
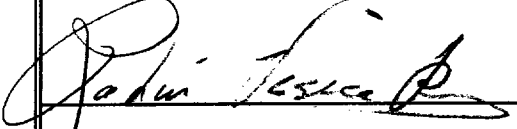


**NEW MEXICO OIL CONSERVATION COMMISSION
EXAMINER HEARING
SANTA FE, NEW MEXICO
OCTOBER 15, 1992 -- 8:15 A.M.**

| NAME | REPRESENTING | LOCATION |
|--|--------------------------------|--------------|
| Danny Handrich | Southwest Royalties | MIDLAND |
|  | " " | " |
| Mitchell E. Cherry | " " | " |
| ERIC D. CARLSON | MARATHON OIL COMPANY | MIDLAND, TX |
| Paul Haden | NEUBOURNE OIL CO. | MIDLAND, TX. |
| DEXTER HARMON | MEUBOURNE OIL | MIDLAND TX |
|  | " | " |
| MICHAEL T. WISLOFSKE | MARATHON OIL CO | MIDLAND, TX |
| Don Veirs | JOHN A. HEDDIX CORP. | Midland, Tx |
| James Bruce | Hinkle Law Firm | Santa Fe |
| William F. Jan | Sampbell, Jan, Byrnes & Jordan | Santa Fe |
| W. Kellerman | Kellerman Kellerman | Santa Fe |
| Alan W. Bohling | Chevron, A.S.A. | Midland, TX |
| Pat Harris | Chevron USA | Midland TX |
| Lloyd Trautman | Chevron | Midland TX |

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NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10568

IN THE MATTER OF:

The Application of Mewbourne Oil
Company for an Unorthodox Infill
Gas Well Location and Simultaneous
Dedication, Eddy County, New Mexico

BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

October 15, 1992

REPORTED BY:

CARLA DIANE RODRIGUEZ
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE APPLICANT:

THE HINKLE LAW FIRM

Post Office Box 2068

Santa Fe, New Mexico 87504-2068

BY: JAMES BRUCE, ESQ.

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3. ROBIN VASICEK

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Certificate of Reporter

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1 EXAMINER CATANACH: Call the hearing to
2 order this morning for Docket No. 33-92. I'll go
3 ahead and call the continuances first.

4 [Discussion off the record.]

5 EXAMINER CATANACH: At this time we'll
6 call Case 10568, the application of Mewbourne Oil
7 Company for an unorthodox infill gas well
8 location and simultaneous dedication, Eddy
9 County, New Mexico. Are there appearances in
10 this case?

11 MR. BRUCE: Mr. Examiner, Jim Bruce
12 from the Hinkle Law Firm in Santa Fe representing
13 the Applicant. I have three witnesses to be
14 sworn.

15 EXAMINER CATANACH: Are there any other
16 appearances? Will the three witnesses please
17 stand and be sworn in.

18 [The witnesses were duly sworn.]

19 D. PAUL HADEN, CPL

20 Having been first duly sworn upon his oath, was
21 examined and testified as follows:

22 EXAMINATION

23 BY MR. BRUCE:

24 Q. Would you please state your name and
25 city of residence.

1 A. My name is Paul Haden. I live in
2 Midland, Texas.

3 Q. And who are you employed by?

4 A. By Mewbourne Oil Company as a petroleum
5 landman.

6 Q. Have you previously testified before
7 the Division as a landman?

8 A. Yes, I have.

9 Q. And your credentials were accepted as a
10 matter of record?

11 A. Yes, they were.

12 Q. Are you familiar with the land matters
13 involved in this case?

14 A. Yes, I am.

15 MR. KELLAHIN: Mr. Examiner, is the
16 witness qualified?

17 EXAMINER CATANACH: He is.

18 Q. Mr. Haden, briefly, what does Mewbourne
19 seek in this case?

20 A. Mewbourne seeks permission to drill the
21 Chalk Bluff Federal No. 3 well in an unorthodox
22 location 1980 feet from the south line and 990
23 feet from the east line of Section 1, Township 18
24 South, Range 27 East in Eddy County.

25 Mewbourne seeks to drill the No. 3 well

1 to test the Morrow formation and to dedicate the
2 well together with its existing Chalk Bluff
3 Federal No. 1 located in the southwest quarter of
4 Section 1, the south half of Section 1. The No.
5 1 well is currently producing from the Morrow.

6 Q. Will Mewbourne's geologist testify as
7 to the need for the unorthodox location?

8 A. Yes, he will.

9 Q. Referring to Exhibit 1, would you
10 please summarize the reason for the requested
11 simultaneous dedication?

12 A. Exhibit No. 1 is a land plat of the
13 area. Shaded in yellow is our proposed spacing
14 unit. The red dot indicates a well location.
15 Mewbourne seeks to drill its well in the
16 southeast quarter in order to protect its
17 correlative rights.

18 Q. You already mentioned that Mewbourne
19 has the Federal No. 1 well in the southwest
20 quarter. Are there any other wells in Section 1?

21 A. Yes, there is. Mewbourne also operates
22 a Morrow well in the northwest quarter which is
23 dedicated to the north half of that section.

24 Q. Are there any other wells of interest
25 in this immediate area?

1 A. Yes. There is a well in Section 6 of
2 Township 18 South, Range 28 East, which Mewbourne
3 also operates. This well is dedicated to the
4 west half of this section. It's located roughly
5 660 from the south and west lines of that
6 section, which produces from the Morrow.

7 Q. Is that a good well?

8 A. That is a very good well.

9 Q. In short, you need the simultaneous
10 dedication to protect the correlative rights of
11 Section 1 from the drainage that may occur from
12 Section 6?

13 A. That's correct. The ownership in
14 Section 6 in the west half is different than that
15 in Section 1.

16 Q. Now, Section 1 is a federal section?

17 A. Yes, that's correct.

18 Q. Is Section 6 a state section?

19 A. Section 6 is a state tract.

20 Q. And there's also some difference in the
21 ownership between working interest owners?

22 A. Yes, there is a vast difference in the
23 working interest owners. As I said, Mewbourne
24 operates the well in Section 6, which it has 100
25 percent, roughly, ownership. Mewbourne also has

1 100 percent ownership in Section 1. The royalty
2 ownership in Section 1 is different than that in
3 Section 6.

4 Q. Let's move on to the notice. Would you
5 refer to Exhibit 1(a) and identify that for the
6 Examiner?

7 A. Exhibit 1(a) is a listing of the offset
8 owners offsetting our proposed well as to the
9 Federal No. 3 well.

10 Q. Were these parties notified of this
11 application?

12 A. Yes, they were, by certified mail.

13 Q. Is Exhibit 2 your notice, affidavit and
14 the letters and return receipts?

15 A. Right. That's what that evidence is.

16 Q. Now, in the notice, there is a letter
17 sent out to Chevron, although they weren't listed
18 on Exhibit 1(a). What is the reason for that?

19 A. The reason for that is, we had
20 purchased Chevron's interest in the southwest
21 quarter and southwest quarter of Section 2, and
22 also the southeast quarter, southeast quarter of
23 Section 2, all in Township 18 South, Range 27
24 East. We had recently purchased their interest.

25 Q. Finally, what is Exhibit 3?

1 A. Exhibit 3 is an AFE which is our
2 estimated well cost of our Chalk Bluff Federal
3 No. 3 well. Well cost is estimated at \$878,329
4 for a completed well. To casing point, it's
5 \$662,194.

6 Q. Is this just submitted as evidence of
7 the sums Mewbourne is willing to expend for this
8 project?

9 A. That's correct.

10 Q. In your opinion, is the granting of
11 this application in the interests of conservation
12 and the prevention of waste?

13 A. That's correct, also.

14 Q. Were Exhibits 1 through 3 prepared by
15 you or under your direction?

16 A. That's also correct.

17 MR. BRUCE: Mr. Examiner, at this time
18 I move the admission of Exhibits 1 through 3.

19 EXAMINER CATANACH: Exhibits 1 through
20 3 will be admitted as evidence.

21 MR. BRUCE: I have no further
22 questions.

23 EXAMINATION

24 BY EXAMINER CATANACH:

25 Q. Mr. Haden, the ownership status, you

1 said Section 1 was a federal lease?

2 A. Yes, sir.

3 Q. That is 100 percent working interest
4 owned by Mewbourne?

5 A. That's right.

6 Q. Section 6 is a state lease?

7 A. Yes, that's right.

8 Q. And what is the working interest
9 ownership in the west half of Section 6, working
10 interest?

11 A. Mewbourne has roughly 97 percent
12 working interest ownership. Reed and Stevens
13 participates in this well with us as to the
14 balance. Section 1 does have some back-ins
15 involved. When the well pays out, the owner,
16 such as Amoco and ARCO, will participate as a
17 working interest owner. This also is correct in
18 Section 6, the various owners as to the west
19 half.

20 Q. So both of them have backing interests?

21 A. Yes.

22 Q. Do you propose to drill the infill well
23 in order to protect Section 1 from the well in
24 Section 6, is that correct?

25 A. Yes. To get our just amount of

1 hydrocarbons out of Section 1, as Section 6 is
2 draining it, our Chalk Bluff 6 State No. 1 well
3 in Section 6 we think is draining over into
4 Section 1, which our engineer will go into
5 further. Those owners in the north half will
6 benefit from the well in which we propose to
7 drill in the southeast quarter as to royalty
8 ownership and a future back-in.

9 Q. Has the state land office had anything
10 to do with this application that you're filing?

11 A. Not that I know of.

12 Q. They're not requiring you to drill an
13 infill well?

14 A. No, sir, they're not. We feel that a
15 well should be drilled in the southeast quarter
16 to sufficiently drain the reservoir, as our No.
17 1 well in the southwest quarter apparently is not
18 draining the whole south half, as our engineer
19 will show you later.

20 Q. This is a non-prorated gas pool,
21 correct?

22 A. That's correct.

23 Q. All the offset operators were notified
24 of your application?

25 A. That's right.

1 Q. Has anybody received any kind of
2 concern or objection from anybody?

3 A. I have not received any sort of
4 objection whatsoever. In fact, ARCO, they've
5 consented verbally and also Amoco.

6 As you can see, we are moving towards
7 ourselves. In other words, we're moving toward
8 our well located in Section 6. As set out on my
9 Exhibit 1, ARCO is the operator of Section 7.
10 They operate two gas wells in that section.

11 Q. Who operates in Section 12?

12 A. That's us. We have our Federal "T" No.
13 1 well located in the northeast quarter of the
14 northeast quarter which also is a Morrow well.
15 It's dedicated to the north half of that
16 section.

17 We also own the south half of Section
18 12 by virtue of purchasing Amoco's interest.

19 Q. So really, Mewbourne owns all the
20 affected acreage except for Section 7?

21 A. That's correct. And ARCO, the owner in
22 Section 7, has not objected.

23 EXAMINER CATANACH: I have nothing
24 further. The witness may be excused.

25 MR. BRUCE: Call Mr. Harmon.

DEXTER L. HARMON

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence?

A. My name is Dexter Harmon. I live in Midland, Texas.

Q. Who are you employed by and in what capacity?

A. I'm a District Geologist for Mewbourne Oil Company.

Q. Have you previously testified before the Division as a geologist?

A. Yes, I have.

Q. Were you recognized as an expert geologist at that time?

A. Yes.

Q. Are you familiar with the geology involved in this application?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Harmon as an expert geologist.

EXAMINER CATANACH: He is so

1 qualified.

2 Q. Briefly, Mr. Harmon, what is the reason
3 for the unorthodox location?

4 A. Mewbourne Oil Company would like to
5 drill an unorthodox Morrow location at 1990 from
6 the south line and 990 from the east line of
7 Section 1, 18 South, 27 East, Eddy County, New
8 Mexico.

9 This will be the second Morrow well we
10 have in the south half unit, the first one being
11 the Chalk Bluff Federal No. 1 at 2250 from the
12 west line and 790 feet from the south line. We
13 would like to produce both these wells
14 simultaneously.

15 Q. By "simultaneously," you mean both
16 produce the No. 1 well and the No. 3 well
17 concurrently, is that correct?

18 A. Correct.

19 Q. Would you please move on to Exhibit 4
20 and identify that for the Examiner?

21 A. Exhibit No. 4 is a production map. All
22 the Mewbourne wells have the cumulatives and
23 daily rates up through July of 1992, and all the
24 other wells on this map have the cumulatives and
25 daily rates through May of 1992.

1 The map just shows wells that were
2 drilled deeper than 7000 foot, and all the wells
3 that penetrated the Morrow have a circle around
4 them. The production is color-coded and the
5 Morrow production is colored in orange.

6 On this map we have the south half of
7 Section 1 outlined in yellow. You can also see a
8 cross-section that we'll get to later labeled
9 J - J'.

10 The Mewbourne Oil Chalk Bluff Federal
11 No. 2 in the north half of Section 1 produced out
12 of the zone we call the yellow detrital, which
13 we'll see on the cross-section. It's a basal
14 Morrow detrital zone. It makes 17 million cubic
15 feet of gas before being recompleted to the Lower
16 Morrow orange sand recently.

17 Q. And what is it currently producing in?

18 A. Currently it has been recompleted to
19 the Lower Morrow orange sand and it makes about a
20 million eight a day.

21 Q. What about the Chalk Bluff No. 1?

22 A. Chalk Bluff No. 1 is located in the
23 south half of Section 1. It was perforated in
24 the Lower Morrow orange and brown sand. Those
25 sands alone make 171 million cubic feet of gas

1 and were producing at a rate of 83 Mcf a day when
2 we recompleted to the Middle Morrow green sand.
3 We have since combined all three of those Morrow
4 sands and the well now makes 130 Mcf a day. It's
5 a fairly tight pore well.

6 The Mewbourne Oil Company Federal "T"
7 No. 1 is located in the north half of Section
8 12. This well has made 273 million cubic feet of
9 gas. It produces out of the Lower Morrow orange
10 and brown sands, also, and its current rate is
11 131 Mcf a day. It is also a tight pore well.

12 Mewbourne operates the Chalk Bluff 6
13 State No. 1 in the west half of Section 6. This
14 is a very good Morrow well. It is producing out
15 of the Lower Morrow brown sand and has already
16 accumulated 216 million cubic feet of gas since
17 April, and it makes 2.1 million cubic feet of gas
18 a day out of just the Lower Morrow brown sand.

19 We feel a need to offset this well to
20 protect the correlative rights in the southeast
21 quarter of Section No. 1.

22 Both the ARCO wells in Section 7 are
23 just perforated in the Lower Morrow orange sand
24 and you can see their cum's and daily rates on
25 the map.

1 Q. Okay. Would you please move on
2 to--before we move on to Exhibit 5, if I can
3 summarize the reasons for the simultaneous
4 dedication, then, Mr. Harmon, it's that the
5 existing Chalk Bluff No. 1 is a poor producer, is
6 that correct?

7 A. That's correct.

8 Q. In Mewbourne's opinion it won't
9 adequately drain the south half of Section 1?

10 A. That's right. Our engineer will show
11 the drainage calculations later.

12 Q. Okay. Then why don't you move on to
13 Exhibits 5 and 6 together and discuss their
14 contents for the Examiner.

15 A. Exhibit No. 5 is an isopach map of the
16 gross Lower Morrow brown sand. I'll point out
17 right now, and later when we get to the
18 cross-section in a minute, that the brown sand
19 sits below the orange sand in the Lower Morrow.

20 What we can see on this map is the
21 Chalk Bluff Federal No. 2 in the north half of
22 Section 1 has no brown sand at all. The sand is
23 pinched out. The Chalk Bluff Federal No. 1 in
24 the south half of Section 1 has three foot of
25 brown sand in it.

1 As we saw on the production map, this
2 is a tight pore well out of the Morrow. The
3 Mewbourne Federal "T" No. 1 in the north half of
4 Section 12 has a thick, brown sand in it. We
5 have 20 foot of brown sand there, but this is not
6 a very permeable part of this sand body. It's
7 got poor productivity, as you can tell from the
8 production map we've already presented.

9 What this map is showing is that we
10 need to move away from the Federal "T" No. 1 and
11 the Chalk Bluff Federal No. 1 into a better
12 permeability part of this sand, and we need to
13 move into a position to protect our correlative
14 rights and get in a good spot to compete for the
15 gas production in the Chalk Bluff 6 State No. 1.

16 We also need to stay as far away from
17 the Chalk Bluff 1, 2 and the Federal "T" as we
18 can, and stay away from the low permeability part
19 of this sand. It's not very productive.

20 Q. So, you would like to stay in the east
21 side where the permeability seems better?

22 A. That's correct. Exhibit No. 6 is a
23 gross Lower Morrow sand isopach. What you can
24 see on this map is that we've spotted this
25 location between two good wells.

1 The Chalk Bluff Federal No. 2 has
2 recently been recompleted and makes a
3 million-eight a day. We have a good looking sand
4 behind pipe in the Chalk Bluff 6 State No. 1 that
5 we'll produce some day, so we have a
6 northeast/southwest trend--excuse me, a
7 northwest/southeast trend that this well is
8 spotted in the heart of, and we just need to stay
9 away from the tight, low perm Chalk Bluff Federal
10 No. 1 and "T."

11 Q. So, looking at Exhibits 5 and 6, the
12 reason for the unorthodox location is not so much
13 to get thicker sand, it's really driven by
14 permeability?

15 A. Yes, that's correct. The last thing I
16 would like to point out at this time is that
17 there are more Lower Morrow sands out here than
18 the brown and orange that I've presented maps
19 on. We produced what we call a yellow detrital
20 in the Chalk Bluff Federal 2. It wasn't a very
21 good producer. Currently we've added the Middle
22 Morrow green sand to the Chalk Bluff Federal No.
23 1. It hasn't been a good producer. That doesn't
24 mean that we won't encounter another good Morrow
25 producer just because of the nature of these

1 Morrow channels being thin, narrow, sinuous,
2 discontinuous. We could run into another string
3 zone if given the opportunity to drill another
4 well.

5 Q. Okay. Would you then move on to the
6 cross-section, Exhibit 7, and discuss the wells
7 in a little more detail.

8 A. Exhibit No. 7 is cross-section J - J',
9 a stratigraphic cross-section hung on the Lower
10 Morrow. We have the sands color-coded. The
11 orange and brown and yellow in the Lower Morrow
12 and the green in the Middle Morrow.

13 Each well has a resistivity log on the
14 left, a density neutron porosity log in the
15 middle, and our mud log with gas shows on the
16 right side, except for the first one which is the
17 Chalk Bluff 1. We didn't have a log there, so
18 we've got a neutron log and a gas mud log.

19 We'll just start there on the left-hand
20 side of this at J. These are logs of our Chalk
21 Bluff Federal No. 2. We were producing in this
22 zone we have colored yellow. We call it the
23 yellow detrital. It's a basal Morrow detrital.
24 We plugged that off and came up to the Lower
25 Morrow orange sand, and that is a good producer.

1 It's currently making about a million-eight a
2 day.

3 Moving on to the next well on the
4 cross-section, it's the Mewbourne Chalk Bluff
5 Federal No. 1. We originally completed that in
6 the Lower Morrow orange and brown sands. It was
7 a poor producer and got down to less than 90 Mcf
8 a day, so we put a temporary plug above that and
9 recompleted in the Middle Morrow green sand.
10 This is the best show we had in the Middle Morrow
11 green in all the wells that we drilled, so we
12 felt this was the place to try that sand. We've
13 since pulled the plug between the two and produce
14 it altogether, and it only makes 130 Mcf a day so
15 we didn't add much to the production. Because of
16 that we feel it's not economic to try this zone
17 in the other well, since that was the well with
18 the best porosity and show in that sand.

19 Moving on through the proposed
20 location, we get to the Mewbourne Chalk Bluff 6
21 State No. 1. It is perforated in the Lower
22 Morrow brown sand. We've stated this is a very
23 good well. It makes over two million cubic feet
24 of gas a day. You can see there's a nice thick
25 Lower Morrow orange sand on the logs behind the

1 pipe that we can test some day.

2 The next well on the cross-section is
3 the Mewbourne Federal "T" No. 1. You can see our
4 perfs are in the Lower Morrow orange and brown
5 sands. The brown sand is thick in this well but
6 it has low permeability, and this well is not a
7 good producer.

8 The last well on the cross-section is
9 the ARCO well in Section 7, which is producing
10 out of the Lower Morrow orange sand, as is the
11 other ARCO well in Section 7.

12 Q. Finally, Mr. Harmon, would you just
13 briefly discuss Exhibits 8 and 9.

14 A. Exhibit 8 is our daily report of the
15 recompletion of the Chalk Bluff Federal No. 2.
16 You can see on 9/10/92 that we plugged off the
17 lower yellow detrital zone. On 9/12/92 we
18 perforated the orange sand. On 9/13/92 we gave
19 it an acid job. On 9/17/92 we gave it a frac
20 job. And this is all at a cost of \$78,000. And
21 then production of 10/11/92 was 20 barrels of oil
22 a day, no water; 1,000,854 Mcf a day.

23 Exhibit No. 9 is our daily drilling
24 completion report of the Chalk Bluff Federal No.
25 1. This is the recompletion to the Middle Morrow

1 green sand. We perfed it on 8/13/92, acidized it
2 on 8/14, gave it another acid job on 8/22, frac'd
3 it on 8/25. Did not get good results from that
4 Middle Morrow green sand, so we pulled the plug
5 and put all the zones together on 9/21.

6 You can see on 9/29 we spent \$117,100
7 on this recompletion and what we gained in
8 production was about 50 Mcf a day out of that
9 Middle Morrow green. It's not an economic
10 recompletion so we won't be doing it in the
11 future with other wells. On 9/30 we put the well
12 on the compressor and it currently makes 133 Mcf
13 a day.

14 Q. Does Mewbourne feel that it's done all
15 it can to the Chalk Bluff Federal No. 1 to make
16 that a decent well?

17 A. Yes, we've tried everything we can.

18 Q. And it's still a pretty poor well?

19 A. Yes.

20 Q. Mr. Harmon, were Exhibits 4 through 9
21 prepared by you or compiled under your direction?

22 A. Yes, they were.

23 Q. In your opinion, is the granting of
24 this application in the interests of
25 conservation, the prevention of waste and the

1 protection of correlative rights?

2 A. Yes, it is.

3 MR. BRUCE: Mr. Examiner, at this time
4 I move the admission of Exhibits 4 through 9.

5 EXAMINER CATANACH: Exhibits 4 through
6 9 will be admitted as evidence.

7 MR. BRUCE: I have no further
8 questions.

9 EXAMINATION

10 BY EXAMINER CATANACH:

11 Q. Mr. Harmon, in the proposed well, what
12 is the target formation or the target zone that
13 you guys plan to produce?

14 A. We plan to produce the Lower Morrow
15 brown sand first. We also anticipate hitting the
16 Lower Morrow orange sand.

17 Q. It's not your intention to produce the
18 orange and the brown sand together?

19 A. No, it's not.

20 Q. At what time do you guys think you
21 would attempt a completion in the orange sand?

22 A. When we deplete the brown sand.

23 Q. Is it possible that you could not
24 encounter production from the brown sand?

25 A. It's always possible in the Morrow.

1 Q. What I'm getting at is, is it possible
2 that you could be harming Section 6 by drilling
3 this well and producing it from the orange sand?

4 A. We own the well in Section 6 and we
5 could make it competitive.

6 Q. Now, the reason that the Chalk Bluff
7 Federal Well No. 1 is not a good producer in the
8 orange or the brown sand, you said the
9 permeability was considerably lower, is that
10 correct?

11 A. The permeability is low in the Federal
12 "T" No. 1. We have 20 foot of sand and it's not
13 a very good well in the Lower Morrow brown. You
14 can see the Lower Morrow orange sand in the Chalk
15 Bluff Federal No. 1 and Federal "T" No. 1 is
16 thin, probably, and also the Lower Morrow brown
17 sand is thin on the Chalk Bluff Federal No. 1
18 also.

19 Q. You've got 10 feet of sand in the Chalk
20 Bluff Federal No. 1--10 feet of orange sand?

21 A. With eight foot of porosity above eight
22 percent.

23 Q. What is the reason that you think
24 that's not a good producer?

25 A. I think it's just thin and tight.

1 Q. Have you identified where the
2 permeability transition zone may be in this area?

3 A. No. I could tell you it's somewhere
4 between the Chalk Bluff 6 State No. 1, and the
5 Chalk Bluff Federal No. 1 and Federal "T" No. 1.

6 Q. A standard location in the south half
7 of Section 1, it appears, would still keep the
8 well within the 30 foot or greater sand, in the
9 brown sand. Is that your understanding, or
10 that's the way you have it mapped?

11 A. That's the way I have it mapped but
12 that would also be moving towards the Chalk Bluff
13 Federal No. 2 which has no Lower Morrow brown
14 sand, and towards the Chalk Bluff Federal No. 1
15 which has a very thin brown sand. It is tight;
16 would increase our risk.

17 Q. Did you say there was no potential for
18 Middle Morrow production at your proposed
19 location?

20 A. No, I didn't. I said, in the current
21 wells that we drilled, we tried the best one and
22 it wasn't any good. It doesn't mean it cannot be
23 good somewhere else, but in the wells we've
24 drilled so far, we don't think there's any
25 further economic potential.

1 Q. Do you know what the difference in the
2 permeability is between the Chalk Bluff 6 State
3 No. 1 and the Chalk Bluff Federal No. 1?

4 A. No, I don't.

5 Q. You've stated that it's considerably or
6 it is higher in the Chalk Bluff 6 State No. 1?

7 A. Right, and I draw that conclusion from
8 the way the well produces.

9 EXAMINER CATANACH: That's all I have
10 of the witness.

11 **ROBIN VASICEK**

12 Having been first duly sworn upon his oath, was
13 examined and testified as follows:

14 EXAMINATION

15 BY MR. BRUCE:

16 Q. Would you please state your name for
17 the record?

18 A. Robin Vasicek.

19 Q. Where do you reside?

20 A. Midland, Texas.

21 Q. Who do you work for and what is your
22 job?

23 A. I work for Mewbourne Oil Company and
24 I'm a petroleum engineer.

25 Q. Have you previously testified before

1 the Division as an engineer?

2 A. Yes, I have.

3 Q. Were your credentials accepted as a
4 matter of record?

5 A. Yes, they were.

6 Q. Are you familiar with the engineering
7 matters related to and especially the reservoir
8 matters related to this application?

9 A. Yes, I am.

10 MR. BRUCE: Mr. Examiner, is the
11 witness qualified?

12 EXAMINER CATANACH: He is.

13 Q. Mr. Vasicek, would you please identify
14 Exhibits 10 and 11 for the Examiner?

15 A. Yes. Exhibit No. 10 is a drainage map
16 of the brown sand with circles shown for the
17 areas that would be drained by those wells.

18 Exhibit No. 11 is the same thing for
19 the orange sand. These were drawn on top of
20 previously submitted geological maps and they
21 will be helpful through the remainder of the
22 presentation.

23 Q. Okay. Would you please discuss your
24 drainage calculations? And I think you have a
25 half a dozen exhibits on those, starting with

1 Exhibit 12. Would you please briefly go through
2 those for the Examiner.

3 A. Yes. Exhibit No. 12 is a decline curve
4 of the Federal "T" No. 1 located in Unit A of
5 Section 12. It's showing that we have future
6 reserves of 70 million cubic feet of gas
7 remaining. This is from both the brown and the
8 orange sand, and it should give the well an
9 ultimate of 328 million cubic feet of gas.

10 Exhibit No. 13 are volumetric
11 calculations associated with Federal "T" using
12 standard volumetric equations, and it points out
13 that an ultimate of 328 million cubic feet of gas
14 should drain approximately 32 acres in that
15 well. This is drainage from both the orange and
16 the brown sand. That's a net height of 17 feet
17 in the brown sand and six feet in the orange
18 sand.

19 Q. And this won't even drain the full
20 northeast quarter of that section?

21 A. No. No, this won't. Exhibit No. 14 is
22 a decline curve of the Chalk Bluff Federal No. 1
23 located in Section 1, Unit N, 18-27, and it's
24 showing that the well has future reserves of 69
25 million cubic feet of gas. Again, this is from

1 both the brown and the orange sand.

2 We have recently opened the green sand
3 but we're not concerned about drainage in that
4 sand. This should give ultimate production from
5 the brown and the orange sand of 229 million
6 cubic feet of gas.

7 Exhibit No. 15 are volumetric
8 calculations for the Chalk Bluff Federal No. 1.
9 This shows that the ultimate of 229 million cubic
10 feet of gas should drain in 37 acres. This would
11 be from both the orange and brown sand. That's
12 three foot of brown sand and eight foot of orange
13 sand.

14 Exhibit 16 is a decline curve for the
15 Chalk Bluff 6 State No. 1 located in Section 6,
16 Unit M, Township 18 South, Range 28 East. It
17 shows that this well should have future remaining
18 reserves of 1.1 Bcf. This is from the brown sand
19 only. It would give the well an ultimate of 1.4
20 Bcf. At the time this decline curve was made we
21 didn't have a lot of production and so we did a
22 study of declines in the area and found they
23 ranged from 35 to 60 percent. This well appears
24 to be holding up similar to what some of the
25 better wells have done, so we used a 48 percent

1 decline.

2 Exhibit 17 are volumetric calculations
3 on the Chalk Bluff 6 State No. 1, showing that
4 1.4 billion cubic feet of gas should drain 140
5 acres. I might state that this decline turns out
6 to be a hyperbolic decline. We'll probably drain
7 more reserves than that, and it might have a
8 slightly larger drainage area. I would point out
9 again, this is draining from the brown sand only,
10 that's 11 feet of brown sand.

11 Q. Referring back to Exhibit 10, then,
12 could you discuss the drainage in a little more
13 detail?

14 A. Yes. Exhibit 10 is the brown sand
15 drainage map, and I would like to point out that
16 the Chalk Bluff 6 State No. 1 is a good well, a
17 very good well, and it will eventually drain
18 reserves underneath Section No. 1.

19 I would like to point out that the
20 Chalk Bluff Federal No. 1 is not a very good
21 well. It had a small drainage area and is not a
22 good enough well to protect the correlative
23 rights under the southeast quarter of Section No.
24 1. It's producing in the range of 100 to 150 Mcf
25 a day and it's on a 60-percent decline, and it's

1 just not that good a well.

2 When we drilled the Chalk Bluff 6 State
3 No. 1, both the Chalk Bluff Federal No. 1 and the
4 Federal "T" No. 1 had been on production for
5 about a year-to-year and a half, and when we
6 drilled the Chalk Bluff 6 No. 1 we encountered
7 virgin pressure. This indicates to me that there
8 is no pressure transient and no drainage from the
9 two poorer wells in Section 6.

10 At current, this Chalk Bluff 6 State
11 No. 1 is a relatively new well. It was completed
12 in April, I believe, and it has not had time to
13 drain from Section No. 1. We feel it's not too
14 late to drill a well in the proposed location to
15 protect the rights under Section No. 1.

16 On this map there is a drainage circle
17 around the proposed location, and this represents
18 the well that would be similar to the Chalk Bluff
19 6 State No. 1. As you can see, we feel it would
20 protect the correlative rights in the southeast
21 quarter of Section 1.

22 I would like to point out that the
23 wells over here, especially the two better wells,
24 are going to drain from the highest areas of
25 permeability and porosity. The Chalk Bluff

1 Federal No. 1 is a tight well and the Federal "T"
2 No. 1 is a tight well. That was discussed
3 earlier.

4 One of the reasons we know those wells
5 were tight, when we ran our bottom hole pressure
6 tests, at the end of 72 hours we still had the
7 wells building up, and usually that's the
8 indication that the wells have low permeability.

9 We feel that there's a
10 northwest/southeast porosity/permeability trend
11 through here or ridge through here, and that even
12 though on the west flank you have adequate zone
13 thickness, it's just tight in lower porosity, and
14 that as you get to the east you cross a ridge and
15 start getting into better permeability and better
16 porosity.

17 We figure a well at the proposed
18 location is the best location to encounter both
19 the heart of the brown sand as well as the orange
20 sand.

21 Q. In your opinion, will drilling the
22 Chalk Bluff No. 3 and producing it from the brown
23 sand, will that effect ultimate recovery from the
24 Chalk Bluff No. 1 well, the existing well?

25 A. The existing well is such a poor well,

1 it's not going to drain into the area that would
2 be drained by a new well in the proposed
3 location. I don't believe the new well in the
4 proposed location, if it comes in similar to what
5 the Chalk Bluff 6 State No. 1 came in, it will
6 not drain into the lower permeability area where
7 the Chalk Bluff Federal No. 1 is located.

8 Q. Do you have anything further on Exhibit
9 10?

10 A. Well, I would like to point out that to
11 obtain the reserves in the area where the Chalk
12 Bluff Federal No. 1 is, that it's going to be
13 necessary to produce that well. A well in the
14 proposed location will not drain over in that
15 area, and also the Chalk Bluff Federal No. 1 does
16 have remaining reserves in the green sand that we
17 would like to recover.

18 Q. So you would like to produce both wells
19 concurrently?

20 A. Yes. This is the reason to produce
21 both wells concurrently.

22 I would like to move on to Exhibit No.
23 11 and discuss the orange sand drainage map. We
24 have recently completed the Chalk Bluff Federal
25 No. 2 in the orange sand. We don't really have

1 enough history to project reserves at this time,
2 but we believe it will be sufficient to drain the
3 north half of Section 1.

4 The Chalk Bluff 6 State No. 1 has good
5 potential in this zone, as shown in the
6 cross-section, and we would like to note that the
7 proposed location is on a line directly between
8 those two wells with respect to the orange sand.

9 We are petitioning for simultaneous
10 dedication, and I would like to address that
11 briefly. If a good well--if the Chalk Bluff 3
12 turns out to be a good well and it's at least as
13 good as the Chalk Bluff 6 State 1, we would not
14 want to risk damage by shutting it in.

15 In support of this I would like to
16 introduce two excerpts from two published papers
17 that point out some of the problems that are in
18 the Morrow and that can cause damage from
19 shutting the well in.

20 At this time I would like to introduce
21 Exhibit No. 18. This is an SPE paper entitled,
22 "Improved Stimulation Fluid for the Morrow Sand
23 in Southeast New Mexico," written by Larry Foster
24 and Bill Halepeska with Western Company. What I
25 would like to point out is that this paper refers

1 to kaolinite find problems in the Morrow
2 formation, and I would like to read an excerpt
3 from the lower portion of this.

4 They had done some core analysis and
5 they found that the amount of kaolinite present
6 in these cores is somewhat more than normally
7 encountered and might be considered as reason for
8 some of the observed fluid sensitivity in the
9 Morrow. "When contacted by aqueous fluids with
10 which it is not in equilibrium, kaolinite is
11 subject to particle disassociation. Subsequent
12 movement of these fines can cause permeability
13 damage." And that's what we would like to try to
14 avoid by producing this simultaneously.

15 We do not have any x-ray diffraction
16 reports from the wells in this area, but we did
17 have some on the well drilled five miles south of
18 us and it did report that there was a significant
19 amount of kaolinite in the formation.

20 I would like to introduce Exhibit No.
21 19, which is also a paper referring to problems
22 in the Morrow, a paper from the 1980 Southwest
23 Petroleum Short Course entitled, "Clay Mineral
24 Properties of Morrow Sandstone in Lea County, New
25 Mexico, and Their Effect on Reservoir Cation

1 Exchange Capacity," by Dr. John Neasham.

2 He states that he's found an abundance
3 of kaolinite in the Morrow, and that turbulent
4 flow within the rock can cause fine movement and
5 pore throat plugging. I would like to read a
6 brief excerpt from his paper.

7 He says, "Kaolinite can impose
8 production problems due to its loose attachment
9 to sand grain surfaces within the pore system,
10 causing it to potentially behave as a mobil
11 "finer" particle during fluid flow through the
12 pore system. Fluid turbulence within the rock
13 pore system during production, particularly
14 around the wellbore, can cause fine movement to
15 the degree that existing pore throats become
16 choked off with kaolinite fines and pore throat
17 damage can be the result."

18 We believe that shutting a well in and
19 turning it on, especially a good well--we don't
20 see as much of an effect in poorer wells, but in
21 a good well, turning it on and off again causes a
22 disturbance in the formation. This disturbance
23 can cause fines to be released, which would cause
24 permeability plugging and create waste in the
25 amount of reserves that would be left due to the

1 permeability damage. For this reason, we would
2 like to continue production of a good well.

3 Q. In your opinion, by drilling the
4 proposed well and producing it, will there be any
5 harm to the offset units?

6 A. No. Nobody should be damaged due to
7 continual production of the Chalk Bluff Federal
8 No. 1. It will not have any effect on any of the
9 other Morrow producers in the area or drain from
10 any of the offset acreage.

11 Q. How about economics? Could you discuss
12 that.

13 A. Well, yes. We have overhead costs
14 associated with all of our producing wells.
15 These costs cover pumpers and secretaries and
16 accountants, and they're billed to each well each
17 month, whether they produce or not.

18 From a cash flow standpoint, if we're
19 forced to choose between a good well or a poor
20 well, of course a good well is going to get more
21 attention.

22 If the Chalk Bluff 3 turns out to be as
23 good a well as the Chalk Bluff 6 State No. 1 did,
24 we would not want to shut it in. If we were
25 forced to alternate production, we would want to

1 give more production time, of course, to the
2 better well. This could lead to premature
3 plugging and economic reserves being left behind
4 in the Chalk Bluff Federal No. 1.

5 The Chalk Bluff Federal No. 1 is a
6 marginal producer. It currently nets somewhere
7 less than a thousand dollars a month. So far we
8 have a substantial investment in drilling and
9 completing the well. We just purchased a
10 compressor, so we're earnestly trying to recover
11 as much reserves from that well as possible.

12 We've also completed to the green sand
13 and we have costs to recover there. We admit the
14 green sand didn't come on as expected, but there
15 are reserves there that can be recovered. We do
16 not anticipate recompleting any of the other
17 wells in the green sands, so if this well was
18 plugged, those reserves would be left behind.

19 Q. What about time frame? If the Division
20 does grant this application, would you like a
21 fairly rapid approval?

22 A. Yes. Well, there aren't many people
23 out drilling Morrow wells. They're just not that
24 economical. We're kind of seeing an improved gas
25 price scenario at least through the winter

1 months. We currently have a rig running in this
2 area. It's on a multi-well contract. And we
3 would like to be able to include this well in
4 that contract. Because of other drilling
5 commitments, we would like to be able to move on
6 this well in the next 30 days or so.

7 Q. Were Exhibits 10 through 19 either
8 prepared by you, under your direction, or
9 compiled under your direction?

10 A. Yes, they were.

11 Q. In your opinion, is the granting of
12 this application in the interests of
13 conservation, the prevention of waste and the
14 protection of correlative rights?

15 A. Very much so.

16 MR. BRUCE: At this time, Mr. Examiner,
17 I move the admission of Exhibits 10 through 19.

18 EXAMINER CATANACH: Exhibits 10 through
19 19 will be admitted into evidence.

20 EXAMINATION

21 BY EXAMINER CATANACH:

22 Q. Mr. Vasicek, you mentioned that the
23 Morrow formation may be damaged by some types of
24 fluid. Could the Chalk Bluff Federal Well No. 1
25 have been damaged during the completion, in your

1 opinion?

2 A. Judging from the pressure build-up on
3 that well, we didn't see that much skin damage
4 after the completion. I believe that our problem
5 is just low permeability. We've done similar
6 completions on other Morrow wells and had good
7 results.

8 Q. The same type of completion techniques
9 were used on the 6 State No. 1?

10 A. Yes, they were.

11 Q. You said that the 6 State No. 1
12 encountered virgin reservoir pressure. Do you
13 know what that was?

14 A. Yes. That was 4,000 pounds.

15 Q. Do you know what it was in the other
16 two wells?

17 A. On the other two wells, they were still
18 building up. I have pressures here. The Federal
19 "T" had a build-up of 3,653, but the next to the
20 last pressure point taken was 3,644, so you can
21 see it was still building considerably.

22 And the Chalk Bluff Federal No. 1 had a
23 build-up of 3,249, but it's last point was 3,241,
24 so you could see it was still building at the
25 time we pulled the bottoms.

1 With regard to the completion
2 techniques, all of the wells that we've drilled
3 and completed in this area, the Chalk Bluff 2,
4 the Chalk Bluff Federal No. 1, the Federal "T"
5 and the Chalk Bluff 6 State No. 1, use the same
6 completion technique. We've had very good
7 success with those fluids.

8 Q. Did you state that you thought the
9 permeability transition zone trended northwest to
10 southeast?

11 A. Yes. It's a ridge. If you look on
12 this orange map, it's a ridge that cuts this--or,
13 on the broken sand, either one, it kind of cuts
14 from the--

15 Q. Exhibit 10?

16 A. Exhibit 10 and 11. They both, you can
17 see the porosity and the sand thickness trends
18 from the northwest to the southeast, and we are
19 finding our poorer wells are on the western side
20 of that trend.

21 I would like to point out also, the
22 Federal "T" No. 1 had 17 foot of net pay and the
23 Chalk Bluff 6 State No. 1 only had 11 feet of net
24 pay. The reason why the Chalk Bluff 6 State No.
25 1 is such a better well, it has better porosity.

1 Q. If the location for the 6 State well
2 No. 1 is approved and you get a good well in the
3 brown sand, in your opinion, do you think that
4 would drain the area currently being drained by
5 the Federal No. 1 well if you were forced to not
6 be able to produce the No. 1 well?

7 A. If we were forced to not produce the
8 No. 1 well, I believe reserves would be left
9 behind. The new well, which would be the Chalk
10 Bluff 3, would not drain into that area of the
11 reservoir.

12 Q. And that's just based on assumptions at
13 this point, because you don't have any actual--

14 A. You never know what's going on down
15 hole, but the drainage radius from the Chalk
16 Bluff Federal No. 1 is 32 or 37 acres, and the
17 new well would be around 140 acres. It's going
18 to drain in the area of best porosity and
19 permeability, and we see a porosity and
20 permeability trend towards the west side of that
21 or towards the east side of that ridge, rather
22 than to the west side of that ridge.

23 Q. These are small drainage areas. Is
24 this typical for wells in the whole pool?

25 A. No. Usually the better wells--down in

1 Section 7, the ARCO State "BY" No. 1, we did
2 drainage calculations on it and it should drain
3 over a hundred acres.

4 The ARCO State "CG" No. 1 was a very
5 good well and it should drain somewhere around
6 360, 370, 380 acres, somewhere around there. We
7 kind of hope we finally have this figured out and
8 that we can come up with some better producers.

9 Q. Mr. Vasicek, whose correlative rights
10 are you trying to protect with this application?

11 A. We're trying to protect the correlative
12 rights of the owners in the south half of Section
13 1.

14 Q. Who are Mewbourne Oil Company?

15 A. It's Mewbourne Oil Company and
16 associated royalty interests.

17 Q. If the subject well in Section 1 is not
18 drilled, won't Mewbourne recover most of that
19 gas, anyway, from the well in Section 6?

20 A. No. I believe there will be a lot of
21 gas that will be left behind in the brown sand.
22 It's true the Chalk Bluff 6 will recover
23 reserves. They're going to recover some of the
24 reserves in the south half of Section 1, but I
25 don't believe they'll adequately drain that

1 section.

2 And there is ownership difference
3 between Section 1 and Section 6 with regard to
4 the royalty interests.

5 Q. Have you shut the Chalk Bluff Federal
6 Well No. 1 in for any length of time?

7 A. It was shut in for about a three-week
8 period. They had some pipeline problems.

9 Q. Did you experience any production
10 reduction during that period of time?

11 A. Prior to shutting the well in it was
12 producing around 300 Mcf a day. After we shut
13 the well in, it was shut in for three weeks and
14 came back on for 700 Mcf for one day or two days
15 and then dropped back down below 300 Mcf a day.

16 As far as production, I believe that's
17 a tight well and that's not a great enough--if we
18 get to the point of fine migration, I believe
19 that's a tight well and it's not a good enough
20 producer to cause a pressure disturbance in the
21 reservoir.

22 If we encountered a good well, if we
23 had done that to the Chalk Bluff 6 State No. 1
24 and had to continually do that to that well, we
25 eventually could possibly have the problem. By

1 not shutting the well in, we're just trying to
2 minimize the effects of what could occur.

3 Q. Do these wells produce any water?

4 A. No, these wells don't produce any
5 water.

6 Q. If you had to shut one of these wells
7 in during any period of time, where would the
8 damage occur from? What would the damage occur
9 from?

10 A. If we had to shut them in?

11 Q. If you had to alternate producing these
12 wells.

13 A. If we had to alternate production in
14 the two wells, I think we would have damage--if
15 we encountered a good well, I think we would have
16 a high possibility and high probability of fine
17 migration and permeability plugging.

18 I also believe that the Chalk Bluff
19 Federal No. 1, because it's not as good an
20 economic producer, I don't believe it could
21 overcome the economic hardship of being shut in,
22 of the costs associated with it, and we would
23 eventually end up plugging it. That would leave
24 reserves behind in the south half of Section 1.

25 I would also like to point out that the

1 Chalk Bluff Federal No. 1 does have reserves in
2 the green sand that would be left behind if that
3 well was forced to be plugged.

4 Q. Is it possible that in the No. 3 well
5 you would attempt to complete both the brown and
6 the orange sands?

7 A. I feel that eventually our goal here is
8 the brown sand and the protection of rights. At
9 the time we came up and felt the reservoir was
10 draining the brown sand, I'm sure we'll
11 recomplete to the orange sand, and we'll probably
12 do the Chalk Bluff 6 State No. 1 at the same
13 time, also.

14 EXAMINER CATANACH: I believe that's
15 all I have.

16 MR. BRUCE: I don't have anything
17 further, Mr. Examiner.

18 EXAMINER CATANACH: Okay. There being
19 nothing further, Case 10568 be taken under
20 advisement.

21 (And the proceedings concluded.)
22
23

24 I do hereby certify that the foregoing is
25 a complete record of the proceedings in
the Examiner hearing of Case No. 10568,
heard by me on October 15 1992.

David L. Catanach, Examiner
Oil Conservation Division


CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, 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 caused my notes to be
transcribed under my personal supervision; and
that the foregoing is a true and accurate record
of the proceedings.

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

WITNESS MY HAND AND SEAL November 2,
1992.


CARLA DIANE RODRIGUEZ, RPR
CSR No. 4