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

IN THE MATTER OF THE HEARING )  
CALLED BY THE OIL CONSERVATION )  
DIVISION FOR THE PURPOSE OF )  
CONSIDERING: )  
APPLICATIONS OF )  
MEWBOURNE OIL COMPANY )  
\_\_\_\_\_ )

CASE NOS. 10,959  
10,960

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: JIM MORROW, Hearing Examiner

April 28, 1994

Santa Fe, New Mexico

MAY 19 1994

This matter came on for hearing before the Oil  
Conservation Division on Thursday, April 28th, 1994, at  
Morgan Hall, State Land Office Building, 310 Old Santa Fe  
Trail, Santa Fe, New Mexico, before Steven T. Brenner,  
Certified Court Reporter No. 7 for the State of New Mexico.

\* \* \*

## I N D E X

April 28th, 1994  
 Examiner Hearing  
 CASE NOS. 10,959, 10,960

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3

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KENNETH M. CALVERT

Direct Examination by Mr. Bruce

4

Examination by Examiner Morrow

21

KEVIN MAYES

Direct Examination by Mr. Bruce

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\* \* \*

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\* \* \*

A P P E A R A N C E S

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 Santa Fe, New Mexico 87504-2068  
 By: JAMES G. BRUCE

\* \* \*

1 WHEREUPON, the following proceedings were had at  
2 9:24 a.m.:

3 EXAMINER MORROW: Call Cases 10,959 and 10,960 at  
4 this time.

5 MR. CARROLL: Application of Mewbourne Oil  
6 Company for statutory unitization, Lea County, New Mexico.

7 Application of Mewbourne Oil Company for approval  
8 of a waterflood project and qualification for the recovered  
9 oil tax rate, Lea County, New Mexico.

10 EXAMINER MORROW: Call for appearances.

11 MR. BRUCE: Mr. Examiner, Jim Bruce from the  
12 Hinkle law firm in Santa Fe, representing the Applicant,  
13 and I have two witnesses to be sworn.

14 EXAMINER MORROW: Will the witnesses please stand  
15 and be sworn?

16 (Thereupon, the witnesses were sworn.)

17 EXAMINER MORROW: Go ahead, Mr. Bruce.

18 KENNETH M. CALVERT,  
19 the witness herein, after having been first duly sworn upon  
20 his oath, was examined and testified as follows:

21 DIRECT EXAMINATION

22 BY MR. BRUCE:

23 Q. Will you please state your name and city of  
24 residence?

25 A. My name is Kenneth M. Calvert, and I live in

1 Lindale, Texas.

2 Q. What is your occupation and who are you employed  
3 by?

4 A. I am the engineering manager of secondary  
5 recovery for Mewbourne Oil Company, and my office is  
6 located in Tyler, Texas, and I'm a registered professional  
7 engineer in the State of Texas.

8 Q. Okay. Have you testified before the Division  
9 previously?

10 A. I have testified before the Commission previously  
11 as an engineer, but not as a land person.

12 Q. Okay. Would you please outline your educational,  
13 employment background, especially with respect to land  
14 matters?

15 A. Yes. In 1964, January of 1964, I received a BBA  
16 in petroleum land management from the University of Texas,  
17 and in August of 1964 I received a BS in petroleum  
18 engineering from the University of Texas.

19 I was employed out of college as an engineer for  
20 Tenneco Oil Company from the years 1964 to 1981. In 1981 I  
21 became engineering manager -- or manager of engineering and  
22 operations for Mewbourne Oil Company. That position I held  
23 till 1989.

24 From 1989 to present, I have been manager of  
25 secondary recovery because of the high level of activity

1 that we have had in secondary recovery. And since that  
2 time, I have supervised all land work in relationship to  
3 unitization, both in Texas and -- excuse me -- Well, Texas,  
4 Oklahoma and New Mexico.

5 Q. And are you familiar with the land matters  
6 involved in these two cases?

7 A. Yes, I am.

8 MR. BRUCE: Mr. Examiner, I tender Mr. Calvert as  
9 an expert landman with respect to unitization proceedings.

10 EXAMINER MORROW: Mr. Calvert's qualifications  
11 are acceptable.

12 THE WITNESS: Thank you.

13 Q. (By Mr. Bruce) Mr. Calvert, will you briefly  
14 describe what Mewbourne seeks in these two cases?

15 A. Okay, in Case 10,959 Mewbourne seeks to  
16 statutorily utilize the interests that have not voluntarily  
17 joined the proposed unit in the Querecho Plains-Queen  
18 Associated Sand Unit as it is proposed, and that includes  
19 parts of Sections 21, 22, 23, 26, 27 and 28, all in  
20 Township 18 South, Range 32 East. This is approximately --  
21 the unitization of approximately 1520 acres.

22 And in Case 10,960 Mewbourne Oil Company seeks  
23 approval of secondary recovery through waterflooding and  
24 certification for the recovered oil tax rate.

25 Q. And all of the unit land is federal land, is it

1 not?

2 A. Yes, it is.

3 Q. Would you then refer to Exhibit 1 and identify  
4 that for the Examiner?

5 THE WITNESS: May I ask, do the Commissioners --  
6 or the Examiners -- have these in sequence now?

7 EXAMINER MORROW: We have Number 1 on top.

8 THE WITNESS: Okay.

9 EXAMINER MORROW: We haven't looked yet deeper  
10 than that.

11 THE WITNESS: All right. Exhibit Number 1 is the  
12 land plat that outlines the proposed Querecho Plains-Queen  
13 Associated Sand Unit, and that would be the -- Sort of on  
14 the periphery of the number of circled wells there is a  
15 hard dashed line. That is the outline of the unit  
16 boundary.

17 There are other small dotted lines within the  
18 unit boundary, and some of it outside the unit boundary,  
19 which are lease lines, or are tract boundaries where in a  
20 given tract there is different mineral ownership due to  
21 participation, nonparticipation, various overriding  
22 royalties and so forth.

23 So all of the tracts that are herein designated  
24 are designated on a common mineral ownership.

25 Q. (By Mr. Bruce) How many tracts are there?

1           A.    There are 21 tracts.

2           Q.    And who operates the tracts currently?

3           A.    Mewbourne Oil Company or Curtis W. Mewbourne  
4 individually operate 16 of the tracts, Anadarko operates  
5 four of the tracts, and Clarence Stumhoffer, an  
6 independent, operates one tract.

7           Q.    Would you refer to Exhibit, 2, the bound volume,  
8 and discuss that for the Examiner?

9           A.    Okay, Exhibit 2 is, the flysheet on it, *Plan of*  
10 *Unitization, Querecho Plains Queen Associated Unit, Lea*  
11 *County, New Mexico*, and it covers the unit area shown in  
12 Exhibit 1.

13                   The unitized formation is herein defined, the  
14 unitized substances are both the oil and associated  
15 casinghead gas.

16                   Mewbourne Oil Company is requesting to be named  
17 the unit operator, of which "Mewbourne" could be removed  
18 under terms of this agreement. And it provides for the  
19 expansion of the unit area.

20                   The unit agreement -- Incidentally, Mr. Examiner,  
21 this book is made up of two parts. The first part is the  
22 unit agreement, which is the relationship of all of the  
23 work- -- all of the various interest owners, including  
24 royalty interest, which is the BLM. There are 76  
25 overriding royalty interest owners, and the working



1 interest owners.

2 It provides for the proper apportionment of  
3 production and revenues generated from the unit.

4 Q. And what is the second part of this document?

5 A. The second part of the booklet is the unit  
6 operating agreement. And the unit operating agreement  
7 provides the relationship between the unit operator and the  
8 various other working interest owners, other than the unit  
9 operator.

10 It sets forth the duties and authorities of the  
11 unit operator, and there is provision for apportionment of  
12 expenses between the various working interest owners, of  
13 which Mewbourne Oil Company is a working interest owner.

14 Q. Now, these agreements were drafted under your  
15 direct supervision, were they not?

16 A. Yes, they are, and I might mention that this  
17 particular plan of unitization is very similar, with some  
18 very minor, revisions to that which approved the Querecho  
19 Plains-Bone Spring Sand Unit under Commission Order R-9985,  
20 which became effective November 4th -- excuse me, November  
21 1st, 1993.

22 The Bone Spring, just for informational purposes,  
23 it has nothing to do with this unit, but it underlies a lot  
24 of common tracts that are proposed in this unitization.

25 Q. Okay. Now, you referred to the unit agreement

1 and Exhibit B to that unit agreement that describes the  
2 tract ownership. How did you come up with the names on the  
3 Tract Ownership?

4 A. Okay, hold on just a minute. Okay. Under  
5 Exhibit B -- and let me direct the Examiner to that. The  
6 first part of the booklet here is the unit agreement. And  
7 it would be found -- Exhibit B would be found two pages  
8 beyond page 50, so Exhibit B is not -- That's right -- Hold  
9 it up again, please, sir? That's Exhibit B, okay. I just  
10 wanted to make sure we're on the same wavelength here.

11 Okay, Mewbourne Oil Company, as I said, operates  
12 16 of the tracts, and so the first thing that we did was to  
13 use the Division orders that we currently have in place.  
14 And in tracts wherein we were not the operator and did not  
15 hold Division orders, we obtained title opinions on each of  
16 these tracts.

17 In addition, we obtained the pay sheets and the  
18 -- from the various purchasers and the other two operators  
19 in order to confirm title opinions that we obtained on  
20 tracts that we did not operator.

21 Q. Okay. Could you then move on to the next  
22 booklet, Exhibits 3 and 4, and first identify the working  
23 interest owners and whom you seek to unitize?

24 A. Excuse me, Mr. Examiner. Okay. The next booklet  
25 that you have has a flysheet that's also Plan of

1     Unitization, Querecho Plains Queen Associated Sand Unit,  
2     Lea County, New Mexico. But in the bottom of it, it is  
3     designated "Exhibits 3/4", so there's two exhibits in this  
4     same book.

5             Okay, the first page, immediately behind the  
6     flysheet, is a list of all working-interest owners within  
7     the Querecho Plains-Queen Associated Sand Unit.

8             Q. And which of those persons on that list do you  
9     seek to unitize?

10            A. Okay, all of the working interest owners who have  
11     a "1" to the left of their name have voluntarily joined the  
12     unit. So we have 97.4 percent of the working interest  
13     owners that have voluntarily joined the unit.

14            The remainder that do not have a "1" beside their  
15     name to the left are interests that we seek to statutorily  
16     include -- or statutorily unitize, excuse me.

17            Q. Now, there's a couple of exhibits, 3A and 3B,  
18     fitted in. What are those, just for the Examiner's  
19     information?

20            A. Okay, Exhibit 3A is a late submittal of the  
21     Anadarko Petroleum signature that we received too late to  
22     put in these booklets, in that we left Tyler two days ago  
23     and we didn't get those till yesterday. So that's Exhibit  
24     3A.

25            Exhibit 3B is a similar exhibit from OXY, wherein

1 OXY and NAPECO are committing their interests, and here  
2 again we did not have the opportunity to bind these in a  
3 book, but they are a part of the working interest  
4 signators.

5 Now, while I'm speaking to working interest  
6 signators, let me also state that Anadarko is an overriding  
7 royalty interest owner. And so by the dual capacity  
8 joinder provision of the unit agreement, their signature as  
9 a working interest owner is also their signature and  
10 approval as an overriding royalty interest owner.

11 Q. Then move to Exhibit 4 and identify which royalty  
12 interest owners you seek to have pooled or, excuse me, have  
13 unitized.

14 A. Okay, let me direct our attention to -- the  
15 Examiner -- Exhibit 4 begins behind a heavy manila  
16 flysheet. There you are. That begins Exhibit 4.

17 That is a list of all royalty owners which --  
18 that is only the BLM and the various overriding royalty  
19 interest owners. And as in the previous exhibit, all of  
20 those interests that have a "1" to the left of their name  
21 have signed and voluntarily joined this proposed unit.

22 And out of those we have 95.5 percent of the  
23 royalty and overriding royalty interest committed  
24 voluntarily to this unit. Therefore, the remainder, 4 1/2  
25 percent, are those that have not committed interests to

1 this -- to the proposed unit, and we seek to statutorily  
2 unitize those individuals.

3 Q. Has the BLM preliminarily approved the unit?

4 A. Yes. The next page behind the listing of the  
5 various royalty and overriding royalty interest owners is  
6 the letter of designation for this unit from the BLM. Upon  
7 the entry of an order by the New Mexico Oil Conservation  
8 Commission, the BLM will provide a letter of certification  
9 of this unit.

10 Q. Would you describe Mewbourne's efforts to obtain  
11 the voluntary commitment of the working and royalty  
12 interests in the unit? And I would refer you to Exhibits  
13 5A through 5B.

14 A. Okay. First, before we get to 5A and 5B, let me  
15 start out by saying that we had a -- the very first meeting  
16 of the operators and some common working interest owners on  
17 November -- I believe it was November the 4th, 1993, being  
18 the same date that we had the organizational meeting for  
19 the Querecho Plains-Bone Spring Unit.

20 Following that organizational meeting, we had a  
21 preliminary meeting of the Queen owners, working interest  
22 owners, to initiate the unitization of the Queen zones.

23 Shortly thereafter, January the 1st -- excuse me,  
24 January the 10th, and which that is a letter marked as  
25 Exhibit 5A, I proposed for the benefit of Mewbourne Oil

1 Company the unitization of the previously described  
2 acreage.

3 At that date, all working interest owners were  
4 sent out a proposal which gave an estimate of expected  
5 rates of return, return on investment, recovery and so  
6 forth.

7 Q. Now, this letter, Exhibit 5A, or the January 10th  
8 letter, we only submitted the letter addressed to Anadarko.  
9 Were all working interest owners sent similar letters?

10 A. Yes, the only reason that we have picked Anadarko  
11 here, at the time the exhibits were put together, Anadarko,  
12 we did not have their signature yet, and so I just simply  
13 picked out the first working interest owner in the alphabet  
14 as a demonstrative exhibit, and so that's Anadarko.  
15 Everybody else received a very -- not a very similar, an  
16 exact letter to this.

17 Q. And then on the last page of Exhibit 5A is a  
18 letter dated February 7th. What was that letter?

19 A. Okay, the letter dated February the 7th, which is  
20 the third page of your Exhibit 5A, is a letter wherein I  
21 sent to each of the working interest owners who had not yet  
22 voluntarily joined the unit by their authorized signatures.  
23 These letters were sent out by certified mail, as you see  
24 the certification number above Anadarko Petroleum. These  
25 were sent out to all working interest owners who had not

1 yet approved the unit.

2 Q. Okay.

3 A. So this certification was to make certain that  
4 everybody did get the unitization agreement and were again  
5 put on notice by certification that they should have the  
6 unitization proposal in their hand.

7 Q. Now, Exhibit 5B, would you refer to that and  
8 discuss the follow-up contacts with the nonconsenting  
9 interests?

10 A. Okay, Exhibit 5B, after some preliminary titling  
11 there, is our *Working Interest Owners Contact Report*. This  
12 is our efforts to -- further beyond the letters, to further  
13 get voluntary joining in this unit.

14 And here again, these are listed alphabetically.  
15 If you'll notice, there's Anadarko Petroleum, their  
16 certified letter, and we do not have any contacts listed  
17 there in that we had numerous contacts with Anadarko. But  
18 beyond that point -- If we need to go into all of them, we  
19 can, but there's a listing of each person that has not  
20 joined and a brief listing of telephone conversations and  
21 so forth.

22 I might point out that Mr. Stumhoffer, who is the  
23 operator of one well, has several associates that you will  
24 see in the various individual contact reports wherein he  
25 was attempting to buy various interests and he was also

1 attempting to get them to join the unit. And as it turns  
2 out, Mr. Stumhoffer, we do not know whether he ultimately  
3 bought these people or not; but he, at this point in time,  
4 has not joined the unit.

5 And so -- A lot of it centers around a well  
6 called the Flip Federal Number 1, wherein there were some  
7 15 or so working interest owners, and a lot of those owners  
8 have not joined the unit. And that comprises a large part  
9 of nonvoluntary unitization working interest owners.

10 Q. Would you then just briefly describe Exhibits 5C  
11 and 5D with respect to the royalty owners?

12 A. Unless the Examiner would like for me to go into  
13 more detail, the exact same process through letter of  
14 notification on January the 10th and follow-up of the  
15 certified letter on January the 7th -- excuse me, February  
16 7th, 1994, plus Exhibit 5D is the various telephone  
17 conversations and so forth that we had with other  
18 overriding royalty interest owners, and they're self-  
19 explanatory unless there's specific questions that someone  
20 would like to ask.

21 Q. Were there any unlocatable interest owners?

22 A. Yes, there was one -- As it turned out, there was  
23 one unlocatable royalty interest owner. There was -- We  
24 had no working interest owners that were not locatable.  
25 There was one royalty interest owner.



1 Q. And what is her name?

2 A. This is Lita Sabonis.

3 Q. And what is Exhibit 6?

4 A. Exhibit 6 is our notification through publication  
5 in the *Hobbs Daily News* wherein we notified Lita Sabonis by  
6 publication of the hearing to be held relative to this  
7 unitization proceeding.

8 Q. In your opinion, has Mewbourne Oil Company made a  
9 good-faith effort to secure voluntary unitization?

10 A. Yes, we have.

11 Q. And has written notification of this unitization  
12 hearing been given to all parties who have not consented to  
13 the unitization?

14 A. Yes.

15 Q. And is the affidavit of notice submitted as  
16 Exhibit 7?

17 A. Yes.

18 Q. Does the unit operating agreement contain a  
19 provision for carrying working interest owners?

20 A. Yes. In the unit operating agreement, Section  
21 10.4 provides for the carrying of working interest owners  
22 in the normal unit operating expense, and that's provided  
23 in Section 10.4 of the unit operating agreement.

24 Q. And does the operating agreement also provide for  
25 a penalty against non-consenting working interest owners?

1           A.    Yes, that is provided for in Section 10.5, and  
2           that is a cost, plus cost of installation, plus 200  
3           percent.

4           Q.    And in your opinion, is that fair?

5           A.    Yes.

6           Q.    What overhead rates does the operating agreement  
7           provide for?

8           A.    The operating agreement provides -- as far as  
9           drilling and producing well overhead, it provides for \$4600  
10          per month for a drilling well and \$511 per month for a  
11          producing well.

12                These -- This \$4600 was previously negotiated  
13          between those members that had signed, and the \$511 was the  
14          weighted average of all producing well overheads that were  
15          brought into the unit, and it is less than the *Ernst and*  
16          *Young* report. I believe the *Ernst and Young* for 1992 was  
17          something like \$550 or so.

18          Q.    Now, since the operating agreement was printed,  
19          have there been any changes to it?

20          A.    Yes, that can be found in Exhibit 8. These were,  
21          for the most part, typed revisions for better  
22          understanding. And Exhibit 8 is divided in unit agreement,  
23          unit operating agreement and accounting procedure.

24                I will mention that in the unit agreement portion  
25          of it, all of those were strictly for amplification

1 purposes only. For all intents and purposes it is exactly  
2 the same as was provided in the Querecho Plains-Bone Spring  
3 Sand Unit that I mentioned previously that was approved by  
4 this Commission.

5 Under the unit operating agreement, you will note  
6 at the bottom of the page, Article 3.6.2. That was a  
7 change in the voting requirements, so that was a change.  
8 And in order for something to be approved, capital  
9 expenditures to be approved, 75 percent must approve any  
10 expenditure.

11 There is a provision, however, that if a working  
12 interest owner has more than 25-percent working interest,  
13 they do not have total veto; they must be joined by one  
14 other working interest owner to kill a proposal.

15 Article 10.5, which is on the second page of your  
16 exhibit, that is a change in that if there are wells to be  
17 drilled, rather than the unit operator having a total  
18 option of notifying various other working interest owners  
19 of nonconsent or nonpaying working interest owners for  
20 capital expenditures for development drilling, then other  
21 working interest owners have the option of participating  
22 and carrying that interest in the same proportion that they  
23 own a working interest in the unit.

24 Q. And these changes will benefit all of the working  
25 interest owners, will it not?

1           A.    That is true. The remainder, throughout the rest  
2 of the exhibit is amplification for better understanding.  
3 But it really doesn't change the meaning of the unit  
4 agreement that you might have in hand.

5           Q.    And these were proposed by other working interest  
6 owners; is that right?

7           A.    That is true.

8           Q.    Are there any typographical errors that will be  
9 corrected?

10          A.    Yes, there are some very minor typographical  
11 errors that I have presented as Exhibit 9, "Accounting  
12 Procedure Errata", and those strictly have to do with  
13 paragraph nomenclatures and reference numbers.

14          Q.    In your opinion, will the granting of these  
15 Applications be in the interests of conservation, the  
16 prevention of waste and the protection of correlative  
17 rights?

18          A.    Yes.

19          Q.    And were Exhibits 1 through 9 prepared by you,  
20 under your direction, or compiled from company records?

21          A.    Yes, they were.

22                MR. BRUCE: Mr. Examiner, I move the admission of  
23 Exhibits 1 through 9.

24                EXAMINER MORROW: 1 through 9 are admitted into  
25 the record.

## EXAMINATION

BY EXAMINER MORROW:

Q. Mr. Calvert, does this include all the pool or field as being -- will be waterflooded? Is all of it included, or is only a portion of it?

A. Well, I'm not certain about the -- if there are any other wells that might be carried under the allowable schedule of Querecho Plains-Queen Associated. There are various Queen wells scattered throughout the area. I will point some wells out to you that are part of two other floods or lease floods.

Now, let us look at -- On Exhibit 1, which is the map, in Section 28, in the northwest quarter of the northwest quarter, there shows a well with a circle around it, and that is a Queen well. Right straight above that well is another Queen well. Those wells are included in the Young Queen unit, and so those wells are in another unit.

There is a 40-acre proration unit gap between the western edge of our proposed unit and the eastern edge of the Queen -- of the Young Queen Unit.

I direct your attention to Section 24 on -- it will be the second section down from the right -- on the map, and there are wells there indicated as Cinco de Mayo. There are two wells that show to be plugged, that have been

1 previous Queen producers.

2 Both of those two wells have been saltwater  
3 disposal and/or injection wells on the Cinco de Mayo lease,  
4 operated by someone else, other than Mewbourne, that have  
5 possibly been an attempt at secondary recovery. And those  
6 wells, the wells that I have mentioned, obviously are not  
7 included in this unit.

8 Other than that, I believe that -- No, let me go  
9 back to one other area.

10 In Section 27, the south half of the southwest  
11 quarter, there are three wells that are completed in the  
12 Queen that shows to be plugged.

13 The Number 1 and Number 6 wells, which are the  
14 east two wells of that south half, southwest quarter, were  
15 previously injectors into the Queen. They obviously were  
16 watered out.

17 The Number 4 well was watered out.

18 And then Mewbourne Oil Company purchased the  
19 Number 2 and 3 wells, which is in the north half of the  
20 southwest quarter. Those wells will be used as injectors.  
21 But since the three wells in the south half had been  
22 injected to and/or produced prior and watered out, they  
23 were excluded from this unit.

24 I believe that includes all wells that could be  
25 construed to be in any shape, form or fashion, possibly a

1 portion of this reservoir.

2 Q. So these other wells, like those in -- on the  
3 east line of Section 21 and northwest quarter of 22 and  
4 northeast quarter of 23 and so on, are those to different  
5 horizons or --

6 A. What is shown on this map are all Queen  
7 penetrations. The wells that you have mentioned are  
8 Delaware and Bone Springs, and there's one Strawn well in  
9 there, and I believe there's one Morrow well shown.

10 So the remainder of the wells that you see on  
11 there, other than the ones that I've mentioned, are to  
12 deeper horizons.

13 Q. Okay. So essentially, then, it does include all  
14 the wells which would be in this reservoir, at least -- Is  
15 that --

16 A. I believe engineering testimony will further  
17 define that for you, sir.

18 Q. Okay. How about the -- Why is it called an  
19 associated pool?

20 A. Well, to my understanding, the Queen is -- in  
21 this area -- There's several sort of connotations of the  
22 Queen. The Queen in this area, there's one lobe of it  
23 that's known as upper, middle and lower Queen. There is  
24 another lobe of it that is included in the Queen Associated  
25 that some people call the Penrose; other people call it the

1 lower Queen.

2 What we are seeking to unitize is from the top of  
3 the upper Queen to the base of the Penrose or the lower  
4 Queen. So the entire interval in this area is known as the  
5 Queen Associated, regardless of how you determine the three  
6 or four different horizons.

7 Q. So does this pool have any associated gas wells  
8 in it?

9 A. It possibly has one, and that would possibly be  
10 the -- Tract 9B, well number 1. That well --

11 Q. So if it has one, it's included in the unit?

12 A. Yes, sir.

13 Q. And it will be a part of the unit?

14 A. Yes, sir. That well originally produced at a  
15 higher gas/oil ratio than statutorily is an oil reservoir,  
16 but since that time it has -- Well, it currently is  
17 producing as a low-ratio oil well.

18 Q. And which one was that? I didn't --

19 A. In tract 9B, which would be the northwest quarter  
20 of the southwest quarter of Section 23. It's also known as  
21 the Mewbourne Oil Company Federal F Number 1.

22 Q. Possibly associated -- possibly had been  
23 associated --

24 A. Yes. It is not an associated well now.

25 Q. And there's not any others there?



1 A. Not to my knowledge.

2 Q. The 21 tracts -- Was it 21 tracts?

3 A. Yes, sir. Now, some of those are subdivided as  
4 A, B, C and D. If you'll hold on just one minute --

5 Q. Are they listed here, somewhere in here?

6 A. Well, in the unit agreement or plan of  
7 unitization, Exhibit -- Please turn to Exhibit B to start  
8 with, and that's the one we referred to prior. Do you have  
9 that?

10 Q. I don't have yet, but -- There we go, yeah.

11 A. That's after page 50.

12 Q. Yeah.

13 A. You're looking close, right there.

14 Q. Okay.

15 A. All right. The information that is shown on  
16 Exhibit B in the left column is unit, tract and well name,  
17 and there you will see the tract number 1, 2 a 3A, on the  
18 next page a 3B, 4, 5, 6A through 6B, 7, 8, 9A, 9B and on  
19 through 14.

20 Let me further define what each one of those are.  
21 Each numerical tract number is a separate BLM lease. Where  
22 there has been a subdivision by an alphabetical indication,  
23 that is where various farmouts and overriding royalties may  
24 differ.

25 Q. Okay, so there's 14 BLM leases?

1           A.    Yes, sir, that is true.

2                   Further, for your information, just so you can --  
3   The question hasn't been asked, but I further ask that you  
4   turn to Exhibit C, which is the very next exhibit behind  
5   that in the book.

6                   That has the same information as the left column  
7   in Exhibit B and the right column in Exhibit B, with the  
8   addition of unit participation of each one of the tracts as  
9   the rightmost column of -- in Exhibit C.

10          Q.    Are these exhibits the same as the ones that were  
11   furnished to us prior to the hearing --

12          A.    Yes, sir.

13          Q.    -- or updated versions of those?

14          A.    Yes, sir.

15          Q.    So this material here, we can probably put that  
16   somewhere else?

17          A.    I beg your pardon?

18          Q.    The file is getting pretty thick.  I was  
19   wondering if we could dispose of these.

20          A.    Yes, you may.

21          Q.    Return them to you or something.

22                   And what was the participation formula again?

23          A.    The participation formula is based on 95 percent  
24   ultimate primary recovery, plus 5 percent dedicated  
25   acreage.  That will be further explained by engineering

1 testimony.

2 Q. And just a single-phase formula?

3 A. Yes, sir.

4 Q. And the percent of the working interest and  
5 royalty interests who have agreed to it are -- Has that  
6 been updated in here with the letters --

7 A. It is in -- Yes, sir, the exhibits that you have  
8 that are designated as Exhibit 3 and Exhibit 4 are accurate  
9 as to the representation of voluntary joinder into the  
10 unit.

11 Q. As of these letters that you presented here  
12 today?

13 A. Yes, sir. Those letters, as I said, they're only  
14 working interest owners. You won't find them in the book.  
15 You must add them to the book. We got them too late to  
16 perforate and insert into the book.

17 Q. And all the royalty interest you talk about is  
18 overriding royalty, with the exception of the BLM; is that  
19 correct?

20 A. Yes, sir. The BLM is the only actual royalty  
21 owner. All of the rest of the members of this proposed  
22 unit that we have cited are overriding royalty interest  
23 owners.

24 Q. And what is their interest? Is it generally an  
25 eighth, or is it more than that or --

1           A.    The BLM, for the most part, are one-eighth  
2 leases. There are -- I believe there may be one or two  
3 Schedule -- Hold on just a minute. One...

4                   There are four leases that are designated  
5 Schedule B under the basic royalty and percentage, and  
6 those are sliding-scale royalties for the BLM.

7                   As far as the overriding royalties, in the second  
8 to the right column of Exhibit B is a detail of all  
9 outstanding overriding royalties, in addition to the basic  
10 royalty or sliding-scale royalty of the BLM. That's in  
11 Exhibit B, second to the right column.

12           Q.    What is the working interest figure out across  
13 the whole unit?

14           A.    The net revenue, the weighted average net revenue  
15 interest? That is approximately 78 percent net revenue  
16 interest after BLM royalty and overriding royalty  
17 interests.

18                   I might add for your information again -- I  
19 believe the question has not been asked, but I believe  
20 there's only two of these leases that have not qualified  
21 under the reduced royalty rate that is now being allowed by  
22 the BLM.

23           Q.    At a certain low level they're stripper level --

24           A.    They're stripper royalty rates, yes, sir.

25           Q.    The overhead rates were \$4600 if you drill a

1 well, and what was the monthly rate?

2 A. \$511 for a normal monthly producing rate.

3 Q. And do you plan to drill some wells?

4 A. There is a potential for drilling wells in this  
5 area, yes, sir.

6 Q. And was that drilling rate, was it also lower  
7 than the *Ernst and Young* rate, or was it higher?

8 That's all right, I can --

9 A. I don't recall that. This is -- Like I said,  
10 this is a rate that was agreed upon by the various working  
11 interest owners that -- the 97 percent that have approved  
12 the unit.

13 Q. Well, you indicated \$511 was lower than the  
14 monthly rate in the survey. I believe you did, didn't you?

15 A. That is true. And I repeat, the way I arrived at  
16 that was the weighted average of all wells that came into  
17 the unit, whether it be Mewbourne wells, Anadarko wells or  
18 what other wells we might have bought. Mewbourne Oil  
19 Company has bought several of these wells from independent  
20 operators.

21 And whatever the rate was that was used in  
22 previous joint operating agreements, plus the wells that we  
23 operated, plus Anadarko's wells, was taken as a weighted  
24 average across the entire field. There was obviously some  
25 that was higher than \$511, there was some that was less

1     than \$511.

2           Q.     And I believe you furnished a letter, BLM has  
3     agreed to -- tentatively agreed to --

4           A.     Yes, sir, that is called their letter of  
5     designation upon approval of the New Mexico OCD of the  
6     proposed unitization. Then they will file a letter of  
7     certification.

8           Q.     Did they suggest any of those changes that were  
9     included in your list of amendments?

10          A.     No, sir, they did -- they -- Let's see. No, they  
11     did not. I was thinking about something that happened in  
12     the Bone Spring Unit, but not in the Queen Unit.

13                 EXAMINER MORROW: Okay. Anything more?

14                 MR. CARROLL: I don't have any.

15                 EXAMINER MORROW: Thank you, Mr. Calvert,  
16     appreciate your testimony.

17                 Do you have anything more to be introduced?

18                 MR. BRUCE: Not of Mr. Calvert, no.

19                 EXAMINER MORROW: Okay, all right.

20                         KEVIN MAYES,

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

23                         DIRECT EXAMINATION

24     BY MR. BRUCE:

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

1 A. Yes, my name is Kevin Mayes.

2 Q. And where do you reside?

3 A. I reside in Tyler, Texas.

4 Q. Who do you work for and in what capacity?

5 A. I'm a petroleum engineer in the employ of  
6 Mewbourne Oil Company.

7 Q. Have you previously testified before the Division  
8 as a petroleum engineer?

9 A. Yes, I have.

10 Q. And were your credentials as an expert accepted  
11 as a matter of record?

12 A. Yes, they were.

13 Q. And are you familiar with the engineering matters  
14 related to this proposed unit and the waterflood for the  
15 unit?

16 A. Yes, I am.

17 MR. BRUCE: Mr. Examiner, I tender Mr. Mayes as  
18 an expert petroleum engineer.

19 EXAMINER MORROW: All right, we accept Mr. Mayes.

20 Q. (By Mr. Bruce) Mr. Mayes, will you start off by  
21 referring to Exhibit 10? Identify it for the Examiner and  
22 discuss the unitized formation.

23 A. Yes, I can. Exhibit 10 is a type log from  
24 Mewbourne Oil Company's Federal "E" Number 7 Well, located  
25 in Unit A of Section 27, Township 18 South, Range 32 East.

1           The intervals into which we plan to inject water  
2           are the Queen and Penrose sands, the top of which is  
3           encountered at a depth of 3886 feet and the base of which  
4           is encountered at a depth of 4222 feet.

5           The unitized formation will include all  
6           subsurface points throughout the unit area correlative to  
7           these depths. This formation is designated by the Division  
8           as the Querecho Plains-Queen Associated Pool.

9           Q.    Let's refer to Exhibit 11, and could you discuss  
10          the continuity of the unitized formation?

11          A.    Exhibit 11 is a structural cross-section of the  
12          Queen Associated Pool, and the formation is continuous  
13          across the proposed unit area.

14          Also, this cross-section demonstrates how flat  
15          the structure is throughout the unitized area. The dip  
16          never exceeds five degrees.

17          Q.    Mr. Mayes, let's then move on to Exhibits 12 and  
18          13, and maybe address in a little more detail the Hearing  
19          Examiner's question of Mr. Calvert about the areal extent  
20          of the pool and what portion of the pool is being unitized.

21          A.    Okay. Yeah, I'll start off by saying I did check  
22          the proration schedule, and all the wells that are  
23          classified as Querecho Plains-Queen are included in this  
24          unit area.

25          Q.    Okay.



1           A.     Exhibit 12 and 13 are the net thickness isopachs  
2     for the Queen and Penrose sands. The reservoirs are  
3     defined areally by porosity pinchouts and a water-oil  
4     contact along the southeast edge of the Queen sand.

5           Q.     Does the unitized area in essence cover the  
6     entire pool?

7           A.     Yes, it does.

8           Q.     Let's move on to your Exhibit 14 -- I guess 14  
9     and 15 together, Mr. Mayes -- and would you identify those  
10    for the Examiner and describe the production history from  
11    this pool?

12          A.     Yes, I will. Exhibit 14 is a plat showing the  
13    development of the pool. The first completion and  
14    commercial production occurred in July of 1972. There have  
15    been 27 commercial completions in the unitized formation  
16    within the unitized area to date, and the spacing for the  
17    oil wells is 40 acres.

18                 Exhibit 15 is a plot of the oil, water and gas  
19    historical production for the combined unit wells.

20                 Oil production reached a maximum of 12,000  
21    barrels per month in August of 1983. Production then  
22    declined at a 60-percent nominal rate on a harmonic trend.  
23    The trend corrected in late 1985, due to the completion of  
24    the Cavalcade Number 1 and Number 4 Wells.

25                 The unit returned to its decline until July of

1 1988 when the decline was arrested and became flat due to  
2 energy entering the reservoir from three apparent sources,  
3 and I'll discuss these sources later.

4 Cumulative production through May of 1993 was  
5 747,000 barrels of oil and 1.5 BCF of gas.

6 The drive mechanism of the pool is solution gas  
7 drive, with the exception of the three previously mentioned  
8 energy sources.

9 The reservoir pressure declined from a virgin  
10 pressure of 1600 p.s.i. to an estimated 280 p.s.i. The  
11 current GOR for the unit area is 1000 standard cubic feet  
12 per stock tank barrel.

13 We estimated that there was essentially no  
14 primary oil remaining as of May, 1993.

15 Q. Now, you mentioned three energy sources. Would  
16 you refer to Exhibit 16 and describe what they are?

17 A. Exhibit 16 is a plat showing the location where  
18 energy has apparently entered the reservoir over its  
19 history.

20 First, a casing leak was documented in the  
21 Marshall Federal Number 1 Well, Unit J, Section 23. When  
22 this well was shut in, in September of 1987, a response in  
23 offset producers is evident.

24 The casing leak was repaired in July of 1990 and  
25 responding wells have returned to their decline. So there

1 was apparently almost three years of dump-flooding  
2 associated with that well.

3 A second small lease flood operated in the  
4 southwest quarter of Section 27 from November of 1976 to  
5 March of 1986. When the last producer of this flood was  
6 shut in, in January of 1988, the decline of the north  
7 offsetting producers was arrested and flattened out. The  
8 only explanation appears to be that energy escaped from the  
9 mentioned lease flood.

10 And a third, Gary Bennett received Division Order  
11 Number R-9240 for a pressure maintenance project on the 80-  
12 acre Cavalcade lease of Section 21. Injection started in  
13 the Cavalcade Number 4, Unit P of Section 21 in late 1990,  
14 and response in the west offset is evident.

15 Anadarko Petroleum Corporation then acquired  
16 Bennett's operations and applied to expand the pressure  
17 maintenance project over to Section 22 and received  
18 Administrative Order Number P-MX Number 175 in October of  
19 last year.

20 At that time, Mewbourne approached Anadarko to  
21 unitize the entire pool. And after numerous correspondence  
22 and the aforementioned operators' meeting, Anadarko  
23 abandoned their expansion and requested that all their  
24 properties and their pressure-maintenance projects be  
25 incorporated into this unit.

1 Q. So on that administrative expansion that Anadarko  
2 got, there was no additional water injected?

3 A. That's true. They never did convert a well.

4 Q. And you mentioned the first energy source over in  
5 Section 23. At the time of that casing leak, do you recall  
6 who operated that well?

7 A. Marshall Federal. That was Esperanza --

8 Q. Okay.

9 A. -- out of Fort Worth.

10 Q. So it was not Mewbourne?

11 A. No, it was not.

12 Q. In your opinion, is the unit area in an advanced  
13 state of depletion with respect to primary production?

14 A. Yes, the current pool averages two barrels of oil  
15 per day per well.

16 Q. And has the pool which you intend to unitize been  
17 adequately defined by development?

18 A. Yes, it has.

19 Q. Is this portion -- Or is the pool suitable for  
20 unitization and waterflood?

21 A. Yes, it is.

22 Q. Could you then move on to Exhibit 17 and discuss  
23 for the Examiner how you projected production for the  
24 Querecho Plains-Queen Associated Pool under your proposed  
25 waterflood conditions?

1 is derived from the performance of the two offset  
2 analogies.

3 Q. Would you briefly discuss the economics of your  
4 proposed waterflood? And I refer you to your Exhibit 22.

5 A. Exhibit 22 is a summary of the project economics.  
6 It's shown that the capital investment for the project is  
7 \$592,000. The incremental reserves will generate  
8 approximately \$580,000 net revenue to the working interest  
9 owners, a return of investment of 2.4 to 1, and an internal  
10 rate of return of 29 percent. The present worth,  
11 discounted at 10 percent, is \$470,000 with a discounted  
12 return on investment of 1.8 to 1.

13 I might note that these economics do have the  
14 BLM's stripper royalty reduction rate and the State's  
15 severance tax incentives taken into account.

16 Q. Will the oil and gas recovered by your unit  
17 operations exceed the unit costs, plus a reasonable profit?

18 A. Yes, it will.

19 Q. And what is the estimated life of your  
20 waterflood?

21 A. Approximately five and a half years.

22 Q. Is the project area so depleted that it's prudent  
23 to apply an enhanced recovery project?

24 A. Yes, it is.

25 Q. And is your waterflood application economically

1 and technically reasonable at this time?

2 A. Yes, it is.

3 Q. Will your waterflood operations in the pool  
4 prevent waste and result with reasonable probability in  
5 increased recovery?

6 A. Yes, it will.

7 Q. And will the recovery produce substantially more  
8 hydrocarbons from the pool than would otherwise be  
9 recovered?

10 A. Yes, it will.

11 Q. Will the unitization and secondary recovery  
12 benefit the working interest owners and the royalty  
13 interest owners?

14 A. Yes, it will.

15 Q. Mr. Mayes, let's move on to the injection  
16 application itself. Would you identify Exhibit 23 for the  
17 Examiner?

18 A. Yes, Exhibit 23 is New Mexico Oil Conservation  
19 Division Form C-108 with its attachments, and this was  
20 submitted with our Application.

21 Q. Will you please go through this page by page or  
22 section by section, beginning with -- I think you've  
23 numbered the pages, Mr. Mayes?

24 A. Yes, I have.

25 Q. Referring to the page numbers, would you first

1 discuss your proposed injection wells?

2 A. Yes. Pages 2 through 11 of the C-108 are  
3 schematics of all of our proposed injection wells. The  
4 mechanical integrity of all the proposed injectors appears  
5 to be adequate.

6 The first schematic, on page 2, is the already-  
7 existing injector, Cavalcade Number 4.

8 And then if I could refer the Examiner to page  
9 number 3, there are notes at the bottom of page number 3  
10 that describe how the top of cement was calculated.  
11 Throughout the C-108, the top of cement is calculated using  
12 appropriate cement yields, a 25-percent reduction to that  
13 yield with no consideration given to casing collars.

14 It is our intention to set a packer within 100  
15 feet of the top perforation and use non-coated tubing. And  
16 we have a number of reasons for requesting non-coated  
17 tubing, beyond the fact the initial cost is substantial.

18 First, the Bone Spring unit that we've discussed  
19 is going to provide the water for this Queen Unit.

20 Q. This is the Querecho Plains-Bone Spring Unit?

21 A. That's correct, the Querecho Plains-Bone Spring,  
22 in that the facilities and the water injection system for  
23 that Bone Spring waterflood are already in place and  
24 geographically overlies the same area as this Queen unit  
25 will lie.

1           We've had that Bone Spring injection system in  
2 place for six months now, and just pulled our first  
3 corrosion coupons out of that water injection system, and  
4 the corrosion rate was measured at 1.2 mils per year, which  
5 is an exceptionally low corrosion rate.

6           Second, we will set a packer 100 feet within the  
7 top perforation and have packer fluid circulated into the  
8 tubing and casing annulus on all these injectors, so we  
9 will have a means for monitoring. Should there be a tubing  
10 leak at any time, we will have immediate monitoring of  
11 that, and we will repair that tubing leak immediately.

12           Third, the Division approved a non-coated tubing  
13 for the Querecho Plains-Bone Spring Unit, in that we  
14 presented the waters would be noncorrosive with this water  
15 system. As a result, in that we have low corrosive water  
16 and that we have a means to immediately monitor if there is  
17 a tubing leak of any kind with our injection wells, and  
18 that the Queen is going to have a short waterflood life, we  
19 would request that the Division approve non-coated tubing  
20 for this Queen Unit.

21           Q.   Now, keeping Exhibit 23 in front of you, but also  
22 adding Exhibit 24, Mr. Mayes, could you identify that  
23 exhibit and discuss the wells in the area of review?

24           A.   Yes, I can. Exhibit 24 is a plat showing the  
25 area of review, which is a one-half mile radius around all



1 the injectors.

2 Also on that Exhibit 24, posted in the tan  
3 circles, is the location of all wells that have tested  
4 potential freshwater sources in the area.

5 Shown on Exhibit 24 is the area of review, with  
6 the names of all leasehold operators and the location of  
7 all freshwater wells, as supplied by the New Mexico State  
8 Engineer's Office.

9 The half-mile circle around the Cavalcade Number  
10 4 Well is dashed, as it is already approved for injection.

11 Then I'll refer the Examiner back to the C-108,  
12 and in particular pages 13 through 17. Those pages contain  
13 a spreadsheet list of all the mechanical information for  
14 the wells located within the area of review which penetrate  
15 the unitized formation.

16 Three wells in that spreadsheet list do not have  
17 the calculated top of cement covering the Queen horizon on  
18 the production casing. However, the intermediate strings  
19 of casing on those three wells do cover all the potential  
20 freshwater sources and do have cement circulated to surface  
21 behind those strings. As a result, any Queen injection  
22 will be isolated from freshwater sources.

23 Again, a similar situation arose with the Bone  
24 Spring Unit, in that the top of cement did not cover the  
25 targeted injection zone in an offset well, and the Division

1 approved of monitoring whether fluids were leaving the  
2 injection zone and communicating up and down the annulus  
3 behind that production casing.

4 They approved that, provided that we as the  
5 operator ran an annual temperature traverse across the zone  
6 to see if there was a cooling anomaly which might be moving  
7 up the hole in those wells, and also by monitoring the  
8 annular pressure between the production casing and the  
9 intermediate casing up at the surface valve.

10 So we would again ask that the Division approve  
11 of monitoring these three wells in such a manner for the  
12 Queen Unit.

13 Q. Are there any plugged and abandoned wells in the  
14 area of review, Mr. Mayes?

15 A. Yes, there are. Page 18 through 32 of the C-108  
16 contain schematics of all the plugged and abandoned wells.  
17 The mechanical integrity of these wells will isolate any  
18 Queen injection from any potential freshwater sources.

19 Q. And to the best of your knowledge, is the  
20 mechanical integrity of all the wells in this area  
21 sufficient to conduct waterflood operations?

22 A. Yes, I believe them to be.

23 Q. Would you please discuss your plans for reworking  
24 your proposed injectors?

25 A. All the proposed injectors are all currently

1 producing and will require removal of pumping equipment.  
2 We again plan to install a packer within 100 feet of the  
3 top perforation and circulate an inert fluid into the  
4 tubing casing annulus.

5 All injectors will receive acid treatments during  
6 their conversions, and all injection wellheads will have  
7 pressure gauges installed on the tubing and casing  
8 annuluses.

9 Q. We've already gone over this briefly, but could  
10 you describe what additional facilities Mewbourne Oil  
11 Company will need to install for the unit and the  
12 waterflood?

13 A. Okay. Very few additional facilities are  
14 planned. The injection water, again, will be obtained from  
15 the already-in-place injection system that's associated  
16 with the Querecho Plains-Bone Spring waterflood. This will  
17 require laying a minimal amount of injection lines, tying  
18 into the Bone Spring system and just laying over to the  
19 Queen injectors.

20 Pressure regulators will be installed so that we  
21 can control the injection pressures going from the Bone  
22 Spring lines to the Queen injectors. And production  
23 facilities will remain essentially intact by utilizing  
24 three satellite tank batteries, and all flow lines will be  
25 rerouted accordingly.

1           Q.    What injection pressure do you request approval  
2   on?

3           A.    We're requesting a maximum injection pressure of  
4   1400 p.s.i.

5           Q.    Would you refer to Exhibit 25 and discuss the  
6   basis for this request?

7           A.    Yes, Exhibit 25 contains calculations showing  
8   that the frac gradient will not be exceeded with 1400  
9   p.s.i. of surface pressure.

10          Q.    Are there any freshwater sources within a mile of  
11   the proposed injection wells?

12          A.    Yes, two shallow zones in the region are  
13   considered capable of producing fresh water, even though no  
14   wells in the area do so. These are the triassic red beds  
15   and the alluvium. Again, they are posted back on Exhibit  
16   24 -- the four wells which tested these zones are posted on  
17   Exhibit 24.

18                Again, none of our injection water should reach  
19   these freshwater sources.

20          Q.    Are there any faults or any other hydrologic  
21   connections between freshwater sources and the injection  
22   formation?

23          A.    After reviewing the geology for two miles around  
24   the unit, there appears to be no faulting, and with all  
25   wellbores having good mechanical integrity we do not see

1 any hydrologic connection to any freshwater sources.

2 Q. Is the injection water compatible with the  
3 formation water?

4 A. Yes. Provided on pages 36 through 41 of the  
5 C-108 is an analysis of all the waters to be used as  
6 injection. That is a report that was prepared by a  
7 certified laboratory, and it indicates minimal  
8 compatibility problems exist between the waters.

9 Q. Is the unitized management, operation and further  
10 development of this pool necessary in order to effectively  
11 carry on secondary recovery operations?

12 A. Yes.

13 Q. And will it substantially increase the ultimate  
14 recovery of oil from the unitized formation?

15 A. Yes, it will.

16 Q. In your opinion, does the unit agreement provide  
17 for a fair and equitable plan of unitization?

18 A. Yes, it does.

19 Q. Now, the unit agreement was submitted as Exhibit  
20 2. Could you describe how production will be allocated  
21 among the various tracts under the unit agreement?

22 A. Yes. Article 7.1 on page 21 of the unit  
23 agreement sets out the participation formula to be used for  
24 allocating production. Definitions for all the variables  
25 in the formula are supplied in the definitions section of

1 the unit agreement. The formula, again, is 95 percent  
2 ultimate primary production and 5 percent surface acres.

3 Q. Does the participation formula contained in the  
4 unit agreement allocate the produced and saved hydrocarbons  
5 to each tract on a fair and equitable basis?

6 A. Yes, it does.

7 Q. And what is the initial project area for the  
8 waterflood?

9 A. The initial project area, pursuant to Division  
10 Rule 701-G-3, will encompass 1080 acres, all located inside  
11 the unit boundary.

12 Q. And what project allowable do you request?

13 A. Mewbourne would request that each producing well  
14 be granted an allowable equal to its capacity to produce.

15 Q. And do you request that the order in this matter  
16 contain an administrative procedure for approving  
17 unorthodox well locations and for changing producing wells  
18 to injection wells?

19 A. Yes, Mewbourne's proposal is submitted as Exhibit  
20 26.

21 Q. Was notice of the waterflood application mailed  
22 out as required by Form C-108 to offset operators?

23 A. Yes, it was.

24 Q. And is Exhibit 27 your affidavit of notice?

25 A. Yes, it is.

1 Q. What is Exhibit 27A?

2 A. 27A is a public notification that was published  
3 in the *Lovington Daily Leader*.

4 Q. And that was just to cover all the bases?

5 A. That's correct.

6 Q. In your opinion, will the granting of this  
7 Application be in the interests of conservation, the  
8 prevention of waste and the protection of correlative  
9 rights?

10 A. Yes, it will.

11 Q. And were Exhibits 10 through 27A prepared by you,  
12 under your direction, or compiled from company records?

13 A. Yes, they were.

14 MR. BRUCE: Mr. Examiner, at this time I would  
15 move the admission of Exhibits 10 through 27A.

16 EXAMINER MORROW: 10 through 27A are admitted  
17 into the record.

18 EXAMINATION

19 BY EXAMINER MORROW:

20 Q. Let's see, the waterflood cost is \$500,000 or  
21 \$582,000 or --

22 A. \$592,000, yes, sir.

23 Q. And I believe your exhibit showed that at a 10-  
24 percent rate of return, the value was less than that; is  
25 that correct?

1           A.    No, sir, there's a 29-percent internal rate of  
2    return on the project.

3           Q.    Well, I've got another note on that.

4                    On Exhibit 14 there were some connecting arrows  
5    that went across the unit line.  What was the significance  
6    of those?

7           A.    That is a lease -- We call it a lease hook line.  
8    Basically, where there's an arrow there, that is an entire  
9    lease.

10                   So for example, are you looking at that exhibit  
11    or --

12          Q.    I remember it.

13          A.    You remember it.  Where there was a lease that  
14    was broken up, some of it was brought into the unit, some  
15    of it was left out.  We've put a lease hook arrow to  
16    identify the entire lease.

17          Q.    Okay.  Let's see, the -- Would this -- If an  
18    order is issued in this case that would authorize what you  
19    requested, would that supersede that R-9240 and the P-MX  
20    175?

21          A.    I would refer that question to my counsel.

22                   MR. BRUCE:  Yeah, I think it would, Mr. Examiner,  
23    it would supersede that.

24                   EXAMINER MORROW:  Okay.

25                   MR. BRUCE:  9420 was a pressure maintenance -- a



1 one-well pressure maintenance project itself. We would ask  
2 that it supersede that order.

3 Q. (By Examiner Morrow) Okay, that was Exhibit 22  
4 where you had your economics summarized, I believe.

5 A. That is correct.

6 Q. And what is that? Present worth discounted at 10  
7 percent working interest --

8 A. Yes.

9 Q. -- total group, it says \$480,000.

10 A. Right.

11 Q. What does that mean?

12 A. If we take the cash flow to the working interest  
13 owners as a group and we discount that cash flow at a 10-  
14 percent discount factor --

15 Q. Yes, sir.

16 A. -- their present worth value is \$480,000.

17 Q. Oh, the future cash flow?

18 A. That's correct.

19 Q. So the present worth, then, to the working  
20 interest owners would be less than the cost of investment;  
21 is that right?

22 A. No, that includes their capital. So that -- They  
23 pay their capital, they get a cash flow, and all of that  
24 taken into account, they receive \$480,000 of present worth.

25 Q. In addition to receiving their money back?

1           A.    Their capital back, that's correct.

2           Q.    Okay.  The Bone Spring water will be used, I  
3 believe you said, for injection water?

4           A.    That's correct.

5           Q.    Will that be from the Bone Spring flood --

6           A.    No, there's a -- There are essentially four  
7 sources that make up the water that goes to that Bone  
8 Spring waterflood.

9                   The bulk of the water comes from the City of  
10 Carlsbad's Double Eagle system, which is essentially a  
11 freshwater -- It's a 5000-part-per-million-dissolved-  
12 solids-type water.

13                   And then the rest of it would be Bone Spring-  
14 produced water, and we pull in Delaware-produced water from  
15 operators in the area, and then also Queen-produced water.

16           Q.    But you indicated you thought that would be  
17 noncorrosive, all that mixture of water?

18           A.    Right.  Like I say, we are currently mixing those  
19 waters together, and we have been running that Bone Spring  
20 waterflood system for six months.  And we pulled our first  
21 set of corrosion coupons out of there, and those corrosion  
22 coupons are recording at the 1.2-mil-per-year corrosion  
23 rate.

24           Q.    And you'll be using essentially the same water  
25 you're using at the moment?

1 A. Exactly.

2 Q. And is the tubing coated in the Bone Spring?

3 A. No, it is not.

4 Q. And how long will the waterflood be? You  
5 indicated it would be short.

6 A. Yeah, the Queen waterflood is five and a half  
7 years. The Bone Spring is on the order of 12 to 14 years.

8 Q. Now, those three wells that aren't cemented  
9 across the Queen, are any of those the same wells that were  
10 involved with the Bone Spring flood?

11 A. Well, as a matter of fact, all three are  
12 producers in that Bone Spring waterflood.

13 The situation that came up with the Bone Spring  
14 unitization was, an offset Morrow gas well did not have the  
15 top of cement covering the Bone Spring injection zone. As  
16 a result, we offered testimony that we did not feel Bone  
17 Spring water would escape the Bone Spring zone in that  
18 Morrow gas well.

19 In this situation, these Bone Spring producing  
20 wells don't have the cement covering the Queen, and we  
21 submit that we do not feel that Queen injection water will  
22 leave the Queen zone in these three Bone Spring producers.

23 Q. Are they within the unit -- Queen unit --

24 A. Yes, they are.

25 Q. -- boundary?

1 A. Yes, they are.

2 Q. Do you have them identified on any of the plats?

3 A. No, I do not, but I could identify them for you  
4 real quick if you would like for me to.

5 Q. All right. Well, here's Exhibit 24. Let's put  
6 them on Exhibit 24.

7 A. Okay, the first one will be in location Unit E of  
8 Section 23.

9 Q. All right.

10 A. In other words, the southwest of the northwest.

11 Q. Uh-huh. Tract 13 there?

12 A. Tract 13, that's correct. It's that Murjo Number  
13 1.

14 Q. Okay, and that well is operated by Mewbourne?

15 A. That well is a Bone Spring operated by Mewbourne  
16 Oil Company under the unitization of the Bone Spring.

17 A. And is it identified in your C-108?

18 A. Yes, it is.

19 Q. Okay.

20 A. And I'm going to have to take back what I said.  
21 The other two wells are outside the unit boundary. My  
22 mistake. I thought they were inside.

23 But those two wells are in Section 26, Units E  
24 and F, identified as Sprinkle 3 and Sprinkle 4.

25 Q. Okay. Are those operated by Mewbourne?

1           A.    The Sprinkle 3 is a Bone Spring producer operated  
2 by Mewbourne in the Bone Spring unit.

3                   The Sprinkle Number 4 is actually a Delaware  
4 producer operated by Santa Fe Energy.

5           Q.    The 3 is a Mewbourne well?

6           A.    That's correct.

7                   I might add that these wells were discussed at  
8 length during the Bone Spring testimony, and the Division  
9 order that was issued for the Bone Spring injection was R  
10 Number 9737A, for your reference.

11          Q.    Well, why would the Delaware well have been  
12 discussed there as one that doesn't have the Bone Springs  
13 covered with cement?

14          A.    I don't follow your question.

15          Q.    Well, I understood that -- Are you saying that  
16 these were discussed because the zone to be flooded was not  
17 cemented behind the pipe?

18          A.    The mechanical details of these wells were  
19 presented at that testimony. Of course, the mechanical  
20 detail is also included in the C-108 of our current  
21 Application, so --

22          Q.    Well, I guess my point is, it's different now  
23 since you're injecting into a zone --

24          A.    Right.

25          Q.    -- above the Bone Spring, above the Delaware.

1 A. Right, I understand. I'll refer you to the  
2 mechanical detail on our C-108 then.

3 Q. Would <sup>Santa Fe</sup> ~~San Jose~~ be agreeable to the tests that you  
4 propose to run on their well and the monitoring and --

5 A. I have not contacted them about that. I would  
6 think they would be more amiable to monitoring that  
7 situation versus re-entering the well to squeeze it, yes, I  
8 would think so.

9 Q. I agree with that.

10 On the plugged and abandoned wells, start on page  
11 18 there, please, sir --

12 A. Okay.

13 Q. -- C-108. Approximately what would the injection  
14 interval into the Queen be, in your flood?

15 A. Depthwise?

16 Q. Yes, sir.

17 A. It will be that -- the 3800 feet to 4200 feet, as  
18 outlined with Exhibit 10.

19 Q. So on this 18 it would be between -- Some of it,  
20 at least, would be probably between those two plugs at 4150  
21 and 1500?

22 A. That's correct.

23 Q. Now, that's an open-hole interval there. Did you  
24 propose any replugging in this well?

25 A. No, sir.

1           Q.    And what would be open there, to injection?  If  
2   injection did communicate into this well, what would it --  
3   what formation would be exposed?

4           A.    There is -- I know of formations identified as  
5   the Yates and Seven Rivers that are shallower horizons to  
6   the Queen.  The tops of those formations I do not have  
7   available to me right now, but those are known producing  
8   strata in the area.

9           Q.    Okay, and they're not included in the unitized --

10          A.    That's true.

11          Q.    They're not?

12          A.    That's right.

13          Q.    Okay.  It looks like probably 20 and -- on page  
14   20 and 23 and 24 and 25, a similar situation would be in  
15   place there in those wells; is that --

16          A.    That's correct.

17                   It's our opinion, Mr. Examiner, that that mud  
18   that is left in those wellbores is sufficient either due to  
19   the hydrostatics of the mud or the properties of the mud  
20   after it's settled and it's stayed in those wellbores a  
21   given time frame, that under the pressures that we'll be  
22   injecting into the Queen and Penrose, that we do not see  
23   any water escaping the Queen zone due to those mud columns.  
24   We feel like the properties of the mud are such that our  
25   injection will not leave our formation, due to those

1 wellbores.

2 Q. Okay. I believe you stated once that all  
3 injectors are currently producing. I believe one of the  
4 wells, at least, is an injector at present, is it not?

5 A. Yes, that's true.

6 Q. And is there only one --

7 A. That's true, yes. Yeah, the Cavalcade in Unit P  
8 of Section 21 is currently injecting, that's true.

9 Q. And that's operated by Anadarko?

10 A. By Anadarko, that's correct.

11 Q. Do you know how much water they're putting in  
12 there now?

13 A. It's about 100 barrels a day.

14 Q. And how long have they been putting water in  
15 there?

16 A. They started injecting in late 1990, December of  
17 1990.

18 Q. And anywhere in here did you show us how much  
19 water they put into that well?

20 A. No, sir, and I don't have that figure available  
21 to me right now.

22 Q. Okay. You have it --

23 A. I have it in my notes.

24 Q. If you would send that to us, we'd appreciate it.

25 A. I certainly will.



1 Q. Now, on the performance curve for the pool -- I'm  
2 assuming it was fieldwide --

3 A. Yes, sir.

4 Q. -- did it -- were there any indications of  
5 response to the injection in the south part of 27?

6 A. Yes, as I gave testimony to, whenever they shut  
7 that flood down in Section 27, the two producers that are  
8 offset to the north --

9 Q. Those two in tract 7? Is that the two?

10 A. No, the two in tract 6D, the five wells that are  
11 in the southwest quarter of Section 27 --

12 Q. Uh-huh.

13 A. -- were all part of this little lease flood, and  
14 they shut all five of those wells down. And when they shut  
15 those wells down, the producers in units E and F of Section  
16 27 had their decline arrested and their production  
17 flattened out.

18 Q. Was that noticeable on the curve? You probably  
19 pointed that out, but I don't guess I picked it up if you  
20 did.

21 A. Yes, I did point it out in my testimony, yes.

22 Q. Okay. Well, go ahead. What exhibit is that, the  
23 performance curve?

24 A. Well, I'd refer you to Exhibit 15 --

25 Q. Okay.

1           A.    -- which is the curve for all the wells in the  
2           unit.

3           Q.    Right.

4           A.    But you can see where the production was --  
5           decline was arrested and the oil production became flat.

6           Q.    What date is that?

7           A.    The last well in that lease flood was shut in in  
8           January of 1988.

9           Q.    Okay. Now, the other outside energy source was  
10          the casing leak; is that right?

11          A.    That's right.

12          Q.    And was there any more injection, other than this  
13          in 27 and 21?

14          A.    No, there was not.

15          Q.    Okay. And is there a kick on this curve due to  
16          the injection into 21?

17          A.    21, yes.

18          Q.    Where is that?

19          A.    Basically, if you look at the end of 1991, oil  
20          production increases a little bit.

21          Q.    Okay. On 1400 p.s.i., how much does that -- That  
22          would be about 3/10 of a pound per foot or -- that you're  
23          asking for?

24          A.    That should be on that Exhibit 25. You're  
25          figuring the surface gradient?

1 Q. Well, yes, sir, I guess it would be about 1400  
2 over 4100, something like that.

3 A. Uh-huh. That's what it would be.

4 Q. 1400 is what you're asking for?

5 A. Yes, sir.

6 Q. And the basis for that is these initial shut-in  
7 pressures; is that --

8 A. Initial shut-in pressures from frac jobs pumped  
9 to the field, yes.

10 Q. What does that initial shut-in pressure tell us?

11 A. Well, that is the propagation pressure for a frac  
12 in those zones.

13 In other words, that is the pressure that when  
14 the pumps shut down on the frac job and the friction due to  
15 the perforations in the tubing has dissipated, that initial  
16 shut-in pressure is equivalent to the true frac pressure of  
17 the formation.

18 Q. So you're backing off from that some?

19 A. Right.

20 Q. Do you know what the injection pressure is on the  
21 current injection well in Section 21?

22 A. I do not know what they were approved of in their  
23 Division order. I know they run about 950, 1000 pounds.

24 Q. They do now?

25 A. Yes, sir.

1 Q. Mewbourne does not operate that well at present?

2 A. That's right. That's Anadarko.

3 Q. Okay. Do you think they would be agreeable to  
4 some step-rate tests on that well?

5 A. Well, the reason we prefer using the ISIPs to a  
6 step-rate test at this time is that the fracture plane is  
7 already established in the wells, and the proppant is in  
8 place in the frac plane, and our concern is if we do step-  
9 rate tests and we prop that frac back open, our proppant  
10 may settle out of our frac job and cause damage to the  
11 well.

12 Q. Is that true of the well in Section 21?

13 A. Yes, sir.

14 Q. It's been frac'd?

15 A. Yes, sir.

16 Q. You said the initial project area is 1020 acres.  
17 What acreage does that include?

18 A. That's 1080 acres.

19 Q. -- -eighty.

20 A. According to the statutes, the project area is  
21 all the units that have an injection well on it or  
22 surrounded by an injection well -- surrounding an injection  
23 well that has a Queen producer on it.

24 So I took all the injectors and then all the  
25 surrounding 40-acre proration units that have wells on it,

1 and that comes up again to 1080 acres.

2 Q. And what is total unit acreage again?

3 A. 1520 acres.

4 Q. So the initial project area is all of the  
5 injection you show here --

6 A. Right.

7 Q. -- on Exhibit 24?

8 A. Basically, the difference in the acreage is  
9 essentially development locations within the unit area.

10 EXAMINER MORROW: Do you have anything to ask?

11 MR. CARROLL: No.

12 EXAMINER MORROW: Thank you, sir, I appreciate  
13 it.

14 THE WITNESS: Thank you.

15 MR. BRUCE: I have just a couple more questions.

16 EXAMINER MORROW: Okay, excuse me.

17 MR. BRUCE: A couple questions, just to clarify  
18 something.

19 FURTHER EXAMINATION

20 BY MR. BRUCE:

21 Q. Mr. Mayes, you mentioned the Sprinkle Number 4  
22 Well, I think it was, and you said it's a Delaware. That  
23 was originally a Bone Spring producer?

24 A. That's correct, Santa Fe recompleted that uphole  
25 recently.

1 Q. And what is the weighted average Queen reservoir  
2 pressure?

3 A. Currently?

4 Q. Yes.

5 A. Well, before these energy sources started leaking  
6 into the reservoir, we estimated it at 280 p.s.i. It's  
7 probably increased slightly from that.

8 Q. And what do you estimate --

9 A. Is that -- Excuse me, I didn't understand. Was  
10 that Bone Spring pressure or Queen?

11 Q. Queen.

12 A. Queen.

13 Q. What do you estimate it will be after the flood  
14 is instituted?

15 A. The way we operate a waterflood is, we will  
16 target the pressure to get back up to the original  
17 reservoir pressure, which was 1600 p.s.i., and we will then  
18 balance voidage where we will keep that pressure at 1600  
19 pounds.

20 Q. Okay. And you were discussing with the Examiner  
21 the various wells. Would that pressure indicate that the  
22 hydrostatic head of the mud would be sufficient to prevent  
23 migration?

24 A. That's correct, that's where the Examiner and I  
25 discussed that the mud properties of those plugged and

1 abandoned wells should be sufficient to hold our injected  
2 fluids in our targeted intervals, that's correct.

3 MR. BRUCE: Thanks, Mr. Mayes. I have nothing  
4 further.

5 EXAMINER MORROW: Thank you.

6 MR. BRUCE: I have nothing further in this case,  
7 Mr. Examiner.

8 EXAMINER MORROW: All right, Cases 10,959 and  
9 10,960 will be taken under advisement.

10 (Thereupon, these proceedings were concluded at  
11 10:57 a.m.)

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CERTIFICATE OF REPORTER

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

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

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

WITNESS MY HAND AND SEAL May 11th, 1994.

  
 STEVEN T. BRENNER  
 CCR No. 7

My commission expires: October 14, 1994

I do hereby certify that the foregoing is  
 a complete record of the proceedings in  
 the Examiner hearing of Case No. 16959 & 10960  
 heard by me on April 28, 1994.

  
 Examiner  
 Oil Conservation Division