

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 9999, CASE 10,000

EXAMINER HEARING

IN THE MATTER OF:

Application of Mobil Producing Texas and New
Mexico, Inc., for Dual Completion and Downhole
Commingling, Lea County, New Mexico; Application
of Mobil Producing Texas and New Mexico, Inc., for
a New Waterflood Project, Dual Completions,
Waterflood Expansion and Two Unorthodox Water
Injection Well Locations, Lea County, New Mexico

TRANSCRIPT OF PROCEEDINGS

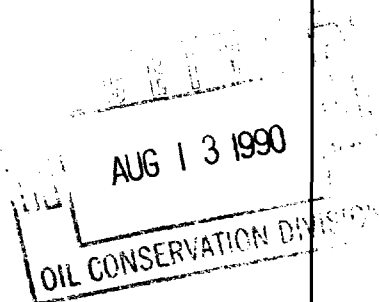
ORIGINAL

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

July 11, 1990



A P P E A R A N C E S

FOR THE DIVISION:

ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Division
State Land Office Building
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

MONTGOMERY & ANDREWS, P.A.
Attorneys at Law
By: W. PERRY PEARCE
325 Paseo de Peralta
P.O. Box 2307
Santa Fe, New Mexico 87504-2307

ALSO PRESENT:

JAMES MORROW
Chief Engineer
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico 87504

* * *

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1 WHEREUPON, the following proceedings were had
2 at 9:16 a.m.:

3
4 EXAMINER STOGNER: At this time we will call
5 the next case, Number 9999.

6 MR. STOVALL: Application of Mobil Producing
7 Texas and New Mexico, Inc., for dual completion and
8 downhole commingling, Lea County, New Mexico.

9 EXAMINER STOGNER: I'll call for appearances.

10 MR. PEARCE: May it please the Examiner, I am
11 W. Perry Pearce of the Santa Fe office of the law firm
12 of Montgomery and Andrews, appearing in this case on
13 behalf of Mobil.

14 I have three witnesses who need to be sworn.

15 EXAMINER STOGNER: Are there any other
16 appearances in this matter?

17 MR. PEARCE: As a preliminary matter, Mr.
18 Examiner, I would ask that this case be consolidated
19 with Case Number 10,000. The cases involve largely the
20 same set of exhibits, and I believe for time efficiency
21 the cases can be properly consolidated for hearing.

22 EXAMINER STOGNER: In that case, I'll call
23 Case Number 10,000 at this time.

24 MR. STOVALL: Application of Mobil Producing
25 Texas and New Mexico, Inc., for a new waterflood

1 project, dual completions, waterflood expansion, and
2 two unorthodox water injection well locations, Lea
3 County, New Mexico.

4 EXAMINER STOGNER: Are there any appearances
5 other than Mobil's in this particular case?

6 If not, Mr. Pearce?

7 MR. PEARCE: Mr. Examiner, at this time I
8 would like to move that this hearing be transferred
9 back to the Director's office for a brief period of
10 time so that we can discuss Exhibit Number 1 to Case
11 10,000.

12 EXAMINER STOGNER: And what is Exhibit Number
13 1, Mr. Pearce?

14 MR. PEARCE: It's celebratory in nature, Mr.
15 Examiner.

16 EXAMINER STOGNER: In that case, let's
17 adjourn for about 30 minutes and go inspect Exhibit
18 Number 1.

19 (Thereupon, a recess was taken at 9:20 a.m.)

20 (The following proceedings had at 9:49 a.m.)

21 EXAMINER STOGNER: This hearing will come to
22 order.

23 (Thereupon, the witnesses were sworn.)

24 EXAMINER STOGNER: Mr. Pearce?

25 MR. PEARCE: Thank you.

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DAN BURNHAM,

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

DIRECT EXAMINATION

BY MR. PEARCE:

Q. For the record, sir, would you please state
your name and your employer?

A. Dan Burnham, Mobil Oil.

Q. Mr. Burnham, what is your employment
relationship with Mobil? What do you do for them?

A. I'm a staff production geologist in the
Midland office.

Q. And have you previously appeared before the
Division and its examiners and had your qualifications
made a matter of record?

A. I have not.

Q. All right, sir. Would you briefly summarize
for us your educational and work relations that relate
to petroleum geology.

A. I have a bachelor's degree in geology from
Brigham Young University. I have a -- I've been
working on and nearly completing a master's degree in
geology from the University of Texas, Permian Basin, in
Odessa.

I've been working with Mobil and previously

1 Superior Oil in oil and gas for approximately ten
2 years. Of that ten years, five of it has been Permian
3 Basin experience and four in southeast New Mexico.

4 Q. And are you familiar with the Applications
5 filed by Mobil that are being considered today?

6 A. Yes, I am.

7 MR. PEARCE: Mr. Examiner, at this time I
8 would ask that the witness be qualified as an expert in
9 the field of petroleum geology.

10 EXAMINER STOGNER: This witness is so
11 qualified.

12 Q. (By Mr. Pearce) Mr. Burnham, I'd ask you
13 first to approach what we have marked as Exhibit Number
14 1 to this proceeding, and we've previously hung it on
15 the wall for convenience, and describe the information
16 displayed on that exhibit.

17 A. Okay, this is a base map just entailing a
18 portion of the Vacuum field, and within this is a two-
19 mile radius sort of a semicircle around the area of
20 interest which we're trying to inject into six
21 different injection wells for the purpose of injecting
22 into a secondary recovery project in the Glorieta and
23 the Blinberry.

24 We've outlined in blue around the edges of it
25 here the portion of acreage which is on the Bridges

1 State lease, and that is the acreage which we'll be
2 involved in as far as the hearing is concerned and the
3 area which we'll be interested in flooding.

4 These smaller circles are half-mile radius
5 circles, just around each injector.

6 Q. Those will be discussed later on?

7 A. Yes, I have a smaller area which is just --
8 zeroes in on this particular area.

9 Q. All right. And as I understand it, the blue
10 outline on Exhibit Number 1 is the area we want
11 included in the waterflood project?

12 A. That is correct.

13 Q. All right, sir. Let's move over very quickly
14 and address what we've hung on the wall and marked as
15 Exhibit Number 2 to this proceeding. Would you
16 describe that for us, please?

17 A. Okay, this is a type log for the --
18 stratigraphic type log for the Vacuum field area. the
19 formations which we're interested in and involved in
20 this hearing are the San Andres, and I've marked it
21 here on the top of the San Andres. This is Well Number
22 109, which is this well right here.

23 EXAMINER STOGNER: And what well is that?
24 Could you give me a description?

25 THE WITNESS: Yes, that's the Bridges State

1 Mobil Number 109.

2 EXAMINER STOGNER: And that's in the
3 southeast of the southwest of --

4 THE WITNESS: -- Section 24.

5 EXAMINER STOGNER: Thank you.

6 THE WITNESS: The top of the San Andres is
7 marked here, the Glorieta. The zone which we are
8 producing in currently -- The field pays in 13
9 different pay horizons. The ones which we're
10 interested in here is the San Andres, the Glorieta.
11 The Glorieta includes the Paddock formation and also
12 the Blinebry. Those three zones.

13 The zones which we are interested in in
14 commingling and also injecting into for purposes of
15 secondary recovery is this Glorieta zone which includes
16 the Paddock and also the Blinebry zone.

17 Q. (By Mr. Pearce) All right, sir. I'd ask you
18 please to return to your seat. Let's look at what
19 we've marked as Exhibit Number 3 to this proceeding.
20 Would you discuss that for us, please?

21 A. I'll let him get it out there. Okay, you see
22 that blue outline around the acreage which is involved
23 in it. This is just a smaller version of that map up
24 there. In red is indicated -- are the injectors,
25 proposed injectors. We have two wells, the 602 and the

1 601 wells, which will be -- They are proposed
2 injectors, will be drilled --

3 Q. Okay, let's locate the 601 and 602.

4 A. Okay, that's in Section 25, just in the north
5 portion of it, on the bottom part of the map.

6 Q. The southern area of the proposed waterflood
7 project?

8 A. That's correct. Those are the two proposed
9 drilled wells, and then the other wells are wells which
10 would entail a workover and just a conversion into an
11 injector.

12 Q. We will discuss this later, but am I correct
13 that Wells 601 and 602 are the unorthodox-location
14 wells that we're going to discuss today?

15 A. That's correct.

16 Q. All right, sir.

17 A. Highlighted, also circled in a pink, I guess
18 it is, color is Well Number 36, and that is the well
19 which we are asking for application to commingle in
20 production in the Glorieta and the Blinbry zones.

21 EXAMINER STOGNER: And that is Case Number
22 9999; is that correct?

23 MR. PEARCE: That's correct, Mr. Examiner.

24 EXAMINER STOGNER: All right, thank you.

25 Q. (By Mr. Pearce) All right, sir. Let's look

1 at Exhibit Number 4, please.

2 A. Okay, Exhibit Number 4 is the Glorieta
3 production map. This is just a production map on the
4 Glorieta zone only. All the circles colored green are
5 wells which have produced, and above it is a total cum
6 figure in thousand barrels, and below it is the current
7 producing rate in barrels of oil per day.

8 Q. Okay. Exhibit Number 5?

9 A. Number 5 is a production map in the Blinebry
10 only, and again it has the same figures. Above it is
11 the cum production in thousand barrels, and below it is
12 the current rate of producing -- production.

13 Q. All right, sir. Let's walk through the
14 present production rate of those Blinebry wells and
15 highlight the current producing status of those wells,
16 please.

17 A. Okay. As you can see, most of these
18 producing wells -- Most of them are not producing any
19 longer. In fact, there's only two producing wells.
20 One is producing -- Three producing wells. One is
21 producing two barrels a day. The Number 38 in the
22 Section 26 northeast quarter is only producing two
23 barrels a day. And the largest producer is Number 27,
24 just below that one, is producing 19 barrels of oil per
25 day.

1 Q. All right. Thank you.

2 A. To the far west side of the map there.

3 Q. Exhibit Number 6, if you would, please?

4 A. Exhibit Number 6 is a pretty busy map. We've
5 color-coded it. Again, this is a kind of repeat of the
6 other two maps, but it kind of shows what we are
7 interested in doing in the Glorieta and the Blinebry as
8 far as a waterflood.

9 The Glorieta producers, again, are in green.
10 the Blinebry producers are in purple. And in the
11 orange are wells which have produced both from the
12 Blinebry and the Glorieta. These wells aren't
13 necessarily commingled or dual-completed, or they were
14 produced at separate times.

15 There are two wells which are commingled
16 currently, at this time, which have been approved in
17 the last year or so, and that is the Marathon
18 McCallister State Number 9 and the McCallister State
19 Number 6, which is directly south of the blue line
20 there, just south of our acreage.

21 In the red again are the proposed injectors
22 which we would like to propose, and also again the
23 locations which are in an optimum spot to put together
24 an inverted five-spot pattern for additional
25 recoveries.

1 Q. Exhibit Number 7, if you would, please, Mr.
2 Burnham.

3 A. Okay, Number 7 is a color-coded map. As I
4 mentioned before, this produces -- This field produces
5 from many horizons.

6 This is the Abo in blue. The Abo is, of
7 course, below the Tubb, just below is that zone.
8 We have a large waterflood out there, North Vacuum Abo
9 unit. And we've color-coded in blue those producers --
10 and injectors, they're both together.

11 And the purpose of the red triangles to the
12 north portion of the flooded area are a portion of the
13 Application. We're interested in dual-completing
14 injectors with two strings of tubing, dual injecting
15 into the Glorieta and also into the -- currently into
16 the Abo.

17 Q. All right, sir. For clarity, as I understand
18 it, we're proposing to have a dual injection string,
19 one injecting into the commingled Glorieta and
20 Blinbry, and a separate string continuing to inject
21 into the Abo; is that correct?

22 A. That is correct.

23 Q. All right, sir. Let's look, please, at
24 Exhibit Number 8.

25 A. Okay, Exhibit Number 8 is, again, another

1 formation. This is the San Andres on top of the
2 Glorieta. These are the San Andres producers shaded in
3 brown, the 601, 602 wells shaded in red. And the
4 injectors are also -- We are asking for application to
5 inject into the San Andres formation at these two
6 locations only.

7 This area is currently under -- The hatched
8 line that runs around the lease there is the -- our
9 portion of the Bridges State Co-op waterflood, which is
10 currently under waterflood and has been for -- since
11 1930. I believe it was the first waterflood in New
12 Mexico.

13 So this would be -- What we're asking for
14 application for is to inject into the commingled
15 Blinbry Glorieta with one string of tubing, and then
16 with the other string of tubing inject into the San
17 Andres. So they're totally separate.

18 Q. All right, sir, let's look at Exhibit Number
19 9, please.

20 A. Okay, Number 9 is just a structure map over
21 the top of the Glorieta. You can indicate the
22 anticlinal nature of the Vacuum field, and it's
23 plunging to the north and the northeast.

24 Q. And once again, the 36 well, the proposed
25 commingled producer, is highlighted with a pink circle.

1 Is there anything else that you'd like to highlight for
2 the Examiner on this exhibit?

3 A. The reason we are trying to recomplete and
4 commingle the 36 well is the well just directly next to
5 it to the east of it, the Number 112, was an old
6 Glorieta producer. It is now an Abo injector, and it
7 was not suitable for a producer at that location. We'd
8 like to just recomplete the Number 36 well into a
9 producer.

10 Along the edge of this, to the -- very direct
11 edge to west of this location, we have a oil/water
12 contact/transition zone in the Glorieta, and we're
13 looking at, you know, picking up an optimum location
14 just in that area for efficient recoveries.

15 Q. Okay. All right, looking at Exhibit Number
16 10 -- let's unfold that, please -- which appears to be
17 a cross-section, would you describe that for us?

18 A. Okay, this is a structural cross-section
19 running east-west. I've highlighted the San Andres,
20 the Glorieta and the top of the Blinbry. This
21 indicates just basically the structural nature. It is
22 not -- not a lot of structure out there. And what
23 we're showing here is just that we have indicated the
24 perforations on the existing Glorieta wells and also
25 the proposed 602 well which would be drilled in a

1 location between the 112 and 106.

2 Q. Okay, for clarification, looking at Exhibit
3 Number 9, the first well on the cross-section, the
4 westerlymost well, is entitled the Mobil Bridges State
5 Number 4.

6 A. That's right.

7 Q. Looking at Exhibit Number 9, is that the well
8 directly on the minus-1900 contour line?

9 A. That's correct.

10 Q. Thank you.

11 A. The very farthestmost west well.

12 Q. Anything else on A/A-prime?

13 A. I guess just what we're looking at here is,
14 we're trying to inject, of course, into the Glorieta
15 and the Blinebry together.

16 As you'll hear later testimony from Mr.
17 Moshell, the Blinebry zone is marginal economicwise as
18 far as production, and we're looking at only about a
19 500-foot, at the most, difference in actual
20 stratigraphic difference in -- depthwise between these
21 two intervals. Pressure differences should be minimal.

22 Q. All right. Let's look at B/B-prime, please,
23 Exhibit Number 11.

24 A. Okay, B/B-prime is just another structural
25 cross-section similar to the other one. This just runs

1 north/south.

2 The farthest south well is the McCallister
3 State Number 10, on the left-hand side. And the well
4 just next to it, the McCallister State Number 9, the
5 second well to the left on the southern portion, is one
6 of the wells which is commingled at this time in the
7 Blinebry and the Glorieta for production purposes.

8 Q. That's a Marathon?

9 A. That's a Marathon well, yes. And we have
10 hatched in here our proposed 601 well, injector.

11 Hatched on here also is a rough estimate of
12 the oil -- original oil/water contact from the original
13 wells in the Glorieta.

14 Q. Okay. Exhibit Number 12, C/C-prime, please?

15 A. C/C-prime is an east-west stratigraphic
16 cross-section. Yours may not be colored up. I'll just
17 show you -- This one's colored up. I'll give you this
18 one.

19 This is just a stratigraphic cross-section,
20 just to indicate the discontinuous nature of the
21 carbonate reservoirs. This is very typical of
22 carbonates where you have porosity coming and going
23 within the zone. The oil/water transition zone is
24 marked on there, and just trying to illustrate here
25 that even though wells at this 40-acre spacing

1 encounter pay within one well, they -- That same pay is
2 not always equivalent in another well offset.

3 And marked on the left-hand side is the
4 oil/water transition zone, the heavy line at the very
5 bottom portion that skews across the page there.

6 Q. Mr. Burnham, at this time do you have
7 anything further to present --

8 A. No --

9 Q. -- of a geological nature?

10 A. -- nothing further to present.

11 MR. PEARCE: Mr. Examiner, I have no further
12 questions of this witness. He is available for your
13 questions now or will be available later.

14 EXAMINER STOGNER: I'm going to reserve any
15 questions until later, Mr. Pearce.

16 Mr. Stovall, do you have any questions?

17 MR. STOVALL: I just have a couple questions,
18 just to clarify some things that were said.

19 EXAMINATION

20 BY MR. STOVALL:

21 Q. On Exhibits 6 and 7, if I may unbury these
22 from our stack here, look at Well 119, I believe it is.

23 A. Okay.

24 Q. It's got a triangle around it, which I assume
25 means it's an injector; is that correct?

1 A. That's a proposed Blinebry-Glorieta injector,
2 that's correct.

3 Q. Okay, now my -- That's why I want to clarify
4 it, because on your Exhibit Number 6 it is not colored,
5 and you refer to the red wells as being injectors. Is
6 that an oversight, or is there a reason it's not
7 colored?

8 A. 119 is not a producer in the Glorieta, has
9 never produced in the Glorieta.

10 Q. Oh, okay. So the red --

11 A. It was drilled --

12 Q. -- the red --

13 A. -- it was drilled --

14 Q. -- is an indication of producer; is that what
15 you're saying?

16 A. Well, no. On this map the green is shaded
17 for Glorieta producers only.

18 MR. PEARCE: And he's referring to Exhibit
19 Number 6.

20 THE WITNESS: Right, Number 6.

21 Q. (By Mr. Stovall) I don't think that's --
22 That doesn't look the same. Is that Number 6?

23 A. Yes, that's my Number 6.

24 Q. Well, I'm going to have to put on my glasses
25 and make sure I'm seeing what I'm --

1 A. It's multi-colored.

2 Q. The 119 is colored in Number 6, then?

3 A. It's red, yes, as an injector.

4 Q. Okay, it was not red on our exhibit. That's
5 why I was questioning that.

6 A. Oh, okay.

7 Q. And I think that answers the question.

8 A. It is a producer in the Abo only, and that's
9 where it's produced. That's why it's coded blue on the
10 other --

11 Q. Now, is Number 6 -- It wasn't colored at all
12 when you referred to red as injectors in that.

13 A. Okay.

14 Q. Apparently it was a mapping error, so that
15 clarifies that.

16 The only other question I had was on your
17 production map -- Let me see which one that is. Number
18 5 --

19 A. Okay.

20 Q. -- you identified two wells that are
21 currently producing from the Blinebry, and I notice
22 Number 13 --

23 A. Yes, there's --

24 Q. -- appears to have a number under it.

25 A. Yeah.

1 Q. Is that a --

2 A. It's marginally producing. There's three
3 wells. That's an oversight on mine.

4 MR. STOVALL: Okay, that's all I have.

5 EXAMINER STOGNER: Mr. Pearce, you may
6 continue.

7 MR. PEARCE: Subject to recall, I would call
8 Mr. Mark Moshell at this time.

9 MARK MOSHELL,

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

12 DIRECT EXAMINATION

13 BY MR. PEARCE:

14 Q. Sir, for the record, would you please state
15 your name and your employer?

16 A. Mark Moshell, Mobil Oil.

17 Q. And Mr. Moshell, what is your job title with
18 Mobil Oil?

19 A. Senior staff reservoir engineer.

20 Q. Mr. Moshell, have you previously appeared
21 before the Oil Conservation Division Examiners or Oil
22 Conservation Commission and had your qualifications as
23 an expert in the field of petroleum engineering made a
24 matter of record?

25 A. Yes, I have.

1 Q. And are you familiar with the Applications
2 filed by Mobil that are being considered today?

3 A. Yes.

4 MR. PEARCE: Mr. Examiner, at this time I
5 would ask that the witness be qualified as an expert in
6 the field of petroleum engineering.

7 EXAMINER STOGNER: Mr. Moshell is so
8 qualified.

9 Q. (By Mr. Pearce) Mr. Moshell, before we look
10 at your exhibits, I'd like for you to summarize for us
11 why Mobil has filed these Applications and what it's
12 seeking to do.

13 A. We seek to increase recovery from the San
14 Andres, the Glorieta and Blinberry reservoirs under the
15 Bridges State lease by making maximum use of the
16 available wellbores and making maximum use of the
17 proposed 601 and 602.

18 Dan previously mentioned there are numerous
19 pay zones. I believe 13 different ones have been
20 identified on this structure. And as you can see from
21 the base map, many well locations or pads, as we call
22 them, have three or four wells, most of which are still
23 producing from different zones.

24 This field has been producing since the early
25 1930's, and even though the San Andres waterflood has

1 been underway since 1958, there are still oil reserves
2 to be recovered by additional injection locations and,
3 in the case of marginal reservoirs, by commingling,
4 extending the economic lives of those marginal
5 reservoirs.

6 The largest reservoir in terms of cumulative
7 oil production on this structure we call Vacuum that is
8 not under any type of secondary recovery is the
9 Glorieta. That is the dog that wags the tail, so to
10 speak, here.

11 The Blinebry is a marginal zone which will
12 never be waterflooded by Mobil alone. As shown on the
13 production cumulative maps, the cums are a lot smaller
14 than the Glorieta or San Andres, and we are seeking to
15 combine downhole this -- these injectors -- so that
16 recovery -- additional recovery in the Blinebry will be
17 economic.

18 In the San Andres, I will show on some
19 upcoming exhibits that even though this is a old flood,
20 increased density has proven to be effective in
21 economically recovering additional reserves.

22 Q. Okay, ready to turn to exhibits?

23 A. Yes, sir.

24 Q. All right. Let's look, please, at what we've
25 marked as Exhibit Number 13.

1 A. Yes, sir.

2 Q. Would you describe that exhibit for us,
3 please?

4 A. These are three different graphs, all having
5 a common X coordinate of time in years.

6 The topmost graph is water cut percent, in
7 blue, versus time.

8 The --

9 Q. Water cut -- Okay, go ahead, I'm sorry.

10 A. The second graph on that -- excuse me, second
11 curve on that same graph is number of wells on
12 production. We currently have eight Glorieta producers
13 still active.

14 Moving to the middle graph on this page is
15 gas/oil ratio in thousands of cubic feet per barrel
16 versus time, showing that this is a typical solution
17 gas-drive reservoir. There is some evidence of minimal
18 water influx, but by no means could it be called a
19 water-drive primary mechanism.

20 The lower and final graph on this page is oil
21 rate in green, gas rate in red, water rate in blue,
22 versus time. Production began in 1963 on this lease
23 and was fairly constant at 600 to 700 barrels a day
24 from 1966 through about 1972. This was primarily due
25 to proration.

1 A combination of declining productivity and
2 removal of proration from that point results in a
3 fairly typical solution-gas decline. We are producing
4 approximately 80 to 90 barrels a day from those eight
5 active producers on this lease, and I classify this as
6 a lease in an advanced state of depletion.

7 Q. All right, sir. Let's look, please, at
8 Exhibit Number 14.

9 A. Fourteen is a similar graph. The order of
10 the data presented is altered slightly. This is the
11 Blinebry production, total from the Bridges State lease
12 operated by Mobil.

13 Starting at the top I have shown oil rate in
14 green, water rate in blue, and I have omitted the gas
15 rate but it's reflected in red on the lowest, in terms
16 of gas/oil ratio; it's fairly insignificant.

17 These wells were not as affected by proration
18 because they have been lower rate during their entire
19 lives. The permeability is lower than the Glorieta,
20 the net-pay thickness is lower, and I have -- as I've
21 previously said, it's just a secondary objective here
22 compared to the Glorieta.

23 The water cut, as shown on the second portion
24 of the graph in blue, has remained in the neighborhood
25 of 20 percent throughout its life.

1 And the gas/oil ratio, although it has
2 fluctuated, has been around 2000 cubic feet per barrel
3 throughout its life. This is also indicative to me of
4 a solution gas-drive reservoir. Both this and the
5 Glorieta will most likely benefit substantially from
6 waterflood.

7 Q. For clarification, Exhibits 13 and 14, as I
8 understand it, represent lease production totals; is
9 that correct?

10 A. Correct.

11 Q. And looking at Exhibit Number 1, which is on
12 display, the waterflood area itself is significantly
13 smaller than the lease total area; is that correct?

14 A. Yes.

15 Q. All right. Let's look now at Exhibit Number
16 15, and would you describe that for us, please?

17 A. This, again, is three different graphs on one
18 page, rate versus time. This is for only a portion of
19 the San Andres reservoir. It has to do with those
20 producers in Section 25, wells Number 14, 16, 176 and
21 178.

22 There are other wells completed in the San
23 Andres in this section, but they are either now water
24 injectors or are temporarily abandoned or have been
25 plugged.

1 This is not a complete history. It only goes
2 from 1961 through early 1990. This reservoir was
3 discovered in 1929 and has produced since the 1930's.

4 I'll bring your attention to the topmost
5 graph. The green curve starts near the rate of nine
6 barrels per day in 1961 and declines down near three
7 barrels per day until 1972 -- 1973, excuse me.

8 Shortly thereafter, Wells Number 176 and 178
9 were drilled on 20-acre density near the south lease
10 line, and production improved substantially:
11 Approximately 60 barrels a day initially, and then over
12 the period until 1981 it declined to about 20 barrels a
13 day. I'll remind you that this is always illustrating
14 the sum of these four wells' production.

15 In the early 1980's, in cooperation with
16 Texaco, Central Vacuum unit, Mobil entered into a lease
17 line injection system, drilling new injectors. And
18 that effort was successful again, even though this
19 reservoir was nearing 50 years old at that point, in
20 rejuvenating production up over 200 barrels a day from
21 these four wells. Since the peak in about 1983 of over
22 200, it has declined somewhat and is now producing
23 approximately 70 barrels of oil per day.

24 At over \$300,000 for a wellbore, it is
25 unlikely that Mobil would inject -- drill and inject

1 into the San Andres in these locations as a single, but
2 by utilizing the 601 and 602 wellbores, which are
3 primarily for the Glorieta, it is feasible to recover
4 additional San Andres reserves, if we were able to
5 dually complete in the San Andres.

6 Just to complete the exhibit presentation,
7 the second graph in the middle is the water cut shown
8 in blue, and it reflects 40 to 80 percent with some
9 fluctuations up until 1982 when the water cut dropped
10 significantly as the oil response I previously
11 mentioned was experienced. The water cut now is up
12 above 85 percent, in the 90-percent range, and we seek
13 to lower that water percentage and increase the oil cut
14 by the injection into the San Andres in 601 and 602.

15 The final graph on this page is red, gas/oil
16 ratio at the bottom, and it shows fluctuation over the
17 early life presented here. But in 1982 you see a
18 significant lowering in the gas/oil ratio, which
19 represents repressuring of the reservoir, driving the
20 gas back into solution in the oil, and is in part
21 responsible for that good oil recovery.

22 We seek to duplicate this effort, which is
23 shown here, driving oil from the south to these
24 injectors, 176, 178, 14, and to a lesser extent 16, by
25 injecting from the north in 602 and 601. And by

1 injecting on a 20-acre density, our well-to-well zone
2 continuity is expected to be improved, as we
3 experienced here.

4 Q. Are there other items you'd like to highlight
5 for the Examiner?

6 (Off the record)

7 Q. (By Mr. Pearce) I would ask you, Mr. Moshell
8 to please refer to what we've marked as Exhibit Number
9 3 for convenience, and I want you to address for me,
10 please, the unorthodox locations that are being
11 selected for wells 601 and 602. How were those well
12 locations picked?

13 A. The locations are a combination of attempts
14 to maximize pattern efficiency in the Glorieta,
15 secondarily in the San Andres, and thirdly in the
16 Blinebry.

17 If you can visualize 601, to start, it is the
18 center of an inverted five-spot in the Glorieta with,
19 to the southwest, 111 producer, going to the southeast
20 102, northeast 110, northwest 106. It is approximately
21 in the center of that four-producing-well area.

22 Because there are a limited number of wells
23 still producing here, if we were to convert an existing
24 well to injection in the Glorieta, it would take that
25 well out of the picture, so far as a point of

1 production, and it would not achieve as symmetrical a
2 pattern as these unorthodox locations.

3 Now, 602 is a very similar case. There are
4 three active producers in a five-spot location around
5 it, and we seek authority to produce Number 36, which
6 will complete an inverted five-spot location there.

7 Q. Highlight for us the three wells currently.

8 A. In the 602 pattern, in addition to 36, Wells
9 Number 103 down southwest, southeast is 111, northeast
10 is Well Number 106.

11 In the Blinebry initially, we expect to see
12 production increases in wells number 13 and 36. If
13 we -- When we do, we will probably be back here at the
14 Commission to expand this flood and to seek other
15 pattern-injection locations.

16 I've already spoken a little bit about the
17 San Andres, so I won't go into that in any more detail
18 unless there are questions.

19 Q. Okay, other items?

20 A. (Shakes head)

21 Q. Mr. Moshell, you've spent a good deal of
22 effort collecting and reviewing data on this
23 Application. I would ask you now if in your opinion
24 the granting of these Applications is in the best
25 interest of the prevention of waste and the protection

1 of correlative rights?

2 A. Yes.

3 Q. All right, sir. Do you have anything further
4 at this time?

5 A. No, sir.

6 MR. PEARCE: All right, sir.

7 Mr. Examiner, that's all the questions I have
8 of this witness at this time. I have, again, one more
9 witness, if you would prefer to hold questions for Mr.
10 Moshell or if you have questions for him at this time.

11 EXAMINER STOGNER: I'm going to reserve my
12 questions for Mr. Moshell afterwards.

13 Are there any questions, however, of this
14 witness?

15 If not, he may be excused at this time.
16 However, I may recall him later.

17 Mr. Pearce?

18 (Off the record)

19 MR. PEARCE: Thank you.

20 DONNA ELWOOD,

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

23 DIRECT EXAMINATION

24 BY MR. PEARCE:

25 Q. For the record, would you please state your

1 name and your employer?

2 A. My name is Donna Elwood, my employer is Mobil
3 Oil.

4 Q. Ms. Elwood, what are your responsibilities
5 with Mobil Oil?

6 A. My responsibility is an operation engineer in
7 the Vacuum field, Lea County, New Mexico.

8 Q. And as an operations engineer for Mobil Oil,
9 have you previously appeared before the New Mexico Oil
10 Conservation Division or Commission and had your
11 qualifications accepted and made a matter of record?

12 A. No.

13 Q. Would you briefly describe for us, please,
14 your educational and work experience as it relates to
15 the field of petroleum engineering?

16 A. I have a bachelor in petroleum engineering
17 from Texas A&M University, I worked a year and a half
18 as an operation engineer in Texas, I've worked the past
19 two years as an operation engineer over this same field
20 here in New Mexico.

21 Q. And are you familiar with the Applications
22 filed by Mobil being considered today?

23 A. Yes.

24 MR. PEARCE: Mr. Examiner, at this time I
25 would ask that Ms. Elwood be qualified as an expert in

1 the field of petroleum engineering.

2 EXAMINER STOGNER: Ms. Elwood is so
3 qualified.

4 (Off the record)

5 Q. (By Mr. Pearce) Miss Elwood, I would ask
6 you, please, to refer to what we have marked as Exhibit
7 Number 16 at this time, please, and describe that for
8 the Examiner and those in attendance.

9 A. Okay. Exhibit 16 is a wellbore sketch of the
10 Bridges State 36. The purpose of my discussion is just
11 really discuss how the well will be completed.

12 Bridges State 36 is located in Unit D of
13 Section 25. It is currently a shut-in San Andres
14 producer. By the sketch, we propose to squeeze off the
15 San Andres with cement, and downhole commingle the
16 Glorieta and Blinberry through one tubing string.

17 On this same location as marked, and Dan had
18 mentioned earlier, there has been separate Blinberry and
19 Glorieta production, and by commingling this in one
20 wellbore we will be able to prevent waste.

21 Q. Any unusual equipment arrangement in this
22 well?

23 A. No, this well is a standard rod-pump well,
24 tube and anchor, 2-7/8 tubing, one string of tubing. I
25 might mention, in the C-108 Application -- I'm sorry,

1 not the C-108, the downhole commingle application -- by
2 a fluid-level estimate the two zones are within 200
3 pounds of each other, so I feel there will not be a
4 cross-flow problem.

5 And as Dan mentioned earlier, just south of
6 this, in McCallister State, Marathon has recently and
7 successfully downhole commingled two wells in these
8 same two zones.

9 Q. Anything else on Exhibit Number 16?

10 A. Not from me.

11 Q. Let's look at Exhibit Number 17, please.

12 A. Exhibit 17 references the two unorthodox well
13 locations. This is the sketch of Bridges State 602.
14 601 will be quite similar.

15 This well will be completed in three zones.
16 One tubing string we will inject to the proposed
17 Grayburg-San Andres perfs; the other tubing string will
18 be used to downhole commingle injection to the Glorieta
19 and Blinbry.

20 As you can see, there will be packers
21 isolating the downhole commingled zones from the San
22 Andres thus to prevent cross-flow, and there will be an
23 annulus to monitor pressure.

24 Q. Okay. Ready for the next exhibit?

25 A. I might mention one more thing.

1 Q. Okay.

2 A. In the original Application for the
3 unorthodox well locations, we have requested a TD on
4 the Bridges State 601 of 6400 feet. We would like to
5 extend that to 6800 feet, which is the depth we also
6 propose for 602.

7 These two locations are unorthodox, not only
8 to complete a symmetrical pattern, but also due to
9 constrictions of pipelines and flow lines the pads had
10 to be moved.

11 Q. Okay. Let's look at Exhibit Number 18,
12 please, ma'am.

13 A. Exhibit 18 is a wellbore sketch of the North
14 Vacuum Abo Unit Number 109. This well is currently in
15 the North Vacuum Abo Unit as a freshwater injection
16 well. This well is typical of the four wells located
17 in Section 24 that we are asking for dual completions
18 as well.

19 The sketch shows we are currently injecting
20 into one zone, the Abo, through one tubing string. We
21 are proposing to go into the well at Glorieta and
22 Blinebry, downhole commingle those, and inject through
23 a second tubing string water into those two zones.

24 The 109 completion, as I say, will be the
25 same on the proposed Bridges State or North Vacuum

1 Abo -- The two names are synonymous -- 116, 119 and
2 204.

3 Q. Anything else on those exhibits?

4 A. No.

5 MR. PEARCE: All right. Ms. Elwood, we have
6 collected and submitted with the Application a
7 substantial amount of information in the form of
8 attachments to the Form 108.

9 Mr. Examiner, I have additional copies of the
10 108 which I will mark as exhibits to this proceeding if
11 you'd like us to, or if you would prefer to minimize
12 the amount of paper in the Commission's file, I'll be
13 happy to have you work off of the -- refer to the
14 information in that.

15 We will not be referring to much of that
16 information specifically, but obviously that is
17 available to you.

18 EXAMINER STOGNER: Are there any significant
19 changes, Mr. Pearce?

20 MR. PEARCE: There are not, sir.

21 EXAMINER STOGNER: And if I remember right
22 -- or, I'm sorry, I have them here in front of me.
23 There were two C-108's prepared, one for the four
24 wells, 109, 116, 119 and 204; is that correct?

25 THE WITNESS: Yes.

1 EXAMINER STOGNER: And the other one was for
2 the -- Another one, there again, combined for the 601
3 and 602 wells. We do have those, and let's just refer
4 to the Application, Mr. Pearce.

5 MR. PEARCE: All right, sir.

6 Q. (By Mr. Pearce) Ms. Elwood, at this time
7 part of the C-108 Application process requires certain
8 water analysis. Have you tested the compatibility of
9 waters in the formation with injected sources to
10 determine whether or not problems should be expected?

11 A. Yes, we have tested it, and we find no
12 compatibility problems with the mixing of these waters.

13 We are proposing to be permitted for produced
14 or freshwater injection. Our freshwater source is
15 Ogallala, yet our preference is freshwater for two
16 reasons: First, the freshwater is a cleaner fluid,
17 less total dissolved solids that might otherwise reduce
18 the permeability and thus prevent -- cause waste by
19 reducing recoverable reserves. And second of all, the
20 freshwater is available in the quantities we need. We
21 currently only produce 115 barrels of produced water
22 from the Glorieta and Blinbry, which is much lower
23 than the amount needed to flood these zones.

24 Q. But you have performed compatibility tests on
25 both sources of water; is that correct?

1 A. Yes.

2 Q. All right. Let's look, now, please, at what
3 we have marked as Exhibit Number 19 to this proceeding,
4 ma'am. Could you describe that?

5 A. Exhibit 19 refers to, on the Application
6 C-108, number 6.

7 We have in your Application a tabular form of
8 all the wells within a half-mile radius of the proposed
9 injection wells, and your requested data such as casing
10 depths, cement, so forth. Exhibit 19 covers what data
11 was not already in the original permit.

12 I might add, we are still -- That was a
13 hindsight on our part, and we are still collecting a
14 few wells that will be presented to you this afternoon.

15 Q. Okay, and so Exhibit 19 is a supplement to
16 the information in the Applications that deals with
17 completion of these wells; is that correct?

18 A. Yes.

19 Q. Do you have anything further at this time?

20 A. One thing to mention from an operational
21 standpoint, since this area overlays our North Vacuum-
22 Abo unit, Mobil's investment and thus the economics of
23 the entire project are that much greater because we can
24 use an existing injection system, existing wellbores,
25 existing freshwater wells and existing injection lines.

1 That makes the recovery and the whole project of the
2 Glorieta, San Andres and Blinbry extensions that much
3 better.

4 Q. Anything further?

5 A. That is all.

6 MR. PEARCE: I have nothing further of this
7 witness at this time, Mr. Examiner.

8 I would move the admission of Mobil Exhibits
9 1 through 19 at this time. And this witness is
10 available for examination.

11 EXAMINER STOGNER: Exhibits 1 through 19 are
12 admitted into evidence, and we'll also take notice of
13 the C-108's for both these Applications.

14 MR. PEARCE: Thank you, sir.

15 EXAMINATION

16 BY EXAMINER STOGNER:

17 Q. Miss Elwood, let me make sure I understand
18 Exhibit Number 19. This will be supplemented further
19 later on this afternoon?

20 A. Yes, sir. That includes approximately a
21 third of the wells in the area of interest. The total
22 list of the wells was in the original C-108
23 Application. Some of the data was left off, the data
24 on Exhibit 19. We will need to collect that data for
25 the remaining 50 or so wells and present it to you this

1 afternoon.

2 EXAMINER STOGNER: Okay. Mr. Pearce, I'll
3 hold the record open on Exhibit 19 pending that
4 information.

5 Q. (By Examiner Stogner) Miss Elwood, in your
6 preparation of Exhibit 19, are there any wells within
7 the half-mile radius of review of these six injection
8 wells where there is open cement in the proposed
9 injection zones?

10 A. No, sir.

11 Q. And that includes all the zones? As a matter
12 of clarification -- I'm sort of stumbling here -- is
13 the Paddock a part of the -- Is that a separate pool or
14 separate formation? Anybody?

15 MR. PEARCE: Mr. Examiner, at this time let's
16 allow our geologist to address that question.

17 MR. BURNHAM: That's a confusing problem.
18 The Paddock is -- Yes, it is part of the producing
19 zone. It is part of the Glorieta pool, Glorieta
20 field --

21 MR. PEARCE: As defined by OCD?

22 MR. BURNHAM: It was defined, and from the
23 top of the Glorieta to the top of this Blinbry marker
24 separated in 196- -- early Sixties when this field was
25 discovered, and a separate pool was assigned in this

1 zone.

2 Most of the production, 99 percent of the
3 production, is out of the Paddock. It's always been
4 called the Glorieta, so it is the Glorieta pool. The
5 Blinebry was defined as being 275 feet above this
6 marker in the Bridges State 95 well, which is just
7 right here.

8 EXAMINER STOGNER: And what section is that,
9 what quarter section?

10 MR. BURNHAM: That's in Section 26, so it
11 would be the southwest quarter -- southeast quarter,
12 excuse me.

13 EXAMINER STOGNER: Southeast quarter,
14 southeast quarter, it appears.

15 MR. BURNHAM: That was by OCD, and that's the
16 definition of the top of the Blinebry in this area.

17 EXAMINER STOGNER: Okay, thanks for
18 clarifying that for me.

19 Q. (By Examiner Stogner) I'm referring now,
20 Miss Elwood, to Exhibit Number 17, which is your
21 schematic of the 602.

22 A. Okay.

23 Q. Will that be plastic-lined tubing in both
24 strings?

25 A. No, sir, we are proposing, as mentioned

1 earlier, freshwater injection. That's what we use,
2 bare tubing, which we also currently use on our Abo
3 waterflood.

4 Q. How about in the present Bridges-Vacuum-
5 Grayburg-San Andres waterflood?

6 A. That waterflood does have cement-lined,
7 plastic-coated or Duolining, which is a fiberglass
8 lining.

9 Q. But in these two wells, as far as the
10 Grayburg and the San Andres injections, that will be
11 fresh water?

12 A. Yes.

13 Q. And therefore you're requesting a waiver for
14 the lined tubing; is that right?

15 A. Yes, sir.

16 Q. In both the 601 and 602?

17 A. Yes. We've had the freshwater injection on
18 the North Vac in a number of units since 1973. All the
19 tubing has been bare since that time, and no
20 significant corrosion problems.

21 Q. I'm now looking at Exhibit Number 18. This
22 is the proposed schematic for the 109. There again,
23 bare tubing in both zones?

24 A. Yes, sir.

25 Q. Are there any other freshwater supply

1 sources, other than the Ogallala, in this area?

2 A. Not that Mobil is aware of or currently uses.

3 Q. As a matter of record, after breakthrough or
4 water production -- after breakthrough, 50 years --
5 water production on these two waterfloods, how is the
6 water disposed of?

7 A. Currently -- Well, prior to June of this
8 year, all produced water was injected into the Bridges
9 State-San Andres waterflood.

10 Mobil applied for and recently completed a
11 disposal well ten miles south of the vacuum field. We
12 currently produce -- dispose of all non-San Andres-
13 produced water into this disposal well. So only San
14 Andres water is injected into San Andres.

15 Q. And you're proposing at this time these six
16 wells of this Application will be freshwater only?

17 A. Freshwater injection, yes.

18 Q. Yes. And your other wells that have lined
19 tubing will continue to take the San Andres water?

20 A. Produced water. The produced water from this
21 proposed Glorieta-Blinbry waterflood will be sent to
22 our disposal well.

23 Q. Right, in the Glorieta-Blinbry zone, okay.
24 What's that little symbol on Exhibit 19?

25 A. It's a Mobil symbol for our recent

1 reorganization: Don't waste time crossing your T's and
2 dotting your I's.

3 (Off the record)

4 EXAMINER STOGNER: I have no questions of
5 Miss Elwood at this time.

6 MR. PEARCE: Mr. Examiner, the other two
7 witnesses are available if you have questions of them.

8 EXAMINER STOGNER: Mr. Stovall, do you have
9 any questions while I try to get my notes together
10 here?

11 MR. STOVALL: No, I don't have any questions.
12 I've got mine all cleaned up.

13 MR. MORROW: On 14, how many Glorieta wells
14 were represented there?

15 (Off the record)

16 MR. MOSHELL: Thirteen wells have produced
17 from the Glorieta on the Bridges State lease, and
18 they're all represented there. There are only eight
19 still currently producing.

20 EXAMINER STOGNER: I'm referring now to
21 Exhibits 4 and 5. This shows the Glorieta production
22 and the Blinebry production. Mr. Pearce, you may help
23 me out here too. The definition of a waterflood is
24 essentially the injection or the introduction of water
25 into a pool or formation where the wells are

1 essentially stripper wells.

2 Now, this is a combined effort, and there are
3 a few wells that go over the ten-barrel-a-day limit.
4 I'm throwing that question out and maybe you can
5 clarify that -- Someone. Mr. Pearce?

6 MR. PEARCE: Mr. Examiner, we believe that
7 over a very short period of time the remaining wells
8 which are not yet below the ten-barrel-a-day limit
9 might very well reach it.

10 We believe that in the aggregate, this is
11 clearly a marginal producer, a stripper-well area.

12 On that basis, then, in order to increase the
13 efficiency of recovery, receipt and approval of this
14 waterflood project -- and I suppose for definitional
15 reasons we have to base that on the average production
16 from the wells in the area.

17 EXAMINER STOGNER: A lot of information has
18 been covered today. However, I do not recall of
19 hearing any injection pressures into the Blinebry-
20 Glorieta zone, and I'm sorry if I missed that, Mr.
21 Pearce.

22 MR. PEARCE: No, but that's in the
23 Application. Let's ask for her to address that
24 question, please.

25 MS. ELWOOD: Okay. In your Application on

1 the C-108, our original permeance pressure request was
2 the state limit of .2 p.s.i. per foot.

3 EXAMINATION (Resumed)

4 BY EXAMINER STOGNER:

5 Q. And that is on all six wells?

6 A. Yes, sir. It is possible, depending upon the
7 actual injectivity of the wells when they step-rate
8 this test to prove or disprove whether we will fracture
9 the wells by going to higher pressure.

10 MR. PEARCE: But in the event Mobil seeks to
11 go to higher pressures, we'll return to the Division;
12 is that correct? Or the district office?

13 EXAMINER STOGNER: Or an administrative
14 procedure, which many of our applications have.

15 MR. PEARCE: Yes, sir.

16 Q. (By Examiner Stogner) Ms. Elwood, I'm going
17 to ask you this question: A mechanical integrity test
18 on such a dual-completed injection well, do you foresee
19 any additional problems or circumstances surrounding
20 such an injection well?

21 A. No, sir. We do have one well that is
22 currently a dual completion in the Abo and Middle Penn
23 injection, within the Bridges State lease. We have had
24 no problems, yet we do have an annulus and we can
25 monitor changes on the injection pressure in both

1 tubing strings if there's any downhole communication.

2 So while the wells are being converted to Blinebry and
3 Glorieta injection, the casing will be pressure-tested,
4 standard procedure.

5 Q. And there will be pressure gauges on both
6 strings of tubing?

7 A. Yes, sir.

8 Q. Which would indicate any loss of pressure due
9 to leaks?

10 A. Yes, sir.

11 MR. MORROW: Would there be quite a bit of
12 difference in the injection pressures between the Abo
13 zone and the other zones?

14 MS. ELWOOD: Initially, yes. Our Abo ranges
15 from 3800 to 4300 pounds injection, and I believe our
16 Blinebry-Glorieta .2 p.s.i. per foot is about 1700 or
17 1800 pounds initially.

18 Q. (By Examiner Stogner) Ms. Elwood, if I
19 remember right, the Abo pool and, as far as that goes,
20 the Grayburg-San Andres waterflood project -- or
21 anybody correct me on this -- the approvals for
22 waterflood were done at a time when there was no
23 limitations on injection pressure; is that correct?

24 A. The original permit, yes.

25 Expansion -- we've made them both floods

1 since then -- have fallen under -- They're not
2 grandfathered; they do have pressure limits.

3 So approximately half of our Abo wells, not
4 including the ones we're discussing today -- The newer
5 wells converted in 1985 and 1986 were under the
6 original .2-p.s.i.-per-foot limit and have been
7 pressure tested accordingly to raise that, to provide
8 sufficient injection.

9 Q. But there are still quite a few wells that
10 are under the original --

11 A. Yes.

12 EXAMINER STOGNER: -- filing?

13 I have no other questions. Are there any
14 other questions of these three witnesses?

15 If not, Mr. Pearce?

16 MR. PEARCE: I have nothing further, Mr.
17 Examiner. We will supplement this record with the
18 additional well completion information this afternoon.
19 I will deliver that with a cover letter.

20 And I have nothing further in this case at
21 this time.

22 EXAMINER STOGNER: Does anybody have anything
23 further in either Case 9999 or Case Number 10,000?

24 Let the record show that your first Exhibit
25 Number 1 will not be utilized or made a part of the

1 record in this particular proceeding, Mr. Pearce.

2 MR. PEARCE: Thank you, Mr. Examiner. It
3 might age.

4 MR. MOSHELL: On behalf of Mobil, we'd like
5 to thank you for working through this multiple-issue
6 set of dockets in combining them for the sake of
7 efficiency.

8 EXAMINER STOGNER: Thank you, Mr. Moshell.
9 And we appreciate Mobil's hospitality today.

10 This case will be taken under advisement, and
11 we will be receiving the rest of your Exhibit Number 19
12 later on, Mr. Pearce.

13 MR. PEARCE: Thank you, Mr. Examiner.

14 (Thereupon, these proceedings were concluded
15 at 10:47 a.m.)

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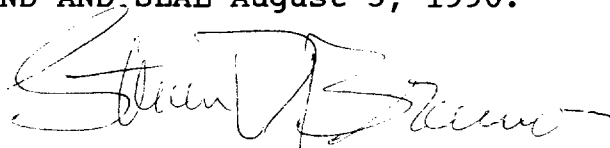
CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Shorthand 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 August 5, 1990.



STEVEN T. BRENNER
CSR No. 106

My commission expires: October 14, 1990

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case Nos. 9999 & 10,000 heard by me on 11 July 1990.



Examiner
Oil Conservation Division