

NEW MEXICO OIL CONSERVATION DIVISION  
STATE LAND OFFICE BUILDING  
STATE OF NEW MEXICO  
CASE NO. 10423

IN THE MATTER OF:

The Application of MW Petroleum  
Corporation/Apache Corporation for  
an unorthodox gas well location,  
Eddy County, New Mexico.

BEFORE:

DAVID R. CATANACH  
Hearing Examiner  
State Land Office Building  
December 17, 1991

REPORTED BY:

DEBBIE VESTAL  
Certified Shorthand Reporter  
for the State of New Mexico

**ORIGINAL**

## A P P E A R A N C E S

FOR THE NEW MEXICO OIL CONSERVATION DIVISION:

ROBERT G. STOVALL, ESQ.

General Counsel  
State Land Office Building  
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

CAMPBELL, CARR, BERGE & SHERIDAN, P.A.

Post Office Box 2208  
Santa Fe, New Mexico 87504-2208

BY: WILLIAM F. CARR, ESQ.

FOR MARATHON OIL COMPANY:

KELLAHIN, KELLAHIN & AUBREY

Post Office Box 2265  
Santa Fe, New Mexico 87504-2265

BY: W. THOMAS KELLAHIN, ESQ.

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1 EXAMINER CATANACH: At this time we'll  
2 call Case 10423.

3 MR. STOVALL: Application of MW  
4 Petroleum Corporation/Apache Corporation for an  
5 unorthodox gas well location, Eddy County, New  
6 Mexico.

7 EXAMINER CATANACH: Are there  
8 appearances in this case?

9 MR. CARR: May it please the Examiner,  
10 my name is William F. Carr with the Santa Fe law  
11 firm of Campbell, Carr, Berge & Sheridan. I  
12 represent MW Petroleum Corporation and Apache  
13 Corporation, and I have two witnesses.

14 EXAMINER CATANACH: Other appearances?

15 MR. KELLAHIN: Mr. Examiner, I'm Tom  
16 Kellahin of the Santa Fe law firm of Kellahin,  
17 Kellahin & Aubrey. I'm appearing on behalf of  
18 Marathon Oil Company.

19 MR. CARR: May it please the Examiner,  
20 the only two witnesses in this case are Mr.  
21 Polasek and Ms. Leonard. They've both been  
22 previously sworn and qualified, and I would  
23 request that the record reflect that they remain  
24 under oath and are qualified in their prospective  
25 professions to testify in this case.

1 EXAMINER CATANACH: Let the record so  
2 reflect.

3 MR. CARR: At this time we call Mr.  
4 Polasek.

5 JOHN F. POLASEK

6 Having been previously duly sworn upon his oath,  
7 was examined and testified as follows:

8 EXAMINATION

9 BY MR. CARR:

10 Q. What does MW Petroleum seek in this  
11 case?

12 A. We seek to drill in an unorthodox  
13 location in the Indian Basin field in Section 13  
14 in Tract D, 330 from the north and 330 from the  
15 east -- or from the west line, called the No. 2  
16 HOC Federal Gas Unit.

17 Q. This is in 13 of 22 South, 23 East?

18 A. Correct.

19 Q. And the spacing for the Indian Basin  
20 pool -- this is actually the offsetting section  
21 to the section involved in the previous case?

22 A. Correct.

23 Q. We'll still be at 640 acres?

24 A. 640 acres, correct, and 1650.

25 Q. And be in the setback?

1 A. Be in the setback.

2 Q. Have you made a geological study of  
3 this area affected by this application?

4 A. I have.

5 Q. Could you refer to what has been marked  
6 as MW/Apache Exhibit No. 1, identify that, and  
7 review it for Mr. Catanach.

8 A. MW -- Exhibit No. 1 is Form C-102  
9 showing the proposed location for the No. 2 HOC,  
10 the MW Petroleum HOC Gas Federal Unit, and also  
11 the location of the No. 1 HOC Federal Gas Com.  
12 Unit.

13 Q. What's the current status of that No. 1  
14 well?

15 A. The No. 1 well is presently producing  
16 gas in quantities of 10 to 15 Mcf per day at  
17 uncommercial rates.

18 Q. What do you propose to do with that  
19 well if this application is approved?

20 A. We propose to plug it.

21 Q. Let's move to Exhibit No. 2. Could you  
22 identify that and review it for the Examiner.

23 A. Exhibit No. 2 is a structural  
24 cross-section, C-C prime, and --

25 Q. Is there also an index map on this

1 exhibit?

2 A. Yes. There are two maps on that. The  
3 two maps are, as we've seen previously, the  
4 structure map on top of the Penn on the  
5 right-hand side of the cross-section. And on the  
6 left-hand side is the structure map on the base  
7 of the reef, Cisco Canyon reef, which is the  
8 reservoir rock in question.

9 Q. Now, Mr. Polasek, before we go on, we  
10 are moving the well, or the proposed well  
11 encroaches to the north and west?

12 A. Correct.

13 Q. From a standard location?

14 A. Correct.

15 Q. Could you refer to, I guess, the  
16 structure map on the right on this exhibit and  
17 just review the offsetting ownership north,  
18 northwest, and west.

19 A. Okay. The offsetting ownership to the  
20 north is Apache and Oryx. Apache has --  
21 MW/Apache has 50 percent working interest. To  
22 the northwest in Section 11, it's MW/Apache 100  
23 percent working interest. And in this present  
24 lease in Section 13, Apache has 93 percent and  
25 Oryx has the remaining.

1 Q. What about the section to the west?

2 A. Section to the west is Marathon.

3 Q. And does Conoco also own an interest in  
4 that tract -- Chevron? I'm sorry.

5 A. I believe Chevron has a small interest  
6 in that tract.

7 Q. And the subject tract is Section 13?

8 A. Section 13.

9 Q. Let's go ahead and review your Exhibit  
10 No. 2.

11 A. Okay. Exhibit No. 2 is a structural  
12 cross-section from the northwest on the left-hand  
13 side of the cross-section to the southeast on the  
14 right-hand side. And it's hung at the same, at a  
15 minus 3600 structure datum.

16 The obvious thing again is the color of  
17 the rocks in here, what we call lithofacies of  
18 the reservoir rocks. The pink being the dolomite  
19 facies, or the reservoir rock that produces in  
20 field. The blue being the limestone or the  
21 tighter rocks that have very little porosity and  
22 permeability.

23 And the little zones that you have  
24 scattered throughout this are limey shales. The  
25 well or the proposed location is between the Pan



1 Am -- or the Apache Smith No. 1 in Section 11 and  
2 the Apache or Midwest Apache HOC No. 1 Gas Unit.  
3 And that is shown just above the structure map on  
4 the right, the proposed location.

5 Basically what the structure map shows  
6 and the cross-section shows that we can get  
7 structurally higher, approximately 100 feet  
8 structurally higher to the HOC gas unit. And as  
9 you can see, where the HOC gas unit was  
10 completed, the upper part, the pink part  
11 constituted about 30 feet thick. The bottom part  
12 is limey. It was perf'd.

13 We don't believe they recovered  
14 anything from that because that zone was frac'd  
15 twice and normally all you have to do is put some  
16 mud acid on these wells and they come on fairly  
17 good. So we believe that structural position is  
18 important in here, but more important is the  
19 stratigraphic thickness of the reef itself.

20 Q. Now, is that shown on your Exhibit No.  
21 3?

22 A. Yes, that is shown on my Exhibit No.  
23 3.

24 Q. Would you identify that, please.

25 A. This map is a net reservoir rock

1 isopach of the dolomite facies. From the two  
2 previous structure maps, on the top of the reef  
3 and the base of the reef, you can easily derive  
4 the thickness of the reef.

5 And in the location in the northwest  
6 corner of Section 13, we anticipate being 100  
7 feet thick as compared to the well, the No. 1  
8 HOC, which has approximately 30 feet of  
9 dolomite. So we want to get into the structural  
10 and stratigraphic better position for this  
11 particular well.

12 Q. And does your proposed location  
13 maximize these factors?

14 A. It maximizes these factors.

15 Q. In your opinion is this the best  
16 location from a geologic point of view to produce  
17 remaining reserves under this section?

18 A. Correct. This is the best location.

19 Q. Were Exhibits 1 through 3 either  
20 prepared by you or compiled under your direction?

21 A. Yes, they were.

22 Q. Can you testify as to their accuracy?

23 A. I can.

24 MR. CARR: At this time we would move  
25 the admission of MW/Apache Exhibits 1 through 3.

1 EXAMINER CATANACH: Exhibits 1 through  
2 3 will be admitted as evidence.

3 MR. CARR: That concludes my direct  
4 examination of this witness.

5 EXAMINER CATANACH: Mr. Kellahin.

6 MR. KELLAHIN: No questions of this  
7 witness.

8 EXAMINATION

9 BY EXAMINER CATANACH:

10 Q. Do you believe that the north half of  
11 Section 13 is probably the only productive  
12 acreage in this section?

13 A. Yes, I do.

14 Q. Do you know what the No. 1 well cum'd?

15 A. The No. 1 well cum'd to date, and it's  
16 on the cross-section there, approximately 8.2 Bcf  
17 of gas and 54,000 barrels of condensate. This is  
18 a -- you would expect this with the thinness of  
19 the reservoir.

20 When you get up on the edge of this  
21 structure and on the edge of this reef, your  
22 wells are at least three to four times better.

23 Q. You believe there's remaining reserves  
24 underlying the north half of Section 13 to  
25 justify the drilling of a new well?

1           A.       Yes, I do.

2           Q.       Do you have any idea how much those  
3 might be?

4           A.       I will let our reservoir expert, Ceci  
5 Leonard, give you that, if she has it.

6                   MR. STOVALL:   Quick, get out the  
7 calculator.

8           Q.       (BY EXAMINER CATANACH)   Did the No. 1  
9 well, did that well water out, or did that  
10 just --

11          A.       No.   That's the thing about this.   The  
12 bottom of the perfs, or pretty much to the bottom  
13 of the reefs is at a minus 37 -- or roughly 3740,  
14 and no water has produced in this well at all.

15          Q.       It just depleted?

16          A.       It just depleted.   And we think the  
17 most likely case is because it's a thin reservoir  
18 and that the only contribution was the upper 30  
19 feet of this dolomite.   And I may say that as you  
20 go up-dip and thicker, your reservoir rocks get a  
21 lot better as far as cleaner and they have better  
22 porosity.

23          Q.       By moving the proposed location, say,  
24 to the northeast quarter, you probably retain the  
25 same amount of pay, but you lose structure; is

1     that correct?

2           A.     Well, yes, you do lose structure. You  
3     will be -- we will be approximately 50 feet low  
4     on top of the reef itself. As far as thickness  
5     of the dolomite, the Pan Am Dunkin well to the  
6     east did not go deep enough to give us a good  
7     estimate on how thick the dolomite is, so it's a  
8     little bit riskier going in that direction.

9           The better subsurface control is to the  
10    north and to the west where wells have penetrated  
11    through the whole -- the main body and have gone  
12    through it.

13          Q.     So your main consideration in choosing  
14    that location is you didn't have enough data in  
15    the northeast quarter to support a well in that?

16          A.     Well, that particular well in that Pan  
17    American No. 1 Dunkin Federal, the dolomite  
18    appears to be very shaley at the top. As you go  
19    southeast of that, just off of that map there's a  
20    dry hole with no dolomite. And so it appears as  
21    though -- I mean we're going towards where we had  
22    the better control and where we have the less  
23    risky location. Although this is a risky  
24    location, we feel that at this location that  
25    we'll get thick enough to make a commercial

1 well.

2 Q. And you also said that reservoir  
3 quality improves going up-structure?

4 A. Yeah. It appears as though -- the  
5 contours on this isopach map and also the  
6 contours on the structure map are a little  
7 tighter in Section 12, 13, and 14. And I think  
8 the reason is is because this is the face of  
9 phyloid algal reef. And I think as you go to the  
10 south, the reef pinches out. As you go to the  
11 north, you get more of a back reef facies.

12 So we're probably looking at a high or  
13 a thick because it's basically a geological area  
14 that is optimal to drill these things in the  
15 front of a reef facies.

16 EXAMINER CATANACH: I have nothing  
17 further. Bob.

18 MR. STOVALL: What, get into geology?

19 MR. KELLAHIN: Couple of questions in  
20 clarification.

21 EXAMINATION

22 BY MR. KELLAHIN:

23 Q. On the net pay isopach, what porosity  
24 cutoff did you use?

25 A. This isn't a net pay isopach. This is

1 a net dolomite. Basically what I've identified  
2 here is the top of the dolomite and the base of  
3 the dolomite and I isopach'd that.

4 Q. Will you orient me on Exhibit No. 2 and  
5 take one of these logs and give me an example of  
6 what you used this for?

7 A. Okay. Say, for example, in the Smith  
8 No. 1 in Section 11, the top part from about 7300  
9 down to about, close to 7600, all of that rock  
10 there is dolomite. If I was to put a zero line,  
11 I would put it about -- on the right-hand side of  
12 the scale, this is a porosity scale, I would put  
13 it about -- each one of those marks, there's two  
14 units, I would put it about three units from the  
15 right side of that. And then I would calculate  
16 porosity to the left.

17 So basically we're looking at  
18 porosity. The average is 4 percent, but may go  
19 up to about 8 percent, and may be as low as 2  
20 percent. And that's typical of this dolomite.

21 Q. When I look at Exhibit 2 and look at  
22 the structure map on the left --

23 A. Yes.

24 Q. -- bottom left of the display --

25 A. Uh-huh.

1 Q. -- show me on the cross-section portion  
2 where you're mapping that structure.

3 A. Okay. On that same well that is at  
4 minus 3587. It's the base of the dolomite or the  
5 base of the reef. It comes in at about 7580 or  
6 so. Are you seeing that in No. 1 Smith?

7 Q. Is it the lower portion between where  
8 the pink and blue come together?

9 A. Right. Correct. That's it.

10 Q. Okay. On the other one it says, "Top  
11 of the Penn," that structure map?

12 A. Correct.

13 Q. Which line would that be on the  
14 cross-section?

15 A. That's the line that's got a squiggle  
16 on it, that's the unconformity surface, or the  
17 permo-Penn unconformity. That's the top of the  
18 reef.

19 MR. KELLAHIN: Thank you.

20 EXAMINER CATANACH: The witness may be  
21 excused.

22 MR. CARR: At this time we'd call Ms.  
23 Leonard.

24 MR. STOVALL: Have you given her enough  
25 time to do her calculations, Mr. Carr?



CECI SEARLS LEONARD

Having been previously duly sworn upon her oath,  
was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. Ms. Leonard, have you prepared exhibits  
for presentation in this case?

A. Yes, I have.

Q. Would you refer to what has been marked  
as our Exhibit No. 4 and identify that for Mr.  
Catanach.

A. This is a sonic porosity log of the  
original well in Section 13, the Hoc Federal Gas  
Com. No. 1. This shows the perforated  
intervals. Also annotated on the log is the  
initial stimulation performed on the well and  
then a stimulation that was performed on the well  
approximately one year later.

When this well was originally  
completed, it was completed with a relatively  
large acid treatment. Following that was a large  
sand frac, which is quite uncommon in this  
reservoir.

Then in 1967, after the initial  
completion in 65, the well was then acid frac'd

1 with about 20,000 gallons -- well, actually  
2 33,000 gallons of acid. Again, this is unusual  
3 for these wells. It is our opinion that this  
4 well has been more than adequately stimulated and  
5 that any additional stimulation or workovers in  
6 this well is unwarranted.

7 Q. And it's passed its economic limit?

8 A. It certainly is that.

9 Q. All right. Let's go to Exhibit No. 5.  
10 Would you identify and review that.

11 A. Exhibit No. 5 is the production curve  
12 of the Hoc Federal Gas Com. No. 1. And you can  
13 see from this exhibit that from about the middle  
14 of 1985 to the present time, this well has been  
15 declining in production from approximately 1  
16 million a day to current levels to 20 to 10 Mcf a  
17 day. And at those rates the well is clearly  
18 uneconomic for us to operate.

19 Q. Let's go to Exhibit No. 6, your penalty  
20 calculation. Again, you've employed all three  
21 factors, have you not?

22 A. Yes, I have.

23 Q. Why did you use the three factors?

24 A. I used the three factors because these  
25 are the three factors that have been used in, to

1 my experience, in other wells in this field.

2 Q. And those are the factors used by  
3 Amoco?

4 A. Yes.

5 MR. STOVALL: Mr. Carr, let me  
6 clarify. When we're talking the "three factors,"  
7 for the purpose of the record, you're talking  
8 about the same three penalty factors as were used  
9 in the previous case?

10 MR. CARR: That's right, Mr. Stovall.  
11 I think at this time Ms. Leonard should review  
12 each of those.

13 Q. (BY MR. CARR) Would you review the  
14 calculations?

15 A. Yes, I would. The first one is  
16 productive acreage. And based upon John  
17 Polasek's detailed geologic review, there are 308  
18 productive acres in Section 13. Then we applied  
19 that to the two-circle method. And there is --  
20 46 percent of the proposed drainage pattern is  
21 within the correlative rights of the gas unit.

22 Finally, there is the distance-ratio  
23 method. This well is located 330 feet from the  
24 section boundaries, and that would give us a  
25 factor of 20 percent for that ratio method. The

1 average of all three factors is 38 percent.

2 Q. Now, are you recommending a 38 percent  
3 allowable for the well?

4 A. Yes, I am.

5 Q. Is what is marked as Exhibit No. 7 an  
6 affidavit and copies of notice letters to the  
7 offsetting operators affected by this  
8 application?

9 A. Yes, it is.

10 Q. Could you identify Exhibit No. 8,  
11 please?

12 A. Exhibit No. 8 is a waiver letter from  
13 Chevron. In this waiver letter they agree to the  
14 unorthodox location being 330 feet from the north  
15 and the west lines of Section 13 and to an  
16 acreage factor of 38 percent.

17 Q. Now, Ms. Leonard, can you identify what  
18 has been marked as Exhibit No. 9?

19 A. Exhibit No. 9 is a stipulation signed  
20 by Mr. Carr and Mr. Kellahin. And this  
21 stipulation is for a penalty of 38 percent.

22 Q. Now, was this stipulation the result of  
23 negotiations between MW/Apache and Marathon?

24 A. Yes, it is.

25 Q. Marathon did not use these same three

1 factors in reaching a penalty, did they?

2 A. No, they did not.

3 Q. And you're not particularly concerned,  
4 are you, about what factors have been utilized?

5 A. No, I'm not.

6 Q. In your discussions with Marathon, did  
7 their numbers actually result in virtually the  
8 same penalty number that you had been able to  
9 obtain?

10 A. That's correct.

11 Q. They did not use a three-circle  
12 approach however, did they?

13 A. They did not use the two-circle method,  
14 no.

15 Q. And in your negotiations with them and  
16 because of the similarity of the penalties,  
17 albeit arrived through different methods, you  
18 have agreed with them that 38 percent is an  
19 appropriate penalty?

20 A. Yes, we agree that 38 percent is the  
21 appropriate allowable factor for this well.

22 Q. Will a penalty producing rate of 38  
23 percent of the well's allowable enable, in your  
24 opinion, MW Petroleum Corporation to obtain its  
25 fair share of the reserves from the reservoir?

1           A.       That is our opinion.

2           Q.       Do you believe that this will also  
3 protect the offsetting owner, Marathon?

4           A.       Yes, I do.

5           Q.       And, again, it's clear there have been  
6 disagreements between you and Marathon as to how  
7 to calculate the penalty, and you're not here  
8 advocating that the double-circle approach is  
9 necessarily something that must be used in  
10 reaching a penalty number?

11          A.       No, I'm not.

12          Q.       Okay. Did you type this particular  
13 stipulated penalty?

14          A.       Did I type it? No.

15          Q.       And so the error on page 2 is not your  
16 doing?

17          A.       No, sir, it isn't.

18          Q.       In your opinion, will approving the  
19 application with the penalty as agreed to and  
20 recommended by you be in the best interests of  
21 conservation, the prevention of waste, and the  
22 protection of correlative rights?

23          A.       That is our opinion, yes.

24          Q.       Were Exhibits 4 through 9 compiled by  
25 you?

1           A.       Yes, they were.

2           MR. CARR:   At this time, Mr. Catanach,  
3 we would move the admission of MW/Apache Exhibits  
4 4 through 9.

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

7           MR. CARR:   That concludes my direct  
8 examination of Ms. Leonard.

9           MR. KELLAHIN:   Just a short question,  
10 Ms. Leonard.

11                               EXAMINATION

12       BY MR. KELLAHIN:

13           Q.       In looking at the productive acreage  
14 that you've calculated for Exhibit 6, that 308  
15 acres --

16           A.       Yes, we do.

17           Q.       -- describe for me the method by which  
18 you arrived at that number.

19           A.       The original water contact for the  
20 field is a minus 3800 feet. We don't feel that  
21 water has encroached at all into Section 13. We  
22 looked at the net isopach -- or really the  
23 dolomite isopach map and took all of that acreage  
24 that was above the original gas-water contact of  
25 minus 3800, and that was 308 acres.

1 Q. And you're using the structure map  
2 then, which would be the base of the Cisco Canyon  
3 dolomite?

4 A. No. We used the structure map that was  
5 the top of the Cisco Canyon dolomite, that  
6 structure map.

7 Q. Used that one --

8 A. In conjunction with the net dolomite  
9 isopach.

10 MR. KELLAHIN: All right. I have no  
11 further questions.

12 EXAMINATION

13 BY EXAMINER CATANACH:

14 Q. Just one simple question out of  
15 curiosity. On your two-circle method, you use a  
16 radius of 308 acres. That's not necessarily what  
17 the well is going to be draining. It could be  
18 draining a substantially larger area; is that  
19 correct?

20 A. The well could be draining a larger or  
21 smaller area. I really can't tell you that. I  
22 think that with the 38 percent allowable factor  
23 that's being imposed on the well that that will  
24 prevent it from draining as much as it would  
25 otherwise drain. But I don't really know what it



1 will drain.

2 EXAMINER CATANACH: That's all I have.

3 MR. STOVALL: I just have one  
4 question. Mr. Carr, did you type this  
5 agreement? Must have been Kellahin.

6 MR. CARR: No. I had a friend across  
7 the street thrash this out.

8 MR. STOVALL: Since you were  
9 investigating the typing, I thought I would  
10 follow up with it.

11 MR. KELLAHIN: Mr. Carr can't type.

12 MR. STOVALL: Must have been Kellahin.

13 MR. CARR: That's true.

14 EXAMINER CATANACH: Anything further in  
15 this case?

16 MR. CARR: I have no closing  
17 statement.

18 EXAMINER CATANACH: There being nothing  
19 further, Case 10423 will be taken under  
20 advisement, and this hearing is adjourned.

21 (The proceedings were concluded.)

22

23

24

25

I do hereby certify that the foregoing is  
a true and correct copy of the proceedings in  
the above captioned case, No. 10423,  
heard at Tulsa, Oklahoma, December 5, 1991.

David R. Catanch, Examiner  
Oil Conservation Division

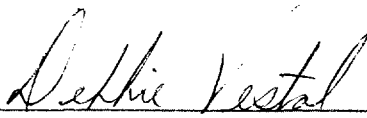
## CERTIFICATE OF REPORTER

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

I, Debbie Vestal, 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 December 17,  
1991.

  
\_\_\_\_\_  
DEBBIE VESTAL, RPR  
NEW MEXICO CSR NO. 3