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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION
CASE 10,746

COMMISSION HEARING

IN THE MATTER OF:

Application of Devon Energy Corporation for
special pool rules, Eddy County, New Mexico

TRANSCRIPT OF PROCEEDINGS

ORIGINAL

BEFORE: WILLIAM J. LEMAY, CHAIRMAN
WILLIAM WEISS, COMMISSIONER
JAMI BAILEY, COMMISSIONER

15 1993

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

September 22, 1993

ORIGINAL

A P P E A R A N C E S

FOR THE APPLICANT:

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E X H I B I T S

APPLICANT'S EXHIBITS:

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1 WHEREUPON, the following proceedings were had
2 at 9:12 a.m.:

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6 CHAIRMAN LEMAY: And we shall call Case
7 10,746, which is the Application of Devon energy
8 Corporation for special pool rules, Eddy County, New
9 Mexico.

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

13 I represent Devon Energy Corporation and I
14 have one witness.

15 CHAIRMAN LEMAY: Thank you, Mr. Carr.

16 Would that witness please stand to be sworn
17 in?

18 (Thereupon, the witness was sworn.)

19 CHAIRMAN LEMAY: Mr. Carr?

20 MR. CARR: Thank you.

21 CHAIRMAN LEMAY: First I'd better call for
22 appearances in the case. Since I don't see anyone in
23 the room, I'm assuming that there are no other
24 appearances.

25 Mr. Carr, you may proceed.

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RICHARD J. MORROW,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. My name is Richard J. Morrow.

Q. Mr. Morrow, where do you reside?

A. Edmond, Oklahoma.

Q. By whom are you employed?

A. I'm employed as a senior reservoir engineer by Devon Energy Corporation, Oklahoma City.

Q. Have you previously testified before the Oil Conservation Commission?

A. No, I have not.

Q. Could you briefly summarize your educational background and then review your work experience for the Commission?

A. I graduated in May of 1976 with a bachelor of science in petroleum engineering from the University of Kansas.

I was employed from 1976 through 1982 by Exxon Company, USA, as a reservoir engineer on various assignments in Midland and Andrews, Texas.

1 From 1982 through 1990 I was employed by
2 Woods Petroleum Corporation in Oklahoma City as a
3 reservoir engineer, with my primary area of
4 responsibility to be the Power River Basin in Wyoming.

5 Since September of 1990, I've been employed
6 by Devon Energy as a senior reservoir engineer, with my
7 main area of responsibility being New Mexico.

8 I am a registered professional engineer in
9 both Oklahoma and Wyoming.

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

12 A. Yes, I am.

13 Q. Are you familiar with the portion of the
14 Delaware formation that is the subject of this case?

15 A. Yes, I am.

16 Q. Have you made a geologic study and
17 engineering study of this area?

18 A. Yes, I have.

19 MR. CARR: Are the witness's qualifications
20 acceptable?

21 CHAIRMAN LEMAY: They're acceptable.

22 Q. (By Mr. Carr) Mr. Morrow, would you briefly
23 state what Devon seeks with this Application?

24 A. Devon seeks promulgation of temporary special
25 pool rules for the East Catclaw Draw-Delaware Pool to

1 establish a gas/oil ratio limit of 6000 to 1.

2 Q. When was this pool originally created?

3 A. The pool was originally created February 1st,
4 1991, by Order Number R-9418 and has since been
5 expanded to include all of Section 9, 21 South, 26 East
6 in Eddy County.

7 Q. So it's a 640-acre pool?

8 A. Yes.

9 Q. Have you prepared certain exhibits for
10 presentation here today?

11 A. Yes, I have.

12 Q. Could you identify what has been marked Devon
13 Exhibit Number 1 and then review the information on
14 this exhibit for the Commission?

15 A. Exhibit Number 1 is a map of the area in
16 question.

17 This area is about four miles northwest of
18 Carlsbad in Eddy County. I've shown here an outline of
19 the Pool, which is Section 9.

20 There are seven wells -- seven Delaware wells
21 in the Pool, six of which are currently active, one of
22 which is shut in. There's one operator, which is Chi
23 Energy.

24 I've shown the location of Devon's Cactus
25 State Number 1 well in Section 16, which is within one

1 mile of the pool boundary.

2 All the other wells in this nine-section area
3 produce gas from deeper horizons.

4 Q. Since the Cactus State Number 1 well is
5 within a mile of the pool boundary, it's governed by
6 rules for this pool; is that correct?

7 A. Yes, it is. This pool is governed by
8 statewide rules which allow for 40-acre well spacing
9 and 80-barrel-a-day oil allowable and 2000-to-1 GOR,
10 which results in a 160-MCF-a-day gas allowable.

11 Q. When the Application for Permit to Drill was
12 originally filed for this well, it was reported as
13 being located in the Soapberry Draw-Delaware field; is
14 that correct?

15 A. There was some miscommunication as far as the
16 pool.

17 Q. And where is that pool located?

18 A. The Soapberry Draw-Delaware Gas Pool is a
19 single well in the southwest quarter of Section 8,
20 shown on this map as the Kaiser-Francis AM Federal
21 Number 1. That produces gas from a much deeper
22 Delaware horizon.

23 Q. And that's a gas pool?

24 A. Yes, it is.

25 Q. And there's no question at this time, either

1 on Devon's part or with the Hobbs District Office, that
2 this is in fact a well located in the East Catclaw Draw
3 Pool?

4 A. No, there's no question about that.

5 Q. Okay. What are the current rules for the
6 East Catclaw Draw Pool?

7 A. I believe I just already stated them. I can
8 go through them again if you would like.

9 Q. Statewide 40?.

10 A. Statewide 40-acre spacing with an 80-barrel-
11 of-oil allowable --

12 Q. Okay.

13 A. -- 2000-to-1 GOR, which results in a 160-MCF-
14 a-day gas allowable.

15 Q. Okay. Let's go to the structure map. Could
16 you identify this and review it for the Commission?

17 A. Exhibit Number 2 is a slightly larger area.
18 This is a structure map on top of one of the Delaware
19 sands. This structure map is based on data from well
20 logs.

21 The Delaware sands are present throughout
22 most of this part of the Basin, and the hydrocarbon
23 reservoirs are created by either structural or
24 stratigraphic traps.

25 I've shown here again the outline of the pool

1 in Section 9, and with a red arrow pointing to our
2 Cactus State Number 1 well.

3 This shows there is a structural high
4 starting in the south half of Section 4, extending down
5 through Section 9 and into Section 16.

6 Devon's well, so far, is the highest well
7 structurally in the field.

8 Q. Let's go now to our cross-section. Can you
9 first review the trace for the cross-section, and then
10 the information contained on Devon Exhibit Number 3?

11 A. Exhibit Number 3 is a cross-section of six
12 wells. The map on the right-hand side shows the line
13 of cross-section coming from the north, which is on the
14 right-hand of the page, down to our well, south, which
15 is on the left-hand side of the page.

16 We have marked the top area of Delaware sands
17 in the Pool, and I've also shown in the little green
18 blocks in the Devon tract the different perforations to
19 the wells. And you can see here that different wells
20 are perforated in different sands over about a 500-foot
21 interval.

22 But it also shows the Devon well is completed
23 in some of the similar sands and is producing from the
24 same common source of supply as the other wells in the
25 Catclaw Draw-Delaware Pool.

1 I just want to point out that there is a very
2 wide difference in the sands that are perforated in the
3 individual wells.

4 Q. Let's go now to Devon Exhibit Number 4, and
5 using this exhibit, would you review for the Commission
6 the production history for the Cactus State Number 1?

7 A. Exhibit Number 4 is a plot of the daily
8 production since the well was completed in March of
9 1993. And as most Delaware fields in the Basin, this
10 well produces by solution gas drive.

11 If we start at the bottom of this plot, the
12 lower curve is the oil production, shown by the dark
13 squares. You can see that production varied
14 considerably when we were getting the well on line but,
15 since about the first part of July, has produced
16 consistently about 80 barrels of oil per day.

17 The middle curve is gas production in MCF a
18 day, and it varies a little bit because of when the
19 compressor is running, but basically it's produced
20 between 400 and 500 MCF a day since completion.

21 The top curve shows the gas/oil ratio.
22 Initially, when we were getting the well lined out, the
23 gas/oil ratio varied between 3000 and 9000 GOR, but
24 since about the end of June it's been fairly consistent
25 between 5000 and 6000 GOR.

1 If you'll notice the last couple of weeks on
2 the plot, there was a considerable decrease in the oil
3 and gas production rates, and I will focus on this in a
4 future exhibit. We'll kind of detail in on that area.

5 Q. Could you just identify what is marked Devon
6 Exhibit Number 5?

7 A. Exhibit Number 5 is simply a tabulation of
8 the data which was shown on the previous plot. I've
9 just provided it for backup data only and don't plan to
10 comment any further on it.

11 Q. Okay, let's go to Devon Exhibit 6 and, using
12 this exhibit, could you review for the Commission
13 recent well tests on the Cactus State Number 1?

14 A. Okay. Exhibit Number 6 is very important.
15 We wanted to determine the effect of the different
16 producing rates on the gas/oil ratio to see if this
17 well was rate-sensitive. In other words, we wanted to
18 see if producing the well at a higher rate would result
19 in a higher gas/oil ratio.

20 The well has been producing basically on a
21 12/64 choke since it was completed. What I've shown on
22 this plot is the daily production since August 1st
23 through September 17th. We were producing the well on
24 a 12/64 choke throughout the month of August, and you
25 can see that the oil production was slightly greater

1 than 80 barrels a day. Gas production was between 400
2 and 500 MCF a day, which resulted in a gas/oil ratio of
3 slightly more than 5000.

4 There is some ups and downs in the curve,
5 based on when the compressor was running. But if you
6 look at the period from about August 12th through
7 August 22nd, when the compressor was running
8 continuously, you can see a very stable production
9 rate.

10 On September 3rd, we reduced the choke size
11 to 10/64, which reduced the oil production to about 55
12 barrels a day and gas production to about 290 MCF a
13 day. But you can see the resulting gas/oil ratio is
14 essentially the same. It's about 5200.

15 We reduced the choke again to try to reduce
16 the well to the 160-MCF-a-day gas allowable. We
17 reduced it to the next size, which was an 8/64 choke.
18 Oil production decreased to about 25 to 30 barrels a
19 day, and gas production was about 130 MCF a day.

20 At this low choke rate we had trouble keeping
21 the well flowing consistently because we had it pinched
22 back so hard. But if you look at the overall gas/oil
23 ratio from the five days that we had it on the small
24 choke, it was slightly less than 5000 GOR, basically
25 the same as what it was when we were producing it on a

1 10/64 or a 12/64 choke.

2 What this showed to us was that the well was
3 not rate-sensitive, that by producing at a higher rate,
4 both oil and gas, we would not be dissipating reservoir
5 energy or causing waste.

6 Q. Now, Mr. Morrow, the Order entered following
7 the Examiner Hearing found that Devon had not run a
8 production profile log on the Cactus State Number 1 in
9 order to determine the amount and type of production
10 attributable to each zone. Has Devon run such a log?

11 A. Yes, we ran such a log on September 18th,
12 which was just four days ago.

13 Q. And do you have copies of that log here
14 marked Exhibit 7?

15 A. Yes, I do.

16 Q. Could you review that for the Commission,
17 please?

18 A. This is a copy of a production log run by a
19 company called Wedge Wireline.

20 What this log was, was a combination
21 temperature log and spinner survey to try to determine
22 which sets of perforations were producing oil and gas
23 in our well. It's quite a long log, and I won't go
24 through all the details.

25 If you could open it just a little bit, we

1 can see the -- They show the three sets of perforations
2 in the depth track, starting at about 3040, all the way
3 down to 3220 feet. This just kind of shows the three
4 sets of perforations.

5 And right below the log heading there is a
6 comment section which reviews the results of this log.

7 Basically, we found that 95 percent of both
8 the oil and gas production was coming out of that top
9 zone, from 3040 to 3070, and only a minor amount of
10 production was coming out of the lower two zones.

11 What we were looking for by running this log
12 was trying to determine if there was one zone that was
13 producing a predominant amount of gas. And what we
14 found was that that was not the case. We found that
15 the oil and gas production was coming out of the top
16 zone.

17 So we found that this is a solution gas drive
18 reservoir and not separate gas and oil reservoirs.

19 Q. Do you have any reason to believe that the
20 picture of the reservoir you're able to obtain from
21 this log would not be applicable to other portions of
22 the field?

23 A. No, I think this is probably what you would
24 see throughout the field.

25 Q. Could you identify what has been marked Devon

1 Exhibit Number 8?

2 A. Exhibit Number 8 is an equation out of a
3 petroleum reservoir engineering handbook by Craft and
4 Hawkins, which shows the fractional recovery of oil in
5 place as a function of various fluid properties and the
6 produced gas/oil ratio.

7 I won't go through the equation in great
8 detail, but what it states is that the fractional
9 recovery is a function of formation volume factors of
10 both the gas and the oil, the solution gas/oil ratio,
11 and more importantly the produced gas/oil ratio.

12 I've extracted a quote from the book below
13 there; I'll just paraphrase that. What it says is that
14 the recovery is strictly a function of your produced
15 gas/oil ratio and the properties of the reservoir
16 fluid.

17 Since the properties of the reservoir fluid
18 are fixed, it follows that the recovery is a function
19 of the produced gas/oil ratio.

20 Now, we've shown in our choke tests that the
21 gas/oil ratio is independent of rate, so therefore,
22 that the recovery of oil in place is also independent
23 of rate.

24 Therefore, we would not be reducing our
25 ultimate recovery by producing the well at a higher

1 rate.

2 Q. Could you identify Devon Exhibit Number 9?

3 A. Exhibit Number 9 is a tabulation of the
4 monthly production for the other seven wells in the
5 East Catclaw Draw-Delaware Pool. For each well I've
6 shown the monthly oil, gas and resulting GOR, and also
7 the pool total.

8 What I'd like to point out with this exhibit
9 is that different wells produce at different GORs in
10 the field. The wells with high energy have produced
11 from 2000-to-1 GOR up to a 4600 GOR, as shown in the
12 Wiser State Number 3.

13 In other words, this Delaware field is fairly
14 high GOR, depending on what wells are completed in what
15 sands.

16 Q. Now, Mr. Morrow, have you reviewed this
17 proposal with Chi Operating?

18 A. Yes, I've talked to Chi Operating several
19 times on the phone, and their verbal indication was
20 that they support our Application and have no trouble
21 with the higher GOR.

22 Q. Let's go to Devon Exhibit Number 10. Would
23 you identify that and review it for the Commission?

24 A. Exhibit Number 10 is a calculation of the
25 payout based on several different GOR limitations on

1 the field. I've shown some basic assumptions in terms
2 of well costs and product price.

3 Case one I ran with a 6000 GOR limit. In
4 other words, if we were able to produce our well at 80
5 barrels a day with a 6000-to-1 GOR, we would achieve a
6 payout in eight months.

7 If, however, our Application is denied and
8 we've got to produce the well at a 2000-to-1 GOR, the
9 payout is about two and a half years. And at these
10 economics it's hard to justify additional drilling, and
11 I believe that oil would ultimately be left in the
12 ground if we didn't have the economic justification to
13 pursue developing this reservoir.

14 Q. If the Application is, in fact, granted, will
15 additional wells be drilled in the reservoir?

16 A. Yes, sir.

17 Q. How many would you anticipate at this time?

18 A. Based on our current geologic mapping, it
19 looks like there's room for at least three more wells.
20 However, we would probably drill them one at a time and
21 evaluate the results between drilling.

22 Q. And how soon would these wells actually be
23 drilled?

24 A. We have already prepared an AFE for the
25 second well, and we're waiting on the outcome of this

1 Application. It just depends on how fast we can get a
2 rig.

3 Q. Based on your engineering study what general
4 conclusion have you been able to reach about this
5 reservoir?

6 A. Based on our choke-setting tests, we have
7 concluded that this reservoir is insensitive to
8 production rates. In other words, that the ultimate
9 recovery will not be affected by the producing rates
10 and that this well is produced by a solution gas drive
11 reservoir.

12 The production log shows us that we are not
13 producing gas out of a gas zone and oil out of oil
14 zones; we are producing gas and oil out of a solution
15 gas drive reservoir.

16 Q. If this Application should be granted and
17 temporary rules adopted for the Pool, for what period
18 of time would you recommend be the duration of these
19 temporary rules?

20 A. We would request that temporary rules be in
21 effect for a period of 18 months.

22 Q. If that request is granted, what additional
23 information do you anticipate Devon would be able to
24 obtain during the next 18 months?

25 A. By drilling additional wells, we would not

1 only gather additional production information, but one
2 of the statements made in the previous Order was that
3 we had not obtained any PVT analysis on the fluid. By
4 drilling some additional wells, we would be able to
5 gain some additional data on the PVT analysis.

6 We cannot do it on our existing wells. You
7 need to do that when the well is originally completed.
8 We've waited too long and the result would be invalid.

9 By drilling some new wells, we could get some
10 good PVT data to determine actual fluid properties.

11 Q. What's the current status of the Cactus State
12 Number 1 Well?

13 A. The Cactus State Number 1 is currently
14 producing and is most likely in an over-produced status
15 in regard to gas production.

16 Q. If the Application is granted, does Devon
17 request an effective date for the temporary rules?

18 A. Yes, we've been concerned about this since
19 early spring, and I believe our original Application
20 was May 25th. We would request that any relief be
21 retroactive to June 1st.

22 Q. In your opinion, if the Application is
23 granted, additional wells will be drilled; is that
24 correct?

25 A. Yes, sir.

1 Q. Without the higher gas/oil ratio, in your
2 opinion, will there be any additional development in
3 this pool?

4 A. At the current time under the current
5 economics, it's doubtful.

6 Q. In your opinion, if the Application is
7 granted, will oil be produced from this reservoir that
8 otherwise would be left in the ground?

9 A. Yes, I believe so.

10 Q. In your opinion, will approval of the
11 Application otherwise be in the best interests of
12 conservation, the prevention of waste, and the
13 protection of correlative rights?

14 A. Yes, I do.

15 Q. Were Exhibits 1 through 10 either prepared by
16 you or compiled under your direction?

17 A. Yes, they were.

18 Q. Can you testify as to their accuracy?

19 A. Yes.

20 MR. CARR: At this time, may it please the
21 Commission, we would move the admission of Devon
22 Exhibits 1 through 10.

23 CHAIRMAN LEMAY: Without objection, Exhibits
24 1 through 10 will be admitted into the record.

25 MR. CARR: And that concludes my direct

1 examination of Mr. Morrow.

2 CHAIRMAN LEMAY: Thank you, Mr. Carr.

3 I don't see anyone that would like to ask
4 additional questions out there, so I'll start with our
5 fellow Commissioners.

6 Commissioner Bailey, do you have any
7 questions?

8 COMMISSIONER BAILEY: No, not at this time.

9 CHAIRMAN LEMAY: Thank you.

10 Commissioner Weiss?

11 COMMISSIONER WEISS: Yes, sir.

12 EXAMINATION

13 BY COMMISSIONER WEISS:

14 Q. Mr. Morrow, what's the average GOR for the
15 last five points on Exhibit 6?

16 A. The average GOR for the last five points is
17 4950.

18 Q. That's the actual?

19 A. That's the actual average for those last five
20 points, yes, sir.

21 Q. And let's see, if you were to get this
22 increase in allowable, would it result in drainage of
23 the designated pool, the East Catclaw Draw-Delaware, if
24 your rate was higher than theirs?

25 A. I'm not sure I understand the question.

1 Q. If you have -- If you're allowed a higher
2 GOR, will you -- will that produce -- will that drain
3 oil from the yellow square in Exhibit Number 1?

4 A. I don't believe so, sir. The Delaware sands
5 there are fairly low permeability, and I don't think
6 they drain more than 40 acres.

7 Q. Do you have anything to support that, other
8 than your thoughts?

9 A. We ran a pressure buildup test on the Cactus
10 State Number 1, and it showed that the permeability was
11 only several millidarcies. I don't have the exact
12 numbers with me, but it did show that it was fairly low
13 permeability. And that's typical of Delaware pools in
14 the Basin. When we drilled our well -- Let me back up
15 a second.

16 The well to the north, which is believe is
17 the Wiser State Number 2, has been producing for a
18 period of time. When we drilled our well, our Cactus
19 State Number 1, we encountered original reservoir
20 pressure, which showed that there has not been any
21 drainage across that section line.

22 Q. And what's the time element there, in the
23 yellow wells and your well? I can't tell when they
24 were drilled.

25 A. The Wiser State Number 2 has been producing

1 since October of 1990.

2 Q. And then yours was just this year, was --

3 A. Yes, March of 1993.

4 Q. And the bottomhole pressures were the same on
5 both wells, the PIs -- the initial pressure?

6 A. Yes.

7 Q. And one other question: If oil were \$20 a
8 barrel, would you drill any more wells with a 2000-to-1
9 GOR limit?

10 A. Right off the top of my head, I really can't
11 answer that without running some quick numbers on it.
12 I don't believe so. I ran this at -- I'd have to check
13 my numbers here -- at \$19 a barrel.

14 This is low-gravity sour crude, so we take a
15 deduction from WTI posted price, but I ran this at \$19
16 a barrel, so I doubt if \$20 a barrel WTI would make
17 that much difference.

18 COMMISSIONER WEISS: That's all the questions
19 I have. Thank you very much.

20 CHAIRMAN LEMAY: Thank you, Commissioner
21 Weiss.

22 EXAMINATION

23 BY CHAIRMAN LEMAY:

24 Q. You don't have an ownership map here. Can
25 you kind of take maybe Exhibit Number 1 and walk

1 through the ownership in this -- in the surrounding
2 areas? How about 16, the well in 16?

3 A. I can't answer that right off the top of my
4 head. I don't know the exact ownership of all the
5 sections.

6 Q. Do you know your ownership in there?

7 A. Yes, sir.

8 Q. Could you explain to us your ownership?

9 A. Our ownership is 43.75 percent working
10 interest.

11 Q. 43.75?

12 A. Yes.

13 Q. That's your working interest under the Cactus
14 State Number 1?

15 A. Yes, sir.

16 Q. Percentage working interest?

17 A. Yes, sir.

18 Q. Do you know how much acreage that ownership
19 is under?

20 A. No, sir, I don't know what the base lease
21 covers.

22 Q. Could you supply us that information?

23 A. Yes.

24 Q. We're looking at a correlative-rights issue,
25 and it's very difficult to address that without knowing

1 who owns what.

2 A. Right. I do know that Chi Operating and OXY,
3 which have an interest in Section 9, are also working
4 interest owners in the Cactus State Number 1.

5 There is common working interest ownership in
6 Section 9 and Section 16. The percentages are
7 different, but I can't tell you what the exact
8 percentages are.

9 I will supply you with that information.

10 Q. Do you have a working interest in those wells
11 in Section 9?

12 A. We have an override in those wells.

13 Q. Significant override? Do you know how much?

14 A. I could not tell you.

15 Q. Will you supply that?

16 A. Yes, sir.

17 Q. In looking at your -- I guess your cross-
18 section, Cactus State 1, then going over to the Wiser
19 State 2, which is your closest offset well, you have an
20 override.

21 I don't know how active you were in the
22 drilling of that Wiser 2, but it looks like the only
23 perforated interval is about ten feet down there in the
24 lower "D" sand; is that correct?

25 That's the only pay they have in that well?

1 Or that's the only --

2 A. We were not involved at all in the completion
3 procedures of those Chi Energy wells, so I really
4 cannot know why they perforated certain sands and
5 didn't perforate others.

6 This is the perforations we have from the
7 public record.

8 Q. Okay. With no indications that they
9 increased their perforated interval or anything else,
10 based on what you --

11 A. No, sir.

12 Q. -- produced?

13 I mean, the obvious question I'm looking at
14 is, would they increase their production if they had
15 perforated more sand? Is there additional pay behind
16 the pipe?

17 Do you see anything in those intervals that
18 would indicate that there is some pay that they didn't
19 perforate that might be correlative to some of the pay
20 you perforated?

21 A. Yes, we do, and frankly, we're a little
22 mystified as to why they completed their wells the way
23 they did.

24 Q. Certainly an override would benefit by
25 additional production under --

1 A. That's correct.

2 Q. -- the well.

3 Have you contacted them concerning opening up
4 additional pipe?

5 A. Not specifically, no, sir, we haven't.

6 Q. The obvious question is, if you have virgin
7 pressures, I would say that's probably true because
8 they opened up so little in the other well, you really
9 can't tell what their pressure might be compared to the
10 pressure in your well, had they opened more pay and
11 taken pressure information over a larger interval.

12 A. That is correct.

13 Q. Do you feel there's any vertical
14 communication among these sands in the field?

15 A. I believe there's some vertical communication
16 between the closer sands.

17 The sands and shales between them tend to
18 vary in thickness, and I don't believe there is a total
19 seal between these sands. I believe there is some
20 vertical communication.

21 Probably not over the whole 500-foot
22 interval, but the sands that are closer to one another,
23 I believe there is.

24 Q. So you would feel -- Or would you feel that
25 the -- in a general sense, if you have both vertical

1 and horizontal communication within what's considered
2 the East Catclaw-Delaware field?

3 A. Yes, I do.

4 Q. If you were going to design a waterflood for
5 this field, would you flood all those zones, or would
6 you try and separate them and flood them separately?

7 A. Usually in a situation like this, you try to
8 flood all the zones concurrently.

9 Q. They're close enough together you don't have
10 a problem with that?

11 A. Yes, sir.

12 CHAIRMAN LEMAY: I have no further questions.
13 Commissioner Weiss?

14 FURTHER EXAMINATION

15 BY COMMISSIONER WEISS:

16 Q. What would be your recommendation as to
17 allowables in the East Catclaw Draw Pool, Delaware
18 Pool? Should they be held at 2000 to 1, or --

19 A. No, sir, I think we're applying for pool
20 rules for the whole pool, special pool rules,
21 increasing the pools for everybody to 6000-to-1.

22 Q. I didn't understand that. Thank you.

23 A. I believe that's the intent of the --

24 MR. CARR: May it please the Commissioner,
25 we're requesting that the pool rules be changed for the

1 East Catclaw Draw Pool so that the Chi wells in Section
2 9 would also receive the higher gas/oil ratio.

3 And if you look at Exhibit Number 9 you can
4 see that actually all but one of those wells is at a
5 gas/oil ratio of above 2000 to 1.

6 But our intention is to apply for a change of
7 the pool rule. Then being within a mile of it, as we
8 are, we would all operate under the same rule.

9 FURTHER EXAMINATION

10 BY CHAIRMAN LEMAY:

11 Q. Well, again, how many wells would benefit
12 with increased production, do you think, with a higher
13 GOR?

14 I assume that the lower GORs there are
15 because they've brought down production. It looks like
16 they kind of vary quite a bit with the other wells,
17 anywhere from 4600 to 1700.

18 But toward -- in March it looks like most of
19 those other wells are below the 2000-to-1 GOR.

20 A. Yes, sir. It appears that the gas/oil ratio
21 lately has gone down slightly on the Chi wells.

22 Q. So your well would be the only well in the
23 field that would benefit by increasing the GOR?

24 A. As the wells are completed now, I think that
25 is correct.

1 Increasing the GOR to 6000 to 1 may give Chi
2 some incentive to go back in and add some perforations
3 in these wells.

4 CHAIRMAN LEMAY: Anything else? Anyone else
5 have any questions?

6 COMMISSIONER WEISS: Yeah, one.

7 FURTHER EXAMINATION

8 BY COMMISSIONER WEISS:

9 Q. What was the initial pressure?

10 A. I would have to -- Right off the top of my
11 head, I don't know. I have it in my briefcase here, if
12 you want to take a second to --

13 Q. Yes, I'd like to know.

14 A. Okay. Our original reservoir pressure was
15 1429 pounds, p.s.i.

16 And regarding your question earlier, our
17 calculated permeability was 2.3 millidarcies.

18 COMMISSIONER WEISS: Thank you.

19 CHAIRMAN LEMAY: How did you calculate the
20 perm? Did you port a well or anything, or --

21 THE WITNESS: No, this is based on a pressure
22 buildup test that we ran initially on this well.

23 COMMISSIONER WEISS: What was that? 2.3?

24 THE WITNESS: 2.3 millidarcies, yes, sir.

25 CHAIRMAN LEMAY: You mentioned Chi has no

1 information to you as quickly as possible.

2 CHAIRMAN LEMAY: Anything else you've got
3 concerning the working interest that you're familiar
4 with.

5 I mean -- Like you mentioned an override --

6 THE WITNESS: Oh --

7 CHAIRMAN LEMAY: If you could kind of get
8 some of that information, that would help us on
9 correlative rights issues, certainly.

10 THE WITNESS: Right.

11 CHAIRMAN LEMAY: Who has the other working
12 interest in this?

13 THE WITNESS: Chi Energy, OXY and Siete Oil
14 and Gas, I believe, are the other owners.

15 CHAIRMAN LEMAY: Did they -- Were they
16 contacted? Did they have anything to say about the
17 case?

18 THE WITNESS: Yes, they were.

19 CHAIRMAN LEMAY: Maybe we shouldn't be on --
20 Is this illegal to do this without having it on the
21 record? I don't --

22 MR. CARR: We can certainly put it on the
23 record.

24 What we will do is, we will provide you a
25 complete breakdown of the ownership --

1 CHAIRMAN LEMAY: Okay, that would be --

2 MR. CARR: -- on all the tracts.

3 CHAIRMAN LEMAY: All the tracts. That's
4 really what I'm getting to. It's what we wanted in the
5 way of ownership.

6 Thank you.

7 (Thereupon, these proceedings were concluded
8 at 9:46 a.m.)

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1 CERTIFICATE OF REPORTER

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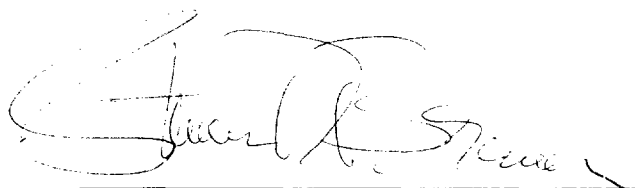
3 STATE OF NEW MEXICO)
 4 COUNTY OF SANTA FE) ss.

5

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

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

16 WITNESS MY HAND AND SEAL September 23rd,
 17 1993.

18 

19
 20 STEVEN T. BRENNER
 CCR No. 7

21 My commission expires: October 14, 1994

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