stallings has for all the infill wells, so that we may
22 determine and check his work product insofar as it is
23 relevant to the Exhibit 17 which he has introduced, and
24 upon which he has calculated estimated ultimate reserves
25 for the pilot wells, the infill pilot wells. And that

1 certainly is predicated on the decline curves which were
2 not introduced and which we think are an essential
3 component of validating the exhibit that has been admitted.

4 And those are my preliminary matters, Mr.
5 Examiner.

6 EXAMINER STOGNER: As far as the decline curves
7 that you're seeking, would you be satisfied with the raw,
8 say, production data, and which that data can be
9 interpreted by your clients?

10 MR. KELLAHIN: You've asked me a technical
11 question that I'm not capable of responding to.

12 I simply need the information by which I can
13 validate his reserves. I believe he's done it with a
14 decline curve. I think it will be necessary to see how he
15 has forecast the hyperbolic curve. And so there's a
16 judgment he's made that I need to see, as opposed to the
17 raw data, which I think may not serve the purpose of what
18 I'm trying to accomplish.

19 So I think I would need to see the decline curve,
20 but I'm not an engineer and I can't tell you.

21 EXAMINER STOGNER: Mr. Carr?

22 MR. CARR: Well, as to the decline curve, it
23 seems to us that the appropriate thing to do is to provide
24 the raw data, and Mr. Kellahin's engineering experts can
25 then interpret it, and thereby we stay out of what may be

1 proprietary methods utilized by Yates.

2 If there is a substantial difference when they've
3 looked at the data, that is something that could be
4 explored at another time if, in fact, there is another
5 time.

6 As to a continuance, we -- In fact, we're opposed
7 to the continuance, and with your permission I would
8 address that very briefly right now.

9 EXAMINER STOGNER: Go ahead and address it.

10 MR. CARR: In 1993 we came before you in the full
11 light of Oil Commission hearings, and in 1994, with notice
12 to the industry, we undertook at our expense to try and
13 determine whether or not something better had to be done to
14 develop the remaining reserves in the Pecos Slope-Abo Pool,
15 and at our expense with fairly substantial effort in a
16 situation where the gas market has been down and the
17 economic advisability of conducting some of these things at
18 this time -- or these tests at this time.

19 In view of all of that, we have come forward with
20 what we believe is an appropriate presentation that, in
21 fact, we believe justifies infill rules that would provide
22 the flexibility to allow operators to go forward with
23 infill development.

24 Now, we can sit here today and come back in 60
25 days, and then in 60 days again, and I think it's very

1 clear that due to the complex nature of this reservoir,
2 that there is, in fact, never going to be an end to the
3 kinds of questions that could be raised, the kinds of
4 additional data that could be sought.

5 But what we've come in and done is reported to
6 the Division as the Division told us to do. You directed
7 us to come back, we have come back.

8 We have come back, and we have proposed an
9 additional optional infill well on each spacing unit. And
10 what we've done is, we've come before you with a proposal
11 that we believe clearly addresses the complexities of the
12 geology and the formations that we're talking about.

13 Yes, we haven't studied the West Bravo Dome --
14 I'm sorry, that takes me back to my other life -- the West
15 Pecos Slope-Abo like we have studied the Pecos Slope-Abo.
16 But I think we've showed you that the characteristics are
17 sufficiently similar.

18 We're not asking you to direct anyone to spend
19 one cent, we're not asking you to order that an infill well
20 be drilled. We're simply asking you for flexibility which,
21 when we look at this complex reservoir, is necessary if
22 we're really going to have the opportunity to produce the
23 remaining reserves that can be economically and efficiently
24 covered from the Abo formation in this area.

25 Lots of things aren't clear today, lots of things

1 won't be clear 60 days from now or probably six years from
2 now. But one thing is clear: Without infill drilling,
3 reserves will be left in the ground. And we think the time
4 to face that fact, to recognize it, to recognize that
5 operators need additional flexibility, is now, and we'll
6 oppose a continuance and request that an order be entered
7 based on the record made here today.

8 If, in fact, you decide to continue the case --
9 and that decision is certainly yours -- we would be opposed
10 to providing the decline-curve analysis, as opposed to the
11 raw data on the infill wells that we have drilled and
12 developed at our expense, trying to not only figure out
13 what has to be done with the reservoir but come back and
14 satisfy you that we have done and tried to do what we
15 represented we wanted the opportunity to do in 1993.

16 EXAMINER STOGNER: Mr. Kellahin?

17 MR. KELLAHIN: Mr. Carr has failed to provide you
18 an answer to my request for continuance.

19 Mr. Stallings has said there is no plan by his
20 client or his company to complete drilling the wells
21 already approved. There is simply nothing that's going to
22 occur in the next 60 days that's an adverse consequence to
23 Yates or anyone else. I think that a continuance is
24 appropriate.

25 The data is essential. It's highly irregular for

1 an applicant to provide you a summary conclusion in the
2 display and then tell us at hearing that the reservoir
3 engineer has not calculated the drainage area for the
4 infill wells. We need the decline curves as he's analyzed
5 them so that we can make that calculation.

6 The presentation is incomplete, and without that
7 information it appears to me that you have no opportunity
8 for agreeing with Yates. At this point the proof of the
9 case is, it's simply unable to determine whether this is
10 anything more than rate acceleration, or in fact recovering
11 unique reserves.

12 The important issue is that the offset operators
13 are going to be compelled on a poolwide basis to drill
14 what, as of this afternoon at three o'clock, appears to be
15 unnecessary wells.

16 The economic threshold for these infill wells is
17 400,000 MCF of gas. And if you'll look at his Exhibit 17,
18 you'll find multiple examples where his calculation of
19 recoverable gas reserves is not in excess of the 800,000
20 necessary for the offset well to be drilled and produced
21 economically.

22 And when you look at the hyperbolic decline
23 curves of these wells, the opportunity for a violation of
24 these correlative rights is very obvious. If Yates goes
25 forward with this project and drills the first infill well,

1 it will be the only well drilled. Early time production
2 benefits the operator that drills first.

3 I think it's an incredible leap in the procedure
4 to add infill drilling at this time. We would like to
5 reserve judgment on that issue for 60 days with the
6 additional data, and to come back at that time and complete
7 this case.

8 I've heard nothing from Mr. Carr that will show
9 any adverse consequences to that period of time being
10 afforded so that we may continue to study the data that
11 they've presented today.

12 EXAMINER STOGNER: Mr. Kellahin, at the end of
13 the 60 days what are you proposing? Reconvene this hearing
14 and present testimony? Or in the form of motions or --

15 MR. KELLAHIN: That would be the option of the
16 parties, is -- It would be back to on the docket and,
17 either at that hearing or prior that hearing, decide what
18 position to take, either support or in opposition to Yates,
19 and to provide testimony. I think there's nothing wrong
20 with that. But that would be my request, if I'm responding
21 to your question, Mr. Examiner.

22 EXAMINER STOGNER: Now, as far as the decline
23 curves, the information you're seeking, that would be on
24 all -- What is that? Eleven infill wells?

25 MR. KELLAHIN: And the original Phase II wells.

1 So there's -- I've forgotten the total.

2 EXAMINER STOGNER: And that essentially would be
3 those wells that are represented on Exhibit -- What is
4 that, 14?

5 MR. KELLAHIN: Yes, sir, and as repeated on
6 Exhibit 17. I think it's essential for some engineer to
7 take the reserve calculations, look at them, and then
8 calculate the drainage calculations and, in fact, see if
9 they can agree that these reserves are new reserves. The
10 substantial issue before you is whether these are new
11 reserves or simply rate-acceleration.

12 MR. CARR: Mr. Stogner, I would point out as to
13 the questions whether or not these are new reserves or not,
14 those questions have been addressed by a fully competent
15 witness.

16 Mr. Kellahin is seeking, I guess, a delay so that
17 now, two and a half years after we started this, they can
18 start. I would suggest that -- He talks about what is
19 highly irregular. It would seem to me that it is somewhat
20 irregular for someone with an issue pending for two years
21 to wait until the final hearing and not even attempt to
22 acquire data through subpoena, but to come in and basically
23 fish around and then decide that after the fact they can
24 continue the case and reopen it later, so they can take
25 issue with what we have, I think, in good faith brought to

1 you in the form of a report on our activities.

2 I also want to take issue here and now with the
3 statements that what we're seeking will result in
4 unnecessary wells being drilled. All we're asking is for
5 flexibility so that necessary wells can be drilled to
6 prevent waste.

7 EXAMINER STOGNER: Mr. Carr, this is somewhat of
8 a unique case inasmuch as an infill request in an
9 unprorated pool of this magnitude. I believe this will be
10 somewhat precedent-setting in the future, especially as gas
11 reserves dwindle in the northwest and in the coal gas area
12 and in other portions of southeast New Mexico.

13 This is a unique opportunity to address certain
14 issues, as we're not prorating pools anymore, and why not,
15 and because of the uniqueness of this case, I am going to
16 continue this matter for 60 days and schedule it again at
17 the January 11th, 1996, hearing.

18 And prior to that time I would expect, Mr.
19 Kellahin and Mr. Carr, since we're all in Santa Fe, perhaps
20 a prehearing meeting with myself and Mr. Carroll to
21 discuss, perhaps, Mr. Kellahin's plans, does it need to
22 come back to hearing, does additional testimony need to be
23 presented, or is there enough technical information that
24 can be provided in other means to satisfy us and make a
25 determination?

1 Also, I am going to require Yates to provide --
2 there again, it being a unique case -- the decline curves,
3 in full, to myself and Mr. Kellahin, showing the
4 information that he so desires.

5 And what kind of a time frame, Mr. Carr, do you
6 think would be appropriate?

7 MR. CARR: I can't tell you on that today, but I
8 can report first of the week to you.

9 EXAMINER STOGNER: Okay. Just be in contact with
10 Mr. Carroll, any communications on that.

11 Gentlemen, anything further?

12 MR. KELLAHIN: Not from me, Mr. Examiner.

13 EXAMINER STOGNER: Because this is a unique case,
14 I was wishing there would be more operators here.

15 Oh, there's one other matter, too, that I had
16 requested earlier, Mr. Carr.

17 MR. CARR: A list of the operators by pool?

18 EXAMINER STOGNER: Yes, and perhaps a number of
19 wells apiece, the number of wells in each pool.

20 MR. CARR: In each pool?

21 EXAMINER STOGNER: Yeah. So I can sort of see
22 what the percentages are.

23 What we might be able to do -- Maybe we can meet
24 with Mr. Ed Martin and see if there's an easier way to get
25 this out of ONGARD or how this information is best

1 obtainable. I don't even know anymore what kind of
2 information is obtainable.

3 But perhaps either you can provide it or we can
4 get together and figure out what's the best way to get that
5 information available to us.

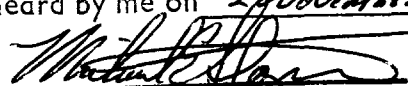
6 Again, I wish there was more operators
7 represented here today, because this is a unique situation,
8 and we did come down to Roswell.

9 The hearing for the 11th of January is up in
10 Santa Fe, and so that's where it will be reconvened or
11 taken under advisement at that time.

12 If there's nothing further at this point in any
13 of these five cases, then this matter is adjourned, and we
14 enjoyed our stay in Roswell.

15 (Thereupon, these proceedings were concluded at
16 2:41 p.m.)

17 * * *

20 I do hereby certify that the foregoing is
21 a complete record of the proceedings in
22 the Examiner hearing of Case Nos. 11421, 11422, and
23 heard by me on 29 November 1995. *Reopened*
, Examiner *Case Nos.*
24 Oil Conservation Division *10793*
10781
11024


CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

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

WITNESS MY HAND AND SEAL November 12th, 1995.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998