

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARINGSANTA FE, NEW MEXICO

Hearing Date

MARCH 20, 1997Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
W. Kellchin	Kellchin & Kellchin	Santa Fe
Ray Thompson	Thompson Engineering	Farmington
Jerry Thompson	Thompson Engineering	Farmington
Nancy Wallace	Burlington	Farmington
Chip Love	Burlington	Farmington
Dean Price	Burlington	Farmington
Michael Iler	West	Santa Fe
Alon Emmendorfer	Coleman O&G	Farmington
Duke Roush	Neaburg	Midland
Jerry Elger	Neaburg	Midland
Shane Lough	Marato	Midland
Richard G. H.	"	"
Alfred Kendrick	Montgomery & Andrews	Santa Fe
William J. Kendrick	Montgomery & Andrews	Santa Fe

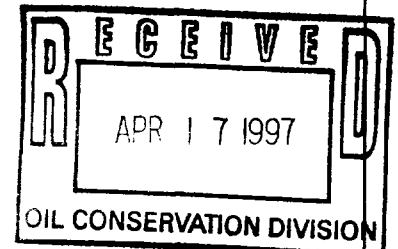
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY)
THE OIL CONSERVATION DIVISION FOR THE)
PURPOSE OF CONSIDERING:)

CASE NO. 11,746

APPLICATION OF SDX RESOURCES, INC., TO)
ABOLISH BOTH THE EAST MILLMAN-SEVEN)
RIVERS POOL AND THE PALMILLO-SEVEN)
RIVERS POOL AND TO EXTEND THE VERTICAL)
AND HORIZONTAL LIMITS OF THE EAST)
MILLMAN QUEEN-GRAYBURG-SAN ANDRES POOL,)
EDDY COUNTY, AND TO REDESIGNATE SAID)
POOL AS THE EAST MILLMAN QUEEN-GRAYBURG-)
SAN ANDRES-YATES-SEVEN RIVERS POOL,)
NEW MEXICO)

ORIGINAL



REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

March 20th, 1997

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, March 20th, 1997, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

I N D E X

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 Examiner Hearing
 CASE NO. 11,746

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A P P E A R A N C E S

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 By: W. THOMAS KELLAHIN

* * *

1 WHEREUPON, the following proceedings were had at

2 8:20 a.m.:

3 EXAMINER CATANACH: At this time I'll call first
4 case, 11,746.

5 MR. CARROLL: Application of SDX Resources, Inc.,
6 to abolish both the East Millman-Seven Rivers Pool and the
7 Palmillo-Seven Rivers Pool and to extend the vertical and
8 horizontal limits of the East Millman-Queen-Grayburg-San
9 Andres Pool, Eddy County, and to redesignate said pool as
10 the East Millman Queen-Grayburg-San Andres-Yates-Seven
11 Rivers Pool, New Mexico.

12 EXAMINER CATANACH: Are there appearances in this
13 case?

14 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of
15 the Santa Fe law firm of Kellahin and Kellahin, appearing
16 on behalf of the Applicant, and I have two witnesses to be
17 sworn.

18 EXAMINER CATANACH: Are there additional
19 appearances?

20 Let me get the two witnesses to stand and be
21 sworn in at this time.

22 (Thereupon, the witnesses were sworn.)

23 MR. KELLAHIN: Mr. Examiner, the exhibits we've
24 handed to you are -- instead of being numbered, they're
25 listed in alphabetical order.

1 The first display gives you an outline of the
2 three pools involved, and if I may take a moment I can
3 describe for you what we're seeking to accomplish.

4 The pool off to the eastern boundary in Section
5 18, it's the Palmillo-Seven Rivers. We're seeking to
6 delete that pool and, in doing so, to extend the vertical
7 limits of the pool outlined in green, which is the East
8 Millman-Queen-Grayburg-San Andres.

9 What we're asking you to do is to increase the
10 top of that existing pool to include the Yates and the
11 Seven Rivers.

12 In addition, when you move over to the western
13 area of the display, you see the pool outlined in red
14 that's the East Millman-Seven Rivers. We're asking you to
15 terminate that pool and then to extend the pool outlined in
16 green, the East Millman Pool that has the Queen-Grayburg-
17 San Andres. And in doing so, then, you will extend that
18 pool to contain all the acreage originally included in the
19 East Millman-Seven Rivers.

20 In addition, we're asking you to increase the
21 vertical limits to include the Yates. There is some small
22 opportunity that the lower portion of the Yates is oil-
23 productive, and we believe it's appropriate to include the
24 Yates and the Seven Rivers.

25 In conclusion, then, what we propose to occur is

1 that when all these pools are consolidated, the outer
2 boundary of the consolidated pools will be as figured on
3 this display, and the vertical limits, then, are going to
4 be from the top of the Yates to the base of the San Andres.
5 Did I say that right? Is that right? Yeah.

6 We have two witnesses to present, a geologic
7 presentation and an engineering presentation, to show you
8 the reasons and the technical data that supports those
9 reasons.

10 The prehearing statement outlines for you the
11 basic reasons, and it arises out of the necessity that all
12 these zones are marginal. And by consolidating the pool,
13 then, you leave the operator -- the principal operator in
14 this case is SDX -- with the opportunity, then, to complete
15 and recomplete wells, to add perforations in all of these
16 zones, and then to, in effect, commingle production.

17 Under the current rules as we have them now, we
18 have to go through downhole commingling applications, and
19 we see no reason to continue to process those cases in that
20 fashion. We think the expedient solution is simply to
21 consolidate the pools and to increase the vertical limits.

22 This is very marginal oil production. These are
23 all oil wells, and by consolidating the pools we think that
24 you prolong the economic life and allow this operator and
25 other operators to recover oil that might not otherwise be

1 recovered.

2 RICHARD JORDAN,

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

5 DIRECT EXAMINATION

6 BY MR. KELLAHIN:

7 Q. All right, sir, for the record would you please
8 state your name and occupation?

9 A. Richard Jordan, petroleum geologist.

10 Q. All right, I've got the hum of this fan here.

11 You have to speak up, sir.

12 A. Richard Jordan, petroleum geologist.

13 Q. And how do you spell your last name?

14 A. J-o-r-d-a-n.

15 Q. On prior occasions, Mr. Jordan, have you
16 testified before the Division?

17 A. No, I have not.

18 Q. Summarize for us your education.

19 A. Bachelor's and master's degree in geology from
20 Boston University and doctorate degree in geology from
21 Syracuse University.

22 Q. And what is your current employment?

23 A. I do geology for SDX Resources.

24 Q. As part of your geologic study, have you been
25 involved in examining the geology of the various pools

1 involved before the Examiner today?

2 A. Yes, I have.

3 Q. In conclusion, Mr. Jordan, do you have a geologic
4 opinion about the appropriateness of consolidating all
5 these reservoirs into one common pool and managing it as a
6 common pool?

7 A. Yes.

8 Q. What is your opinion?

9 A. The Seven Rivers producing zone through this area
10 is really off of the main shelf producing trend for the
11 Seven Rivers. It is basically a back-shelf thin unit. As
12 you can see highlighted on the cross-section, it occurs
13 throughout the area, but it is basically fairly marginal
14 reservoir quality. Production is more often than not in
15 the range of 3000 to 5000 barrels per well.

16 The main fairway we're dealing with, of course,
17 is the Queen down below. So the Seven Rivers is an uphole
18 basically finishing-out-type zone.

19 Q. Let's go through the various geologic displays.
20 Let's start with the first one, which is Exhibit B. It's
21 your Seven Rivers structure map. We have a copy of that
22 displayed on the wall and then there's a small handout
23 before the Examiner. Give us a summary of the Seven Rivers
24 structure.

25 A. What you're looking at is fairly uniform dip to

1 the east southeast. When we compare that to the next
2 structure map, you'll show -- which is the Queen -- you'll
3 see it's a very similar type of affair where you see the --
4 you know, the structures don't vary.

5 Q. All right. So when we compare Exhibit C, which
6 is the Queen structure map, to Exhibit B, the Seven Rivers
7 structure map, what's the comparison?

8 A. You see basically uniform dip at both levels,
9 both going to the east southeast.

10 Q. Is production in this area affected by structure
11 and its position, position of the wells on structure?

12 A. Well, structure never hurts you, but not really.
13 It's where the zones are developed relative to the paleo-
14 shelf.

15 Q. Let's turn to Exhibit D. That's the Seven Rivers
16 cumulative production map. Will you identify that for the
17 record?

18 A. Okay.

19 Q. This simply is production out of the Seven
20 Rivers, is it not?

21 A. Yes, it is.

22 Q. When we turn to Exhibit E, we're looking at the
23 cumulative production map for the Queen, Grayburg and the
24 San Andres, is that not true?

25 A. Yes.

1 Q. All right. Let's go to Exhibit H, Mr. Jordan,
2 and have you look at the Seven Rivers type log. Identify
3 and describe this display for me.

4 A. This is a -- We're looking at an electric log and
5 mud log from one of the wells in the area, on the BN 7,
6 which is the north end of the pool in question.

7 We're looking at basically interbedded limestones
8 and sandstones here, and in particular the reservoirs we're
9 talking about are sands with lime matrixes, as denoted on
10 the lithologic description.

11 Q. The cross-section you referred to earlier,
12 Exhibit F, I think, is the A-A' cross-section?

13 A. Yes, sir.

14 Q. And that's the one we're showing here?

15 A. Yes, sir.

16 Q. Give me your geologic conclusion with regards to
17 the appropriateness of including the Yates formation within
18 the pool boundary.

19 A. This cross-section, A-A', is a north -- southwest
20 to northeast cross-section. Basically, it parallels --
21 subparallel present-day strike.

22 You'll note that there's very little variance in
23 any of the units. Thickness remains the same. The
24 porosity zones are fairly continuous.

25 The -- As you come up into the Seven Rivers zone,

1 you'll note that the zones are there, but they're not that
2 well developed. They track basically the lower main pay
3 zones in the Queen.

4 You can find it there, but as you can note from
5 the two wells that were drilled solely for the Seven
6 Rivers, production certainly doesn't warrant drilling Seven
7 Rivers wells.

8 Q. In your opinion, is it appropriate to include the
9 Yates formation within the vertical limits of the pool?

10 A. Yes, sir, the Yates and Seven Rivers are -- At
11 that boundary between the two, it's sort of a pick 'em.

12 Q. So if they're consolidated together within the
13 pool boundary, then the oil production available in either
14 formation is best produced in combination within the same
15 pool?

16 A. I believe so.

17 Q. Okay. What about the base reservoir in the pool?
18 We're looking at the San Andres as the lower reservoir in
19 the pool?

20 A. Yes, sir.

21 Q. Historically, give us a sense of how the
22 production in the various reservoirs within the pool has
23 been developed.

24 A. San Andres production in this particular area is
25 fairly recent. There's been spotty shows and occasional

1 producers.

2 Primarily on this trend, production has been in
3 the Grayburg and Queen formations, Grayburg being dolomite
4 with occasional sands, both of which are productive.

5 The Queen, which is prograding out into the
6 Basin, coming eastward, develops so that you'll have --
7 your lower Queen section produces back to the west, and as
8 you get younger it will produce out to the east.

9 This really is -- basically a shelf marginal
10 position for the Queen, and it's riding, as I said, on top
11 of the Grayburg.

12 The younger formations, such as the Seven Rivers
13 and Yates, you're really too far back to the west to make a
14 play out of those.

15 Q. The orientation of the cross-section on Exhibit F
16 is in which direction? I've lost the locator map. Which
17 way are you going?

18 A. Is this F or is this G?

19 Q. A-A' should be F.

20 A. Okay, that is southwest-northeast.

21 Q. Okay. And the line of the cross-section is shown
22 on the --

23 A. Yes.

24 Q. -- locator map --

25 A. Yes, it is.

1 Q. -- on the bottom?

2 When we show the B-B' cross-section, what are we
3 doing?

4 A. B-B' is perpendicular to A-A'. It is a dip
5 section. It intersects the last well on A-A', for
6 correlation purposes.

7 And again, you can see that there's very little
8 variance in the thickness of the units, even though this is
9 a dip section, so we are too far back to the west to see a
10 dramatic change in those shallower units.

11 Q. Okay. When we look at each individual reservoir
12 in the pool, is there reasonable continuity from well to
13 well geologically within each reservoir?

14 A. Yes, there is.

15 Q. The production associated in these reservoirs is
16 all oil production, is it?

17 A. Yes, sir.

18 Q. In your opinion, then, would a pool of this
19 Application, from a geologic perspective, be in the best
20 interests of prevention of waste and the protection of
21 correlative rights?

22 A. Yes.

23 MR. KELLAHIN: That concludes my examination of
24 Mr. Jordan.

25 We move the introduction of his Exhibits A

1 through H.

2 EXAMINER CATANACH: Exhibits A through H will be
3 admitted as evidence.

4 EXAMINATION

5 BY EXAMINER CATANACH:

6 Q. Mr. Jordan, where is your company's predominant
7 development in these pools? Do you have wells in both of
8 these pools or all three of these pools?

9 A. Yes.

10 Q. If I understand correctly, you're -- Do you
11 believe that the Yates and Seven Rivers extend to the east
12 so that they would encompass portions of the Queen-
13 Grayburg-San Andres Pool?

14 A. Yes, I think you'll see the Seven Rivers-Yates
15 section throughout the whole area.

16 Q. It's continuous across the whole area?

17 A. Yes.

18 Q. Is that where you see the development going -- if
19 this pool is extended, will you, in fact -- you have wells
20 in the Queen-Grayburg Pool that you probably would complete
21 in the Seven Rivers?

22 A. As we're coming out of the hole, yes. Play is
23 primarily designed and directed at the Queen and Grayburg,
24 and the Seven Rivers section would be a secondary, bail-out
25 zone, if you would.

1 Q. Would that be developed after the Queen-Grayburg?

2 A. Yes, sir.

3 Q. It wouldn't be developed concurrently, at the
4 same time?

5 A. It could be done, yes, sir.

6 Q. Are there very many wells in these pools left
7 anymore?

8 A. There's quite a number of wells out here.

9 Q. Are you the predominant operator in these pools,
10 SDX?

11 A. SDX in this area, yes, sir. Yes, they are.

12 Q. Do you know if there's other operators in the
13 pool?

14 A. There are.

15 Q. Do you know when these pools were discovered, Mr.
16 Jordan?

17 A. We go back to the Queen-Grayburg -- Most of the
18 major development in this would date to the Fifties, the
19 initial development, Fifties and Sixties. The Seven
20 Rivers, I believe, the first commercial production in this
21 area started in 1959, 1960.

22 Q. Do you have any idea why the pools may have been
23 set up this way initially? Was there any reason that you
24 know of that the Seven Rivers and Yates were isolated from
25 the rest of the formations?

1 A. I don't know.

2 Q. Is there any geologic reason why they should be
3 isolated, in your opinion?

4 A. Not that I know, not that I'm aware of.

5 Q. Is there any secondary recovery operations going
6 on in this area?

7 A. There is -- At the moment, no, but the potential
8 to -- there is --

9 MR. MORGAN: Not in the Seven Rivers.

10 EXAMINER CATANACH: Hold on we'll get you later.

11 THE WITNESS: Not in the Seven Rivers.

12 Regarding the Queen-Grayburg, there is
13 waterfloods going on in the area.

14 Q. (By Examiner Catanach) There is, in fact, in
15 this unit, I mean within these pools?

16 A. Within this area, yes, sir.

17 Q. Is that going to have any effect on the --
18 combining the pools, is that going to have any effect on
19 the secondary recovery operations?

20 A. No, sir.

21 Q. Is there a potential for secondary recovery in
22 the Seven Rivers formation?

23 A. I don't think so.

24 Q. So those probably won't be waterflooded?

25 A. (Shakes head)

1 Q. Is -- Mr. Jordan, is the Yates productive in any
2 of these pools?

3 A. No, sir.

4 Q. Has it been tested, do you know?

5 A. You're really too far back on the shelf to have
6 Yates production. You're more into a continental-
7 terrestrial-type environment. You see porosity, you may
8 even see an occasional gas show, but there's been no
9 commercial tests of anything, to my knowledge, in this
10 area.

11 Q. What's the reasoning for including the Yates in
12 your proposed pool?

13 A. Basically because -- This zone here is indicated
14 on either of the cross-sections. If you correlate coming
15 from the shelf position to the Basin, you can put it in the
16 Seven Rivers.

17 There's a tendency to come out of the Basin
18 coming up where there's more sand in the Yates, to maybe
19 call it Yates. We have merged in with other operators in
20 the area, using their terminology in calling it the Seven
21 Rivers. But I think that's principally the reason for
22 including that.

23 Q. So sometimes it's difficult to separate --

24 A. Yes --

25 Q. -- or define --

1 A. -- it's right on the boundary level there, and so
2 it basically alleviates any confusion, I think.

3 Q. Is the top of the Seven Rivers easily -- or, I'm
4 sorry, the top of the Yates, is that easily identified?

5 A. The top of the Yates is, yes.

6 Q. Okay. So that's not a problem?

7 A. No, correct.

8 Q. Are you aware of other pools in this area that
9 have been consolidated in this manner?

10 A. I believe there's one down here in the last year
11 or so that could be --

12 Q. Mr. Jordan, did you guys -- were you in contact
13 with our Artesia District Office regarding your proposal?

14 A. Yes, I believe so.

15 Q. Okay, for the record let me just state that I
16 have a letter from Bryan Arrant, who is our geologist in
17 Artesia, who states that they have no objection to SDX's
18 request in this case.

19 Mr. Jordan, as a result of -- if this Application
20 is approved, do you think that your recovery, say, from the
21 Seven Rivers, will be -- that you'll recover more oil from
22 the Seven Rivers that may not --

23 A. Yes, sir.

24 Q. -- otherwise be recovered?

25 A. Yes, sir.

1 Q. You wouldn't, in your opinion, drill stand-alone
2 wells to recover Seven Rivers production?

3 A. No, you wouldn't, absolutely not.

4 EXAMINER CATANACH: I have no further questions
5 of Mr. Jordan. He may be excused.

6 MR. KELLAHIN: All right, thank you.

7 Mr. Examiner, at this time we'll call Chuck
8 Morgan. Mr. Morgan is a petroleum engineer.

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

12 DIRECT EXAMINATION

13 BY MR. KELLAHIN:

14 Q. Mr. Morgan, for the record would you please state
15 your name and occupation?

16 A. My name is Chuck Morgan. I'm a petroleum
17 engineer with SDX Resources in Midland, Texas.

18 Q. On prior occasions, sir, have you testified
19 before the Division as a petroleum engineer?

20 A. Yes, I have.

21 Q. And have you made a study as a petroleum engineer
22 of the production in all these reservoirs in each of these
23 three pools?

24 A. Yes, I have.

25 Q. Based upon that study, do you now have

1 engineering conclusions about the best method to continue
2 to produce oil in these various reservoirs?

3 A. Yes, sir.

4 MR. KELLAHIN: We tender Mr. Morgan as an expert
5 witness.

6 EXAMINER CATANACH: Mr. Morgan is so qualified.

7 Q. (By Mr. Kellahin) Let's talk in generalities,
8 first of all, Mr. Morgan.

9 Describe for me what you see is accomplished by
10 the consolidation of these three pools in the one pool and
11 by extending the vertical limits to include the Yates
12 formation.

13 A. Basically what we'd like to accomplish is to --
14 by including the Seven Rivers into the existing Grayburg
15 Pool, is to recover additional oil by utilizing existing
16 wellbores that are -- were in the late stages of an infill
17 drilling project and a secondary recovery project, and we
18 have numerous wells in the area that are marginal
19 producers, two and three barrels of oil a day from the
20 Queen-Grayburg, and would like to combine the Seven Rivers
21 with that production to make them economical.

22 Q. By combining the Seven Rivers with the existing
23 Queen and Grayburg and San Andres wells, then, you can
24 prolong the life of those existing wells?

25 A. Yes, we can.

1 Q. Give us a sense of the number of wells that we're
2 dealing with here.

3 A. Right now there have been 39 Seven Rivers wells
4 drilled in the area that were strictly Seven Rivers wells.
5 The Queen-Grayburg-San Andres wells, probably on the
6 neighborhood of around 200. I'd have to check that number;
7 I'm not sure of that number.

8 Q. Do you have an approximation of the number of
9 wells that SDX operates?

10 A. Yes, I do. We operate probably close to 50 -- 50
11 wells in the area right there.

12 Q. Who are the other major operators in the pool?

13 A. S and J operates a good number of them, Maralo, I
14 believe Marbob operates some, CFM, and there's a couple of
15 other operators in the area.

16 Q. We've sent notification to all operators in the
17 pool, have we not?

18 A. Yes, sir.

19 Q. And you've had conversations with many of them?

20 A. Yes, we have.

21 Q. And have you found anyone that objects to having
22 the pools extended and consolidated?

23 A. No, we have not. Just the opposite is true.
24 They think it's good for everybody.

25 Q. Okay, let's turn to your specific exhibits.

1 Let's start with Exhibit I and have you identify and
2 describe what that display shows.

3 A. Exhibit I is an authorization for expenditure
4 based strictly upon a Seven Rivers recompletion which would
5 be done in an existing wellbore on one of our Queen-
6 Grayburg-San Andres wells. The bottom line on it is that
7 we can do these recompletions for about \$35,000.

8 Q. If you were required to drill a new Seven Rivers
9 well, what would that well cost?

10 A. That well would probably cost \$116,000 to
11 \$120,000.

12 Q. And that AFE for a new drill is shown as Exhibit
13 J?

14 A. Yes, it is.

15 Q. The strategy, then, would be to take a deeper San
16 Andres-Grayburg or Queen well and then to recomplete it
17 into the shallower formations to pick up the Seven Rivers
18 and what some people might call the lower Yates?

19 A. Yes.

20 Q. How productive is the Seven Rivers and Yates in
21 terms of future potential?

22 A. The wells that have been done in the area, on the
23 average, make about 10,000 barrels over their entire life.

24 Q. All right. So you could hardly afford to -- You
25 can't, it's impossible?

1 A. No, the economics are not there to drill new
2 Seven Rivers wells at today's market price.

3 Q. So the future potential in the Seven Rivers is
4 about 10,000 barrels, and you can do so successfully
5 probably only by recompletion of the deeper wells into the
6 shallower zone?

7 A. Yes, sir.

8 Q. In addition, you have the opportunity to prolong
9 the life of those existing wells by continuing to produce
10 what's left of the oil in the deeper zones?

11 A. Yes.

12 Q. Let's look at some of that production
13 information. If you'll turn to Exhibit K, what are we
14 looking at here?

15 A. You're looking at a listing of all the Seven
16 Rivers wells in these -- both of the Seven Rivers pools
17 that we would like to combine with the Queen-Grayburg-San
18 Andres. There are 39 of them.

19 Q. And what type of information have you listed?

20 A. Cumulative production, oil, gas and water.

21 Q. Do you have a typical decline curve for the Seven
22 Rivers?

23 A. Yes, we do. That's Exhibit L, I believe.

24 Q. All right, identify and describe that display for
25 us.

1 A. Exhibit L is a typical Seven Rivers decline curve
2 for a well in the area. This, in fact, was a model of one
3 of our wells, specifically, the BN State Number 7, which we
4 did a Seven Rivers recompletion on, and we estimate between
5 10,000 and 12,000 barrels recoverable oil, which kind of
6 fits with the field average, so it's a pretty good type
7 well to study.

8 Q. You've taken that method, then, to determine what
9 you believe to be the recoverable oil in the Seven Rivers,
10 and you have applied your recompletion and new well
11 economics to those anticipated oil recoveries to show what
12 type of profitability is involved in the process; is that
13 not true?

14 A. Yes, that's true.

15 Q. Let's turn to look at the economics, then. If
16 you'll look at Exhibit M, what are we seeing here?

17 A. Exhibit M is a sheet of economics, engineering
18 economics, done on a Seven Rivers recompletion using the
19 \$35,000 cost, and the cash flow generated from a typical
20 decline, specifically the decline curve we just looked at.

21 And as you can see, the bottom line is the return
22 on investment, is two and a half, three to one, in that
23 neighborhood.

24 Q. And that becomes an economically viable project
25 for you and other operators in the pool?

1 A. Yes, it does.

2 Q. If you were required to drill a new well just for
3 the Seven Rivers, you've got that economic analysis for us,
4 do you not?

5 A. Yes, that's Exhibit N, the economics.

6 Q. Describe for us the bottom line on that.

7 A. The bottom line on that is, it's totally
8 uneconomical to drill and complete a Seven Rivers well as
9 an individual well. The economics are just not there.

10 Q. You don't even get a return of your money one
11 time?

12 A. No, it's a money-losing proposition.

13 Q. Under the current situation, if you desire to
14 commingle the production in these pools, you're allowed to
15 do so administratively with a downhole commingling
16 application, are you not?

17 A. Yes, we are. And in fact, we have done one in
18 the area on the particular well we used as a type well to
19 study, the BN Number 7.

20 Q. And was that application approved?

21 A. Yes, it was.

22 Q. Are you satisfied that that commingling
23 application would be typical of the commingling
24 applications for other wells if you were required to
25 continue to utilize that process?

1 A. Yes.

2 Q. So if the pool boundaries are extended and the
3 pools consolidated, then there is no reduction in value of
4 the oil as a result of being commingled?

5 A. That's correct.

6 Q. And there's no incompatibility problems?

7 A. No, there's not.

8 Q. Have you got any pressure problems?

9 A. No, sir.

10 Q. Have you got any kind of water problems?

11 A. No, sir.

12 Q. Are there any differences, to the best of your
13 knowledge, in ownership among the various reservoirs that
14 would give you ownership problems?

15 A. No, there's not, not between the zones.

16 Q. So regardless of what formations it's produced
17 out of on 40-acre spacing, then those owners get their
18 share of that production?

19 A. Yes.

20 Q. The quality of the oil from the various
21 reservoirs is not compromised by the consolidation and the
22 commingling?

23 A. No, it's not.

24 Q. Your last display is Exhibit O. What does this
25 show?

1 A. Exhibit O is a sample -- an oil analysis from
2 one. It's particularly from the Queen-Grayburg-San Andres
3 well, and one was strictly from a Seven Rivers well,
4 basically demonstrating that both are sour crudes of
5 similar gravity, so their value is similar.

6 Q. Are you aware, Mr. Morgan, of the Division's
7 approval of this type of consolidation for other operators
8 in other areas? Are you aware of any prior similar cases
9 like this by the Division?

10 A. Yes, we are. Devon Energy has done this up near
11 Maljamar and Loco Hills, and I believe Marbob has done
12 something similar in the Grayburg Jackson area, I believe.

13 Q. You mentioned that some of this area was subject
14 to secondary recovery?

15 A. Yes, sir.

16 Q. Describe for us what's involved.

17 A. The East Millman unit, which is operated by SDX,
18 is in the later stages of the waterflood.

19 Q. What are you waterflooding?

20 A. We're waterflooding the Queen-Grayburg.

21 Q. Does the consolidation of the reservoirs as a
22 common pool for administration by the Division give you any
23 kind of operational difficulties for units?

24 A. The paperwork caused by having to do commingling
25 applications on every recompletion is an administrative

1 problem, yes.

2 Q. The consolidation of the pools, though, does not
3 interfere with the effective operation of a secondary
4 recovery project?

5 A. No, sir.

6 Q. Just the opposite?

7 A. Just the opposite, facilitates it.

8 MR. KELLAHIN: That concludes my examination of
9 Mr. Morgan.

10 We move the introduction of his Exhibits I
11 through O.

12 EXAMINER CATANACH: Exhibits I through O will be
13 admitted as evidence.

14 EXAMINATION

15 BY EXAMINER CATANACH:

16 Q. Mr. Morgan, where is your project located?

17 A. Let's go back to the original map, I believe, of
18 the fields -- Have you got that one, Steve? I believe that
19 one was Exhibit A.

20 We operate two leases in the area. The East
21 Millman unit is in Section 21, Section 22, up into 14 and
22 portions of 15, right through the center of this actually.
23 We also own Section 7, which is our Conoco State. And we
24 are currently developing Section 7 on an infill drilling
25 project.

1 Q. Okay, Section 7 is not -- That's not subject to
2 waterflooding at this time?

3 A. Yes, sir, we've just started waterflooding --

4 Q. That's --

5 A. -- in the last couple of months.

6 Q. What project is that?

7 A. Conoco 7. As a matter of fact, I believe we had
8 a hearing on that about six months ago.

9 Q. And that's in Section 7, right?

10 A. Yes, sir.

11 MR. KELLAHIN: Mr. Examiner, we've outlined on my
12 copy of Exhibit A those two boundaries for you.

13 EXAMINER CATANACH: Okay.

14 MR. KELLAHIN: Let me verify with Mr. Morgan that
15 we've done it correctly.

16 THE WITNESS: Yes, sir. Yes, sir.

17 MR. KELLAHIN: Mr. Examiner, the two projects are
18 outlined on my copy of the display, so that will show you
19 the two areas.

20 Q. (By Examiner Catanach) Okay. So the Conoco 7 is
21 -- That's a Queen-Grayburg --

22 A. Queen-Grayburg-San Andres --

23 Q. -- waterflood?

24 A. -- yes, sir, in the East Millman Pool.

25 Q. Okay, that's a fairly new waterflood, and that's

1 going to go on for a while?

2 A. Yes, sir.

3 Q. The other one is the East Millman unit?

4 A. Yes, sir.

5 Q. And that's still ongoing?

6 A. Yes, sir.

7 Q. Okay. What are your plans for -- Within these
8 two waterflood projects, what are your plans for
9 recompletions in these areas? How would you go about it?

10 A. The immediate plans would be to take our older
11 wellbores in the East Millman unit and recomplete them in
12 the Seven Rivers.

13 There's a number of them that make two to three
14 barrels a day that -- and there's several that are just
15 uneconomic to produce at that level, and we would
16 immediately begin to recomplete them in the Seven Rivers.

17 Q. Now, when you say "recomplete", would you abandon
18 the lower interval, or would you just -- would you combine
19 it with the Seven Rivers?

20 A. Depending upon the situation of each individual
21 well. Normally, we would combine them and not -- you know,
22 we would continue to produce the two or three barrels a day
23 from the Queen-Grayburg and put it with the Seven Rivers.

24 There are instances where in an older waterflood,
25 the Queen-Grayburg wells would make way too much water to

1 produce with the Seven Rivers well. And in that case, we
2 would set a cast iron bridge plug and abandon the Queen-
3 Grayburg zones.

4 Q. Would that reduce the efficiency of your
5 waterflood project, do you think?

6 A. Not at this stage, no, sir.

7 Q. A lot of these wells are too high a water cut at
8 this point?

9 A. Some are and some are not. It's a pretty mixed
10 bag.

11 Q. Are some of these --

12 A. See, this is the late stages of the waterflood in
13 the Millman.

14 Q. Some of these wells have produced a lot of water.
15 Are they still making some oil?

16 A. Yes.

17 Q. So you think you would abandon that interval in
18 some of these wells?

19 A. In some of them, we would.

20 Q. Do you operate wells that are not within these
21 two waterflood areas?

22 A. Yes, we do.

23 Q. And those are Queen-Grayburg-San Andres
24 producers?

25 A. Yes, sir.

1 Q. Okay. Similarly, those would be recompleted to
2 Seven Rivers?

3 A. Yes.

4 Q. How many candidates at this point do you think
5 you have for recompletion?

6 A. We probably have 15 or 20 candidates immediately
7 identified as recompletion candidates.

8 Q. You testified that you -- SDX operates about 50
9 wells.

10 A. Is that a good number, Steve?

11 Q. Approximately?

12 A. Probably more than that. I don't have the number
13 right here.

14 Q. Okay. So how many does that leave in the pool
15 that are operated by other operators? Do you have any
16 idea?

17 A. They probably -- I'm going to say probably 100,
18 150 other wells. Actually, we probably operate more than
19 50.

20 Q. Is there any potential, say, in the southwestern
21 portion of this pool where the East Millman-Seven Rivers
22 Pool is -- occurs, say, in like Section 21 and 29 and 28?
23 Are there still some Seven Rivers wells producing down in
24 that area?

25 A. Yes, there is.

1 Q. Is there any potential for those operators to
2 drill deeper, say, to recover Queen-Grayburg?

3 A. Yes, I'd say there is. We own several wells in
4 that area also that are in the Queen-Grayburg-San Andres.
5 We have drilled a couple of new wells. The Queen-Grayburg-
6 San Andres production begins to fade away right there,
7 pretty marginal.

8 Q. Mr. Morgan, you've talked to some of the other
9 operators in the pool personally or --

10 A. Yes, I've talked to S and J Operating with Mike
11 Kinkaid. They operate East Millman waterflood. I believe
12 it's located primarily in 13 -- 12 and 13, Sections 12 and
13 13, if I'm not mistaken.

14 Q. I'm sorry, the name of that is what?

15 A. S and J Operating.

16 Q. The name of the project is what?

17 A. East Millman.

18 Q. That's an additional waterflood project?

19 A. Yes, it is.

20 Q. They didn't have any problem with it?

21 A. No, they did not.

22 I've also spoken with Marbob and several other
23 smaller operators.

24 Q. Now, you've notified all of the operators within
25 each of these pools?

1 A. Yes, we have, to our knowledge.

2 MR. KELLAHIN: Mr. Examiner, here's the notice
3 list.

4 EXAMINER CATANACH: Was there additional notice,
5 Mr. Kellahin, to any operator outside the pool?

6 MR. KELLAHIN: We notified all the operators
7 within a mile of the outer boundary, plus all the operators
8 in the pool, and we picked up the interest owners of the
9 spacing units that weren't producing. I think we've got
10 everybody that we could find.

11 EXAMINER CATANACH: Okay.

12 Q. (By Examiner Catanach) Difficult question, Mr.
13 Morgan: Is there any estimate on what you might recover
14 additionally from the Seven Rivers as a result of the
15 approval of this Application?

16 A. Yes, there is. Back to our typical -- our type
17 curve, about 10,000 barrels a well, on the average. Some
18 of them more, some of them less. But that would be a good
19 average.

20 And like I said, probably 15 candidates or so
21 that we've immediately identified that would be good
22 candidates for an attempt.

23 Q. And you've downhole commingled these formations
24 without any problems?

25 A. Yes, we have.

1 Q. Do you believe there's any potential for
2 secondary recovery in the Seven Rivers?

3 A. It would be very economically challenging to
4 flood the Seven Rivers. If it were combined with the other
5 waterfloods, yes, it probably would be a viable project.

6 Q. That might be the only way to do it?

7 A. Yes, sir.

8 EXAMINER CATANACH: I have nothing further of the
9 witness. He may be excused.

10 Anything further, Mr. Kellahin?

11 MR. KELLAHIN: No, sir, that concludes our
12 presentation in this case.

13 EXAMINER CATANACH: All right. There being
14 nothing further in this case, Case 11,746 will be taken
15 under advisement.

16 (Thereupon, these proceedings were concluded at
17 9:06 a.m.)

18 * * *

19
20
21
22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
the Examiner hearing of Case No. 11746,
heard by me on March 20 19 97.

24 David R. Catanach, Examiner
25 Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL March 26th, 1997.



STEVEN T. BRENNER
 CCR No. 7

My commission expires: October 14, 1998