

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)
 CORPORATION FOR POOL CREATION)
 AND SPECIAL POOL RULES INCLUDING)
 SPECIAL SPACING AND WELL LOCATION)
 REQUIREMENTS AND A SPECIAL OIL)
 DEPTH BRACKET ALLOWABLE, CHAVES)
 COUNTY, NEW MEXICO)

CASE NO. 12,751

ORIGINAL

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REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

November 1st, 2001

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, November 11th, 2001, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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November 1st, 2001
 Examiner Hearing
 CASE NO. 12,751

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A P P E A R A N C E S

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 By: WILLIAM F. CARR

* * *

1 WHEREUPON, the following proceedings were had at
2 9:25 a.m.:

3 EXAMINER CATANACH: At this time I'll call Case
4 12,751, the Application of Yates Petroleum Corporation for
5 pool creation and special pool rules including special
6 spacing and well location requirements and a special oil
7 depth bracket allowable, Chaves County, New Mexico.

8 Call for appearances.

9 MR. CARR: May it please the Examiner, my name is
10 William F. Carr with the Santa Fe office of Holland and
11 Hart, L.L.P. We represent Yates Petroleum Corporation, and
12 I have two witnesses.

13 EXAMINER CATANACH: Any additional appearances?
14 Will the two witnesses please stand to be sworn
15 in?

16 (Thereupon, the witnesses were sworn.)

17 DAVID F. BONEAU,
18 the witness herein, after having been first duly sworn upon
19 his oath, was examined and testified as follows:

20 DIRECT EXAMINATION

21 BY MR. CARR:

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

23 A. My name is David Francis Boneau.

24 Q. Dr. Boneau, where do you reside?

25 A. Artesia, New Mexico.

1 Q. By whom are you employed?

2 A. Yates Petroleum Corporation.

3 Q. And what is your position with Yates Petroleum
4 Corporation?

5 A. I work as engineering manager there.

6 Q. Dr. Boneau, have you previously testified before
7 the Oil Conservation Division?

8 A. Yes, sir.

9 Q. And have your credentials as an expert in
10 petroleum engineering been accepted and made a matter of
11 record before this Division?

12 A. Yes, that's correct.

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

15 A. Yes, I am.

16 Q. Have you made an engineering study of the subject
17 area and the well which has resulted in this Application
18 actually being filed?

19 A. Yes, I have done that.

20 Q. And are you prepared to share the results of that
21 work with Mr. Catanach?

22 A. Yes, sir.

23 MR. CARR: Mr. Catanach, are Dr. Boneau's
24 qualifications acceptable?

25 EXAMINER CATANACH: They are.

1 Q. (By Mr. Carr) Initially, would you summarize for
2 the Examiner what it is that Yates seeks with this
3 Application?

4 A. Yes, I'll try to do that. We have actually a
5 fairly long list of things that we're seeking.

6 We're seeking creation of a new pool, and we're
7 suggesting it be called Pecos Slope Deep Oil Pool, but that
8 could be changed. And this new pool is the result of a
9 well we drilled that discovered oil. The well is called
10 George QJ Federal Number 10. It's located 660 from the
11 south and 1500 feet from the west, Section 26, Township 6
12 South, 25 East, in Chaves County, New Mexico.

13 We ask that the pool boundaries for this new pool
14 be simply what's one spacing unit or consisting of the west
15 half of Section 26, and that the pool include all
16 formations below the Abo.

17 And then that there be special rules for this
18 pool that include 320-acre oil well spacing, a preapproved
19 infill well in the quarter section that does not contain
20 the original well, and then a special depth bracket
21 allowable that's 694 barrels of oil per day for the 320-
22 acre spacing unit.

23 Q. Dr. Boneau, you've prepared exhibits for
24 presentation here today --

25 A. Yes, sir.

1 Q. -- and I'd ask you to go to what has been marked
2 Yates Exhibit Number 1, which is entitled "Summary", and
3 review the information on this exhibit and explain to the
4 Examiner the reasons we're seeking these particular
5 authorizations.

6 A. Okay, I'll try to do that. The summary tries to
7 say that -- I like to give a little background of where we
8 got to this situation, and that background is, basically,
9 we were drilling a lot of gas wells looking for deep gas in
10 Chaves County, and we found this oil well. And our goal is
11 to somehow make a home for this oil well, accommodate this
12 new oil well into our 320-acre gas play, gas play where the
13 deep wells are normally on 320 acres. And I've listed --
14 tried to tell you what specifically we seek, and I'm sure
15 that will come up again and again.

16 I'd like to point out -- probably right now is as
17 good enough as any -- that -- you'll see that almost all
18 the acreage is controlled by Yates, and all the acreage is
19 already held by Abo production, and so there's no issue of
20 holding acreage in this. We just have this marvelous oil
21 well that was a surprise.

22 The other part of the summary is that I'm trying
23 to show you what data we have on this new oil well, and so
24 we're going to see that the well actually produced gas
25 originally, turned to oil, it's produced about 27,000

1 barrels of oil in two months. It's now making 380 barrels
2 of oil a day and associated gas. I'm going to show you my
3 estimate that it will make something like 230,000 barrels
4 of oil in its lifetime and drain a pretty big area. My
5 number is 199 acres, but a pretty big area.

6 It's a single-well pool at this time. We need a
7 home for it, we're looking for help to get a home for it.
8 We realize that maybe the solution is some temporary rules
9 for a period of time until we can learn more about the
10 area.

11 But that's an outline of what I intend to tell
12 you in a little more detail.

13 Q. So we're going to start by giving the information
14 we have on the well and the area, and then we're going to
15 make recommendations on what can be done with this well, at
16 least on a temporary basis, while additional information is
17 gained; is that a fair statement?

18 A. Yes, sir, that's our intention.

19 Q. Let's start with the general development of this
20 area and go to Yates Exhibit Number 2, which is a map that
21 covers a very large area, and I'd ask you to explain why we
22 mapped this large area and what this exhibit actually
23 shows.

24 A. I'll attempt to do that. This is a big map, and
25 we're not going to look at all these wells in detail. The

1 point is, up in the top left, in 6 South, 25 East, is the
2 well that we're talking about, the George Number 10, and
3 it's in the same area as the Pecos Slope-Abo Field, it's in
4 more or less the heart of the Pecos Slope-Abo Field.

5 We got there by starting like two years ago,
6 looking at an old field called Foor Ranch Pre-Permian, down
7 in 9-26, down in the lower right-hand corner of this map,
8 and it -- it's called Pre-Permian, it produces from what we
9 think is Silurian carbonate. And we started drilling on
10 the edges of that and found some gas, and we drilled
11 another one and another one, and we eventually found gas in
12 both the Silurian, some in the Penn-Strawn, some in the
13 Cisco and some in the Wolfcamp.

14 And as this play developed, we moved northwest.
15 So from the bottom right of the map, up northwest, and
16 eventually we're trying to drill deep wells in the old
17 Pecos Slope-Abo Field. And we've drilled a hundred or more
18 of these wells in making this play, and it's been
19 successful to the extent that we're producing 30 million a
20 day of gas that we weren't producing. So it's been a
21 relatively successful gas play, a hundred wells or more.

22 And then we drilled the George 10, and it turns
23 out to be an oil well. And it's producing more than 80
24 barrels of oil a day and we need a home for it, we need a
25 pool for it to fit into.

1 So really the only point of this big map is to
2 show that we actually started 20 miles away here and have
3 moved with our gas play that's on 320 acres up through here
4 and found a number of interesting things, and we bumped
5 into this oil well, up at the top of the map.

6 Q. Let's go to Exhibit Number 3, the Yates ownership
7 plat, and I'd ask you to review with Mr. Catanach what this
8 exhibit actually shows.

9 A. Yes, sir, Exhibit 3 is a smaller map, mostly
10 covers Township 6 South, 25 East, and it shows the
11 ownership in that area. Like I say, all of this acreage is
12 held by producing Abo wells. The 100-percent Yates leases
13 are shown in yellow, and the leases that Yates operates but
14 doesn't own 100 percent are outlined in yellow. And if
15 you'll look close, that covers a huge portion of the map.

16 The main area not controlled by Yates, not
17 operated by Yates, is in Sections 21, 22, 23, with a little
18 chimney up to the north in 15 and 10. There's one big
19 lease operated by Great Western Drilling that's not us, but
20 very close to everything else on the map is Yates-operated,
21 and all that acreage is held.

22 Q. And Great Western Drilling is the only other
23 operator in this area?

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

25 Q. And they have been notified of today's hearing in

1 accordance with Division Rules; is that correct?

2 A. Definitely, yes, sir.

3 Q. All right, let's go to Exhibit Number 4, the
4 chronology, and I'd ask you to identify this and not review
5 it in great detail.

6 A. Exhibit 4 is -- internally, it's a document -- we
7 call it a chronological -- it shows day by day the drilling
8 and completion activity on this well, and it contains
9 probably way more details than we need. But if we need
10 some of those details, they're available in this exhibit.

11 The well was spudded in July of this year, and it
12 was perforated in early August of this year.

13 Q. Is Exhibit Number 5 the production history for
14 the well?

15 A. Yes, Exhibit Number 5 is a two-page exhibit that
16 shows what oil, gas and water and some associated choke
17 size and tubing pressures for the entire history of this
18 well, starting on August 10th of this year and going down
19 through October 24th, a few days ago.

20 So we perforated the lowest good-looking zone in
21 this well. The perforations are actually at 4996 to 5012.
22 It originally made a little gas on August 10th, and we
23 thought we had a gas well. But we tested again for a few
24 hours on August 13th, and then it took a week or so, a week
25 or ten days, to bring the pipeline over to this well. So

1 the well actually went on sales, on production on August
2 22nd. And as you can see, it made gas, around 1 1/2 to 2
3 million MCF a day for three days.

4 And on August 25th it started making oil and the
5 gas started going down. And within a week or so it was
6 more or less leveling out at things like 300 barrels of oil
7 a day and 200 or so MCF, a GOR something about 600 standard
8 cubic feet per barrel.

9 And it's hung in there really well through the
10 present time. The last report I have is 382 barrels of oil
11 a day, 235 MCF a day on a 15/64 choke, flowing. So it's
12 been quite a strong well, oil well, for two months or so.

13 Q. So at this point in time you, in fact, have a
14 flowing black oil well; is that fair to say?

15 A. We have a flowing black oil well.

16 Q. Let's go to Exhibit Number 6, the bottomhole
17 pressure plot. What does this show you?

18 A. During the week or so that the gas pipeline was
19 being built to this well, we measured the bottomhole
20 pressure. I should have circled it so you can see where it
21 is, but on the right-hand side about two or three inches
22 from the top it says 2321 p.s.i. That apparently is the
23 bottomhole pressure of this reservoir, and that's about a
24 .44, .45 gradient, say. It's a relatively normal gradient,
25 indicating we have a virgin reservoir. I think it's

1 probably believable as virgin reservoir since there aren't
2 other oil wells around there. But it's consistent with it
3 being a virgin oil reservoir.

4 Q. Let's go to the production history, Exhibit 7.

5 A. We have two or so months of real production, and
6 so to predict the future is, you know, ambitious and
7 probably wrong, but I've done it anyway. The well has been
8 strong, but it's going to decline. And I have it declining
9 about 40 percent per year, as shown by the green line in
10 this exhibit. The gas has leveled off at a GOR of about
11 600, and I think the gas will fall as the oil falls. And
12 so I've shown a prediction shown by the red line.

13 Actually, I could have made a much more
14 optimistic prediction of this, but I -- It's going to be a
15 good well, and it's going to make several hundred thousand
16 barrels of oil. This is my detailed best prediction
17 estimate I can make at this time.

18 Q. Let's go to Exhibit Number 8.

19 A. And Exhibit Number 8 is a computer printout, just
20 to put numbers to the decline curves that were shown in the
21 previous exhibit. The main point here is, in the lower-
22 left corner I've circled my estimate that the well will
23 make 232,000 barrels of oil over approximately nine or ten
24 years.

25 Q. All right, you've also got a log analysis,

1 Exhibit Number 9. What does this show?

2 A. The point of the next couple exhibits is to just
3 show our estimate of the drainage area, and for that you
4 need to know what information the logs tell you. Exhibit 9
5 is a table of my foot-by-foot log analysis of the porosity
6 and resistivity logs from this well. It's about a 15-foot
7 interval, 17-foot interval.

8 I have average porosity that's in the 6-, 7-, 8-
9 percent range, pretty good porosity for a carbonate, high
10 resistivities, 300, 400, 500 numbers. And so there's no
11 water. The oil saturation you can see there calculated out
12 to about 20 percent. And the rest of the porosity is
13 filled with oil, is what the logs say. And to calculate
14 the drainage area you need that number in the lower right-
15 hand corner, the total hydrocarbon pore volume, about .08
16 feet of oil-filled porosity.

17 Q. Behind that exhibit we have two log sections?

18 A. We have Exhibit 10 and Exhibit 11. Exhibit 10 is
19 a portion of the porosity log the Cisco zone. And you can
20 read the numbers in my table off of that original log.

21 And Exhibit 11 is a resistivity log for the same
22 section, and you can -- or at least you can; I read entries
23 off there and put them in my table in Exhibit 9 in order to
24 get this calculation completed.

25 Q. Now, you've taken this information, Dr. Boneau,

1 and you've calculated a drainage area for the well, have
2 you not?

3 A. That's shown on Exhibit 12, and we've talked
4 about most of the pieces that go into it. From the log we
5 have this hydrocarbon pore volume, 0.8, and we're, of
6 course, assuming that it's a pancake reservoir and all
7 those things that are probably not right.

8 Item Number 3 on Exhibit 12 shows the formation
9 volume factor of 1.28. That's a standard kind of number
10 for a black oil. I'm using an ultimate recovery of 25
11 percent of the oil in place, and that's in line with the
12 kind of estimates you find in the reservoir or you find on
13 the street someplace.

14 And then Item 5 is the actual calculation.
15 232,000 barrels of oil in the reservoir that we have these
16 logs on, will require 199 acres of that kind of reservoir
17 to provide that much oil.

18 Again, this is an estimate, but it's -- this well
19 is not draining 40 acres, it's not draining 80 acres. It's
20 draining 160 or more acres. It's draining a relatively
21 large area.

22 Q. And again, what you're seeking is 320-acre
23 spacing with a preapproved infill in that 320-acre spacing
24 unit; is that correct?

25 A. That's correct, yes.

1 Q. At this point in time, you're basing your request
2 on information from one well?

3 A. Yes, sir.

4 Q. And this is a well that initially started as a
5 gas well and quickly became what is definitely an oil well?

6 A. Yes, so it looks like it's near a gas-oil contact
7 or it's in an associated pool or --

8 Q. Do you have enough information to make that
9 determination at this point in time?

10 A. I'm not comfortable with making much definitive
11 determination at this time, other than it's draining a big
12 area and it's showing a lot of oil.

13 Q. Is there going to be additional development of
14 this particular oil pool?

15 A. Yes, there's going to be development. We're
16 going to drill on every side of it till we find where it
17 goes.

18 Q. And as that information comes in, will you have
19 information to assist you in determining whether or not you
20 have an oil pool, or should you come back and seek the
21 creation of an associated pool?

22 A. When we drill these additional wells we'll have a
23 lot better picture of what's going on and what kind of pool
24 it really should be.

25 Q. Does it make more sense to you at this point in

1 time to seek 320-acre spacing with an infill than to go out
2 with 160 development and come back in a year or two and, if
3 you're seeking the creation of associated pool, to be
4 addressing perhaps a spacing change at that time?

5 A. It always makes more sense to start with bigger
6 spacing because you have the possibility, but it's very
7 tough, beyond belief, to try to upspace. So 320 acres, I
8 think, is the safe place to start here, and we'll see where
9 the information takes us. Maybe it will take us to 320 or
10 maybe it will take us to 160. But there will be a lot less
11 problems in the future if we could start with a 320 oil
12 pool, despite how strange it sounds. I think it's the
13 sensible place to start, based on the information that we
14 have.

15 Q. If the Division were to approve temporary rules
16 as you've requested for 320-acre spacing with a pre-
17 approved infill, for what period of time would you
18 recommend that these rules remain in place before you come
19 back to present additional information on this reservoir?

20 A. I'd like to see temporary rules in place for two
21 years so that we have time to really get to the answer.
22 I'm not sure -- Well, one year just comes really fast. It
23 sounds like a long time, but it just comes fast. And I
24 think in two years we'll have a story here that makes
25 sense.

1 Q. Could you just generally summarize for the
2 Examiner the reasons you're seeking this particular 320-
3 acre spacing rule?

4 A. Well, we've talked about a lot of those. The
5 main reason for the 320 acres is that the well drains 150,
6 200, 250 acres. It's almost a reasonable number for what
7 we know about the well. The depth bracket allowable of 694
8 barrels of oil a day, we came to by looking in the table
9 for 160-acre spacing at 5000 feet, and that number is 347,
10 and we doubled it for two 160-acres sitting next to each
11 other.

12 So that's where the 694 barrels of oil a day came
13 from. I hope that answers your question.

14 Q. And if this Application were approved, what
15 spacing rules would be approved on a temporary basis would,
16 in fact, be consistent with the rules that apply to the
17 development of other producing horizons in the area; is
18 that fair to say?

19 A. It's also true that we've been drilling gas wells
20 on 320, and it would be convenient for us if we could
21 continue our development on 320s, and maybe we'd get oil,
22 maybe we'd get gas, maybe we'd get nothing, but we'd kind
23 of have the situation covered for this temporary period.

24 Q. In your opinion, would approval of this
25 Application result in the orderly development of this

1 reservoir?

2 A. Yes, sir.

3 Q. Would it be in the best interests of
4 conservation, the prevention of waste and the protection of
5 correlative rights?

6 A. It really would, yes, sir.

7 Q. Would Yates also call a geological witness to
8 provide an overview of what we know about the reservoir at
9 this time from a geological perspective?

10 A. Yes, there will be another witness that knows a
11 lot more details of what the story is with this well.

12 Q. Were Exhibits 1 through 12 prepared by you or
13 compiled under your direction?

14 A. Yes, they were.

15 MR. CARR: At this time, Mr. Catanach, we move
16 the admission into evidence of Yates Petroleum Corporation
17 Exhibits 1 through 12.

18 EXAMINER CATANACH: Exhibits 1 through 12 will be
19 admitted as evidence.

20 MR. CARR: And I would also like to move the
21 admission of Yates Exhibit 13, which is a notice affidavit
22 confirming that notice was provided to Great Western
23 Drilling of this hearing and the Application.

24 EXAMINER CATANACH: Okay, Exhibit Number 13 will
25 be admitted as evidence.

1 MR. CARR: That concludes my direct examination
2 of Dr. Boneau.

3 EXAMINATION

4 BY EXAMINER CATANACH:

5 Q. Okay, Mr. Boneau, this well is completed in the
6 Cisco formation?

7 A. Yes, that's our estimate of what it should be
8 called, yes, sir.

9 Q. Can you explain to me the need to include all
10 formations from the base of the Abo down in this new pool?

11 A. Well, we're looking for as much flexibility as we
12 can get. The gas wells -- Foor Ranch is called Pre-
13 Permian. The names of those formations up there are
14 subject to, you know, dispute. And we have actually spent
15 almost two years on a geophysical/geological kind of study
16 to try to identify these things, and we think that we're
17 starting to get a handle on what they really should be
18 called and what age they are, et cetera, but there is
19 dispute.

20 In this area -- I'll get to your question
21 eventually, I think. In this area below the Permian, there
22 is really only upper Penn, so there is no Silurian,
23 Devonian, et cetera. There really is only -- by Upper
24 Penn, essentially Cisco and Strawn. There's nothing below
25 that.

1 So our request is not as extreme as it might
2 sound, if you think of it being Siluro-Devonian,
3 Ellenburger, Montoya, blah, blah, all those things. It
4 really amounts to only, I say, Upper Penn, but Penn down
5 through Strawn, Cisco and Strawn.

6 And so our request kind of is an analogy, like I
7 say, with the Foor Ranch Pre-Permian where you've just
8 taken a relatively small 1500 feet or so of -- a billion
9 years' worth of sediments, but a relatively small interval
10 and lumping into one thing, because that's what we're
11 exploring for, because the actual nomenclature is not well
12 known and our geologists and the State geologists don't
13 agree on the names all the time.

14 So I'm telling you, it's a simple way to cover
15 the waterfront without getting stuck in the arguments over
16 actually what we should call things. It gives us
17 flexibility in the fact that the section is not that thick
18 or doesn't contain -- or only contains a few formations,
19 might appeal to you to let us do that.

20 Did I answer hitting in there somewhere?

21 Q. Maybe.

22 A. Maybe.

23 Q. There is no Wolfcamp in this area?

24 A. There is Wolfcamp in this area.

25 Q. There is Wolfcamp?

1 A. Yes.

2 Q. Okay, but would you seek to include that?

3 A. Yes, you're right, I maybe misstated that. We
4 would seek to include in this Wolfcamp, Cisco and Strawn.
5 That's really what it comes down to we would be including.
6 Wolfcamp -- Well, as you know, Wolfcamp is the bottom of
7 the Permian and the upper Penn.

8 Q. The gas wells that you've been drilling and
9 completing for, where have those generally been completed?

10 A. Well, in this whole play they've been completed,
11 those four places I tried to -- they've been Silurian
12 dolomite -- or Devonian dolomite, we think it's Silurian
13 dolomite; Strawn, normally sands; Cisco, normally dolomite
14 or carbonate; and strange Wolfcamp stringers that have been
15 some carbonate, some sands.

16 And the only additional thing I'm saying is, in
17 this northern part around this George well, there is no
18 Devonian-Silurian.

19 So we look at -- In the area that we're drilling
20 we look at targets as being the Strawn sands, the Cisco
21 carbonates and Wolfcamp stringers of both sand and
22 carbonates. Those are the zones we're looking for.

23 Q. All right. In this particular well, did you have
24 any -- was there any potential in the Wolfcamp or the
25 Strawn?

1 A. There's potential in the Cisco and the Wolfcamp,
2 also in the Abo there's no Strawn potential, is my memory,
3 and the geologist may give you a better answer.

4 Q. So in this particular well, the George well,
5 there is Wolfcamp potential?

6 A. There are probably gas zones in this -- uphole in
7 this particular well.

8 Q. Now, you don't have any plans at the current time
9 to go perforate the Wolfcamp in this well, do you?

10 A. No, sir.

11 Q. What would be the benefit to combining all three
12 of these zones into one pool, Dr. Boneau?

13 A. I say the word flexibility. It just saves us
14 paperwork and coming up here and visiting with you folks.

15 Q. Do you see there being any detriment to the
16 reservoirs, lumping them all in together and producing them
17 all as a single source of supply?

18 A. I don't see any detriment unless it really gets
19 too extreme. If there are two zones together, I don't see
20 any detriment. I -- well, don't hope, but I don't foresee
21 us finding ten separate zones that are put together, and I
22 really wouldn't want to do that, just because you don't
23 know what's going on. But two or three zones are going to
24 produce okay in this kind of situation.

25 Q. Certainly, if we decide just to maybe have the

1 Cisco as the only formation in the pool, you certainly
2 still could produce the Wolfcamp by downhole commingling or
3 some other method, dual completion or --

4 A. Yeah, you're right in that I can't predict all
5 the situations that are going to come up, and that's part
6 of the problem. But you're right that we together could
7 make something work for every situation that came up.
8 We're asking for some sort of -- what we hope would turn
9 out to be a more or less blanket solution than a case-by-
10 case solution.

11 But you're absolutely right, and I'm confident we
12 can find a case-by-case solution.

13 Q. Well it seems to me, though -- I mean, we're
14 talking about different common sources of supply here;
15 you're not talking about a single pool, you're talking
16 about multiple oil pools and gas pools.

17 A. Well, in the same sense that the Delaware is
18 multiple oil pools and gas pools or that the Queen-
19 Grayburg-San Andres is, but yes, you know, you're right.

20 Q. Okay. Does this reservoir exhibit higher
21 permeability than, say, a typical carbonate?

22 A. I'm not sure about typical, but this is on the
23 high side permeability of what I've run into, yes, sir.

24 Q. Do you know what it is, I mean average?

25 A. No.

1 Q. But it is on the high side?

2 A. I think so, yes, sir.

3 Q. Your estimated ultimate recovery was based on
4 volumetrics?

5 A. No, it was based on taking two months of
6 production and drawing some line into the future.

7 Q. Okay, so it was based on the decline curve --

8 A. Yes.

9 Q. -- that you generated?

10 A. Yes, sir.

11 Q. Is there any other reservoirs like this in this
12 area? I mean...

13 A. Not in Chaves County there's not, no. And it
14 might be like Bough reservoirs in Lea County or something
15 like, you know, Saunders field or something when you
16 actually learn about it.

17 But no, it's a surprise to everyone.

18 Q. Do you know what the development plan is at this
19 point, where you might drill the next well?

20 A. We'd like to drill the next well in this same
21 spacing unit, to the north of this George 10 location,
22 subject to BLM giving us a location, et cetera.

23 Q. So the northwest quarter, probably?

24 A. The northwest quarter of Section 26 is the next
25 well we would drill if we could do what we wanted.

1 Q. Now, you said something about this may be an
2 associated pool. Can you elaborate on that?

3 A. Well, it produced gas for three or four days.
4 That's kind of mind-boggling in itself when it turned to
5 oil, but it's got to be near a gas cap of some sort. You
6 know, it might just be a little hump that we happened to
7 hit on top of the oil, but there was gas for five days,
8 there's gas close by.

9 One explanation would be that there's a
10 relatively extensive gas cap nearby, and you call that an
11 associated pool. I mean, I think that's the definition of
12 associated pool.

13 So it's simply based on, the well started as a
14 gas well, it turned to oil, there's got to be gas around
15 there somewhere, presumably associated with this oil. It
16 might turn out to be an associated pool with gas and oil
17 wells in communication.

18 Q. So you don't think at this point it's a solution
19 gas drive? Or can you tell?

20 A. Well, what the well is producing now is oil plus
21 the solution gas that was in that oil. The production from
22 the gas cap, if there is one, stopped. It's not happening
23 now. It might be providing drive to push this oil towards
24 our reservoir, or -- so it might be a solution gas drive
25 reservoir, it might be a solution gas drive reservoir with

1 a gas cap expansion assisting that, it might be some other
2 things, but we're guessing right now.

3 EXAMINER CATANACH: Okay, I think that's all I
4 have of this witness, Mr. Carr.

5 MR. CARR: At this time, then, we would call Tim
6 Miller.

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

10 DIRECT EXAMINATION

11 BY MR. CARR:

12 Q. State your full name for the record, please.

13 A. My name is Herbert Tim Miller.

14 Q. Mr. Miller, where do you reside?

15 A. I reside in Carlsbad, New Mexico.

16 Q. And by whom are you employed?

17 A. Yates Petroleum Corporation.

18 Q. What is your position with Yates?

19 A. I'm a geologist for Yates.

20 Q. Have you previously testified before the New
21 Mexico Oil Conservation Division?

22 A. Yes, I have.

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

1 A. Yes, they were.

2 Q. Are you familiar with the Application filed in
3 this case on behalf of Yates?

4 A. Yes, I am.

5 Q. Have you made a geological study of the area
6 which is the subject of this Application?

7 A. Yes, I have.

8 Q. And are you prepared to share the results of that
9 work with the Examiner?

10 A. Yes, I am.

11 MR. CARR: Are Mr. Miller's qualifications
12 acceptable?

13 EXAMINER CATANACH: They are.

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

16 A. Yes, I have.

17 Q. Let's go to what has been marked as Yates Exhibit
18 Number 14. Would you identify that and review it for Mr.
19 Catanach?

20 A. Okay, Exhibit Number 14 is a plat, a smaller
21 version of the bigger map that Dr. Boneau has showed
22 earlier. It shows the George well in our proposed 320-acre
23 pool unit in Section 26 of 6 South, 25 East.

24 What is also shown on the map is a cross-section
25 that I will present later, that runs from the southwest

1 starting down at what is A, the Five Mile Draw LX Fed
2 Number 1, up through the George 10 well and over to what is
3 known as the Cottonwood Ranch MK Number 1 at A', basically
4 running southwest to northeast and over to east southeast.

5 Q. And the cross-section is a structural cross-
6 section?

7 A. Yes, it is.

8 Q. Let's go to that, Exhibit Number 15.

9 A. Okay, as I said, the cross-section, again, on
10 Exhibit 14 runs from the Five Mile Draw LX Fed Number 1,
11 which is the well on the far left, to the right it runs
12 through the George 10 and ends up over in the east
13 southeast, Yates Petroleum Corporation's Cottonwood Ranch
14 MK State Number 1.

15 And what I've kind of in a general form tried to
16 show in this map -- again, it is hung on a minus 500-foot
17 subsea datum, structural cross-section -- is the different
18 formations that we have been producing out there, basically
19 from the Abo, which you see up on the Five Mile Draw Number
20 1 well, the one on the far left, those are the sands with
21 perforations that are colored in yellow on the gamma ray,
22 and then the neutron density crossover is colored in red
23 for the porosity.

24 Same thing over in the George 10, which of course
25 is the oil well we are now producing down into the Cisco,

1 and it does have potential up in Abo for later production.

2 And then the Cottonwood Ranch 1, again; it has
3 been producing out of the Abo formation, which is also
4 colored.

5 The cross-section, again, shows from the Abo
6 section, the Wolfcamp, the Cisco, what we're calling the
7 Strawn interval, down to the basement which out there is
8 known as Granite Wash.

9 I have shown down what we're calling in-house the
10 George zone because of the George well. And at this time
11 we are thinking that formationwise it is a Cisco interval.
12 We're hoping in one of our future wells to run a full-
13 diameter core so maybe we can get some fossils out of it
14 and maybe date it as a Cisco zone.

15 Again, as Dr. Boneau has stated, the nomenclature
16 out here, once you get up here in this part of the Pecos
17 slope, as to what these formations actually are, a lot of
18 people, below the Abo, say you have Wolfcamp, Penn, and
19 then at the basement the Granite Wash.

20 I think -- in house, anyway, we're calling -- we
21 have Wolfcamp interval and the Cisco interval, then with
22 our study that Dr. Boneau had mentioned down in Foor Ranch,
23 we think we have identified the ages of the lower Penn
24 zone, the Strawn, and then we have Cisco.

25 As you can see on the cross-section, just taking

1 the middle well, which again is the George well -- these
2 three logs are taken off the neutron density logs -- you
3 can see the George zone is colored in blue. The neutron
4 density crossover is highlighted with red. It has a
5 maximum on the density curve of reading 16-percent
6 porosity, and on the neutron curve you're reading right
7 around 2- to 3-percent porosity. And this is -- in Chavez
8 County, especially out in this part of the world, this is
9 very good porosity for a carbonate. This is a limestone up
10 there.

11 And the reason why I have these three wells up
12 here, these are the only three wells in the area that have
13 been -- that we have recently drilled or that have been
14 drilled in the past, that have penetrated the basement,
15 that had this zone in them.

16 Now, the Five Mile Draw Number 1, the well to the
17 left, we attempted earlier when we drilled this well to try
18 to complete out of what we're calling George zone, and
19 right up above it, that is basically what would be called
20 -- what we would call in this cross-section a Cisco sand.
21 Back then we thought it probably was a sandstone because,
22 much to our misfortune, I guess, or whatever, we didn't run
23 a mudlogger through this, because I guess at this time we
24 were concentrating mainly on Abo-Pecos Slope.

25 So at that time thinking probably it was a sand,

1 we did a gel frac. And we think we have followed it up
2 completionwise, so we have plans to come back into the Five
3 Mile Draw 1 and test that George zone and see what it will
4 really do.

5 Now, the sand up above it, which has
6 perforations, which is colored in yellow, red on the cross-
7 section, that was potentialized for 800,000. But apparently
8 we had some downhole mechanical problems. We have a plug
9 set up at 4811, a packer with a plug, and when we get our
10 AFE approved, we attempt to go back down here and try to
11 complete out of the George zone and see if it will do as
12 well or similar to the Cisco zone over in the George 10.

13 Now, the well off to the right is the Cottonwood
14 Ranch Number 1. This well was initially drilled to the
15 basement, and we never tested the George zone, as you can
16 see, in it. We have been producing out of the Abo sands,
17 way up on the Abo formation. After completing the George
18 well, we came over here and recompleted out of this zone.
19 And production varies, but it averages at this time about
20 780,000 -- between -- well, just averaging 780,000, 10
21 barrels of oil and 10 barrels of water daily.

22 It correlates as being the same zone. But once
23 again, since this is a brand-new interval out here, we've
24 never encountered before, all the wells we've attempted to
25 drill to the basement so far, if we have any zones, as Dr.

1 Boneau said, in the Wolfcamp, which are sands -- as you can
2 see in the George well itself, up above you see -- up above
3 the George interval you see several zones that are colored
4 in yellow. Those are basically a combination of Wolfcamp
5 and Cisco sands, which from our recent experience probably
6 are gas.

7 The cross-section just basically is a structural
8 cross-section. As you go to the northwest in this area you
9 generally move updip, and you can see the Five Mile Draw
10 Number 1 is structurally higher than the George, and the
11 George is structurally higher than the Cottonwood Number 1.

12 Q. Mr. Miller, in this area you're obviously working
13 with limited data when we look at this George --

14 A. Right, we do not have very many deep penetrations
15 out here. Management decided about a year ago, after we
16 had this big drilling program to drill for the Abo, that if
17 we had deep rights under all our Abo locations, management
18 decided to take everything to the basement and test the
19 deeper formations, because basically it had never been done
20 before.

21 Everybody's general thinking was, and probably
22 still is, outside of us, that there's nothing below the Abo
23 formation up there.

24 Well, we're proving that false, and we've been
25 pleasantly surprised by our deeper efforts, which basically

1 probably take an extra two or three days of drilling once
2 you drill below the Abo formation.

3 Q. This information also explains the concern and
4 confusion there is with the nomenclature in the area?

5 A. Right.

6 Q. And supports the request of Yates to have the
7 pool include all formations below the base of the Abo; is
8 that correct?

9 A. That's correct.

10 Q. It also indicates there may be the potential for
11 additional wells in this George interval as you step out
12 from the George QJ Number 10?

13 A. Yes, it does.

14 Q. Were Exhibits 14 and 15 prepared by you?

15 A. Yes, they were.

16 MR. CARR: At this time, Mr. Catanach, we move
17 the admission into evidence of Yates Exhibits 14 and 15.

18 EXAMINER CATANACH: Exhibits 14 and 15 will be
19 admitted as evidence.

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

22 EXAMINATION

23 BY EXAMINER CATANACH:

24 Q. Mr. Miller, in the Five Mile well you've perf'd
25 the two zones in the Cisco. Are those separate? Are those

1 separated by some kind of barrier?

2 A. You mean the --

3 Q. You show the George zone as being perf'd, and
4 then you show an upper interval that was also perforated?

5 A. Yeah, that was perf'd, that's a -- Basically back
6 then we called that a Penn sandstone. That is a sand in
7 there, and we perf'd both of them. Like I said, from what
8 I was reading in our company notes, we gel-frac'd the
9 George zone in the Five Mile Draw. It basically didn't do
10 anything. Then they came up there and frac'd -- same
11 thing, gel-frac'd that, and of course that being a
12 sandstone worked, and there was potential for around
13 800,000, but we apparently had some mechanical problems.

14 So these two intervals have never been produced.
15 We've been producing out of Abo uphole.

16 Q. Okay, and those are separate intervals, they're
17 not --

18 A. Right, they're separate intervals, right.

19 Q. Okay. And then the Cottonwood well, that's been
20 perf'd in the same George zone --

21 A. Right.

22 Q. -- and that's predominantly a gas-producing well?

23 A. Yes, and we still have -- as you can see, there's
24 three wells in this -- relatively close to one another in
25 this area, and we're still trying to figure out why this

1 one's gas, if it is the same zone, and why the George is a
2 complete reversal of it. We are still trying to figure out
3 that problem.

4 Q. Do you guys have any ideas at this point?

5 A. We -- To share maybe what we're thinking, using
6 some carbonate models, we might think that these are
7 grainstone shoals. We're -- by this -- even though this --
8 The Cottonwood well is about 50 feet lower structurally
9 than the George well, and you would think you would be in
10 the Morrow oil zone unless -- well, you know, we have more
11 gas. We're thinking these are narrow fairways, maybe no
12 more than a quarter to a half a mile wide. And we're in
13 one fairway here, the George zone is maybe in another.

14 If you look at the cross-section, the Five Mile
15 Draw porosity signature looks similar to the George zone.
16 We think maybe the Five Mile Draw may be the same -- may be
17 the same reservoir as the George. We don't know that yet
18 because we haven't gone in there and perforated it. But
19 we'll try to reperform it and recomplete it.

20 Right now we still have a lot of questions why
21 the Cottonwood is doing what it's doing and the George is
22 making basically -- is an oil well. At this point they
23 would seem to maybe be two separate reservoirs.

24 You know, correlating them, they seem to be the
25 same interval, because right below the carbonates there is

1 a hot shale like you see it in the Cottonwood, you see that
2 hachured shale coming in there right below that carbonate.
3 And you can see that over underneath the George, there's a
4 shale, and the same thing over in the Five Mile Draw.

5 So we think they correlate the same, but again
6 they're acting like separate reservoirs, and we're still
7 trying to figure that out. And we haven't drilled enough
8 wells out here to help us out yet. This was all a total
9 surprise to us when we drilled the George well.

10 Q. Well you guys, at this point in time you're only
11 seeking to include the George well in the new pool. What
12 do we do with the Cottonwood well? That's still producing
13 from that same zone?

14 A. Yes.

15 Q. But you don't propose to include that in the new
16 pool?

17 A. At this time we haven't thought about that yet.

18 Q. Is there potential in the George well for
19 Wolfcamp production?

20 A. Yes, if you look on the George cross-section,
21 there's a sand at 57- -- between 5740 and -50, which is
22 colored in yellow, and the crossover is colored in red.
23 Then down that, about a hundred feet down, just above where
24 the Cisco formation starts, that is another sandstone
25 there. And in the Cisco itself we have a sandstone. So

1 you have three possible gas-prone sands right there that
2 probably have a gas production in them for when we
3 recomplete uphole.

4 I imagine when the George quits, completes itself
5 in the oilfield, we will probably -- I'm just thinking, the
6 way we do things -- move uphole and try those.

7 Q. There's no plans to do it simultaneously?

8 A. No, right now, no.

9 EXAMINER CATANACH: Okay, I guess that's all I
10 have, Mr. Carr.

11 FURTHER EXAMINATION

12 BY MR. CARR:

13 Q. Mr. Miller, you talked about -- a minute ago,
14 testified about the Cottonwood well. What we're seeking
15 today is the creation of an oil pool; is that correct?

16 A. Yes.

17 Q. The Cottonwood well is actually a gas well, is it
18 not?

19 A. Yes.

20 Q. And so at this time what we're trying to do is
21 have a pool created for a well that we then will come back
22 and seek to change as we are able to sort out the
23 information on what's going on in this interval over a
24 larger area; is that fair to say?

25 A. Yes, that's fair to say.

1 Q. In your testimony you talked about things that
2 had gone on in this area, and you said back then, earlier
3 development. We're talking about development that goes
4 back into the 1980s; isn't that correct?

5 A. Right, we started -- probably as you all know,
6 Abo development started in the -- really, 1978, 1979, and
7 then went full blast in the 1980s. And a majority of all
8 the wells up here have just been drilled 600 to 700 feet
9 into the Abo formation for the Abo gas sands.

10 There was a few wells in the last 20 years that
11 have been drilled deeper. None of them have found any
12 deeper production. There's been some shows, but not enough
13 to be economic to produce anything. And until we started
14 this program, basically -- We started drilling up here two
15 years ago, again, but actually started drilling everything
16 deeper about a year ago. We've encountered what looks to
17 be potential deeper production opening up a wide area which
18 might have future potential.

19 MR. CARR: That's all I have.

20 FURTHER EXAMINATION

21 BY EXAMINER CATANACH:

22 Q. Mr. Miller, when you talked about different
23 fairways for these wells, are you suggesting that they may
24 be -- they're not in communication with each other?

25 A. Right. We're thinking they might run, trendwise,

1 southwest, northeast, just kind of an outline of the Basin
2 itself.

3 EXAMINER CATANACH: All right, I have nothing
4 further.

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

7 EXAMINER CATANACH: Okay, there being nothing
8 further, Case 12,751 will be taken under advisement.

9 (Thereupon, these proceedings were concluded at
10 10:20 a.m.)

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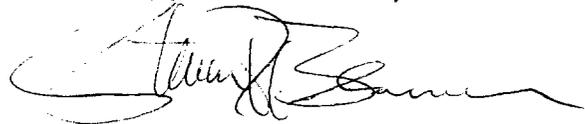
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STATE OF NEW MEXICO)
) ss.
 COUNTY OF SANTA FE)

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 3rd, 2001.



STEVEN T. BRENNER
 CCR No. 7

My commission expires: October 14, 2002