

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION  
CASE 10053

EXAMINER HEARING

IN THE MATTER OF:

Application of Woodbine Petroleum, Inc., for an  
Exception to Division Order No. R-3221, as  
Amended, Lea County, New Mexico.

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

August 22, 1990

**ORIGINAL**

CUMBRE COURT REPORTING  
(505) 984-2244

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

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1 EXAMINER CATANACH: At this time we'll call  
2 Case 10053; the application of Woodbine Petroleum,  
3 Inc., for an exception to Division Order R-3221, as  
4 amended, Lea County, New Mexico.

5 Are there appearances in this case?

6 MR. PEARCE: May it please the Examiner,  
7 I'm W. Perry Pearce with the law firm of Montgomery &  
8 Andrews appearing in this matter on behalf of  
9 Woodbine. I have one witness who needs to be sworn.

10 EXAMINER CATANACH: Are there any other  
11 appearances?

12 Would the witness please stand to be sworn.

13 (Thereupon, the witness was sworn.)

14 TOM MAIRS

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

17 EXAMINATION

18 BY MR. PEARCE:

19 Q. For the record, would you please state your  
20 name and place of residence?

21 A. Yes. My name is Tom Mairs. I live in  
22 Dallas, Texas.

23 Q. Mr. Mairs, by whom are you employed?

24 A. I'm retained by--I'm a consulting petroleum  
25 geologist retained by Woodbine Petroleum to represent

1   them in this case.

2           Q.     Have you previously appeared before the New  
3 Mexico Oil Conservation Division?

4           A.     No, I have not.

5           Q.     Would you briefly, please, describe your  
6 educational and work experience as it relates to the  
7 field you're testifying in today?

8           A.     Yes. I earned a Bachelor of Science degree  
9 in geology from the University of Oklahoma in 1959; a  
10 Master of Science degree from the University of  
11 Oklahoma in 1962. I have worked from 1962 to 1973  
12 with Exxon Company in various assignments in East  
13 Texas and the Texas Gulf Coast.

14                   From 1973 to 1980 I was exploration manager  
15 and vice-president of Alamo Petroleum Company; worked  
16 various areas. From 1980 to 1985, exploration manager  
17 for Carlson Petroleum Company; also worked in West  
18 Texas, New Mexico, various areas. I have been a  
19 consulting petroleum geologist since 1985.

20           Q.     Are you familiar with the application filed  
21 by Woodbine being heard today?

22           A.     Yes, I am.

23                   MR. PEARCE: Mr. Examiner, at this time I  
24 would ask that Mr. Mairs be recognized as an expert in  
25 the field of petroleum geology.

1 EXAMINER CATANACH: He is so qualified.

2 Q. Mr. Mairs, would you briefly describe what  
3 Woodbine is seeking today?

4 A. Yes. Woodbine Petroleum operates six  
5 Delaware sand oil wells in the Lusk Delaware West  
6 Field. They drilled these wells between October 1988  
7 and March of 1990. All of them are located in Section  
8 21, Township 19 South, Range 32 East.

9 The purpose of this hearing today is  
10 Woodbine's request to gain relief from Rule 3221 which  
11 would allow them to dispose of salt water that they  
12 produce in these six subject wells.

13 The reason they're requesting this, of  
14 course, is to prevent economic waste, prevent  
15 premature abandonment of wells, which in turn will  
16 recover more oil reserves.

17 In our opinion, we do not think salt water  
18 disposal at the surface of the operation will cause  
19 any damage to any of the groundwater aquifers in the  
20 area.

21 Q. All right, sir. You mentioned there were  
22 six wells at issue. I would ask you, please, to refer  
23 to what we've marked as Exhibit No. 1. Would you  
24 discuss the information present on that exhibit for  
25 the Examiner, please?

1           A.       Yes.   Exhibit No. 1 is a well data sheet  
2 which shows the six wells, their daily production of  
3 both oil and water, the perforated interval and the  
4 zone in which they're perforated. You can see these  
5 are all Delaware sand wells. The completed intervals  
6 are between approximately 4900 feet and 7200 feet.

7                   The total current daily production is 491  
8 barrels of oil and 215 barrels of salt water. They  
9 are currently reworking the Mobile Federal #3 to  
10 remove a bridge plug to a previously tested zone, the  
11 Delaware 7100 foot sand, and they anticipate it will  
12 produce approximately 100 barrels of oil per day and  
13 70 barrels of water. It is cleaning up at the present  
14 time.

15                  So this would make the anticipated daily  
16 production, 591 barrels of oil per day and 285 barrels  
17 of salt water. The maximum estimated salt water  
18 production in this property is approximately 320  
19 barrels per day.

20           Q.       Let's look quickly at what we've marked as  
21 Exhibit No. 2 to this proceeding. You mentioned  
22 during your opening discussion the economic impacts  
23 resulting from present operations. Could you  
24 summarize for us what's reflected on this exhibit?

25           A.       Yes.   Exhibit 2 is a cost data sheet

1 showing the cost of drilling and completing each one  
2 of these wells. It shows a cost variation of \$250,000  
3 to \$422,000, approximately.

4           Down below it shows the current salt water  
5 disposal costs which are \$1.63 per barrel--this is  
6 trucking and disposal costs--and at an anticipated  
7 rate of 320 barrels per day, that's \$522 per day or  
8 \$191,000 per year, which is approximately 45 percent  
9 of the most expensive wells that they drill in the  
10 area. So you can see after a couple of years of  
11 production you've wasted the cost of the well.

12           Q.     Look please, now, at Exhibit No. 3. What's  
13 reflected on this exhibit, please?

14           A.     Exhibit No. 3 is a land map. It's on a  
15 scale of one inch equals 2,000 feet. It shows the  
16 subject Section 21 and two offset sections in every  
17 direction; covers an area of 25 square miles.

18           Woodbine Petroleum's leases are shown in  
19 the area inside the stippling, which consists of the  
20 northwest quarter of Section 21 and the north half of  
21 the southwest quarter of Section 21, for a total of  
22 240 acres. It also shows the location of the wells.

23           Q.     All right, sir. Let me direct your  
24 attention now to what we've marked as Exhibit No. 4.  
25 What is this exhibit, please?



1           A.       Exhibit No. 4 is a Lusk Field or an aerial  
2 production map showing the reservoirs that produce in  
3 this area. As you can see, there are seven of them;  
4 there are four Permian reservoirs, Yates, Delaware,  
5 Bone Spring, Wolfcamp, and three Pennsylvanian  
6 reservoirs, Strawn, Atoka and the Morrow. The wells  
7 covered in brown in Section 21, or the wells covered  
8 in brown on this map, are the Delaware sand wells that  
9 form the reservoir of the Lusk Delaware West Field.

10          Q.       In that regard you mentioned that these  
11 were Delaware sand wells. I would now like to direct  
12 your attention to Exhibit No. 5 and have you highlight  
13 pertinent bits of information on that exhibit for us,  
14 please.

15          A.       Yes. This is a type log of one of the  
16 wells operated by Woodbine Petroleum Company, the  
17 Mobil Federal #4, which generally shows the  
18 stratigraphic units encountered in that wellbore in  
19 Section 21.

20                 I noticed a drafting mistake this morning,  
21 that we left off the top of the Santa Rosa which is  
22 473 feet, and this becomes important because this is  
23 probably the shallowest groundwater aquifer in the  
24 area of any significance. This particular log starts  
25 at surface and is in the Chinle formation, the Upper

1 Triassic Chinle, encounters the Santa Rosa at 473  
2 feet, shows the top of the Permian which is the top of  
3 the Rustler, and also is the datum we used to make a  
4 structure map.

5           It shows the various formations  
6 encountered. I'll point out the top of the Delaware  
7 occurs at approximately 4800 feet, 4795 feet, and the  
8 base of it is approximately 7200 feet. This is the  
9 reservoir that produces in the field.

10           Q.     All right, sir. Exhibit 4 was a production  
11 map and showed an extensive number of wells in this  
12 general vicinity. I would now like for you please to  
13 refer to Exhibit No. 6 and highlight for us the  
14 information set forth on that exhibit.

15           A.     Okay. Exhibit No. 6, as all these maps, is  
16 on a scale of one inch equals 2,000 feet, covers a  
17 25-square mile area. Exhibit No. 6 shows in stippling  
18 the previously exempted area to Rule 3221 that have  
19 been granted. I'll start at the top.

20                     In Section 16, the most recently granted  
21 was to Harvey E. Yates Company. I think that was  
22 granted last year or early this year, which is R-9052.  
23 It has a north offset to Woodbine's properties, that  
24 covers approximately 80 acres.

25                     Due east of there in the northeast quarter

1 of the southeast quarter is R-5355, which I don't  
2 believe is active anymore. The well has been  
3 plugged.

4 South of Section 21, the contiguous  
5 sections of Sections 28 and 33, the exemption R-3788,  
6 I believe, is still active.

7 And in Section 32, R-3686 is also active.

8 In Section 19, Phillips has an exemption,  
9 which is the west half of the northwest quarter; it  
10 covers 80 acres, R-3775.

11 This map also shows the location of  
12 groundwater test wells, which I'll discuss a little  
13 bit. We're starting in Section 8. That is an  
14 abandoned windmill and well with an obstruction at 306  
15 feet. There's no owner of record and no water rights  
16 were ever appropriated. From the records it appears  
17 that well may have been active between the years 1958  
18 and 1961, but is now abandoned.

19 Phillips drilled several wells for the  
20 Environmental Protection Agency, four of which are in  
21 the northwest quarter of the northeast quarter of  
22 Section 19. These are shallow 50-foot wells to  
23 monitor around one of their cooling tanks at the  
24 Phillips Lusk gas plant to see if there is any  
25 contamination of elements such as chromium, et

1 cetera.

2           Then just due east of there Phillips  
3 drilled a 260-foot test well that encountered the top  
4 of the Chinle at 52 feet, and they also drilled one in  
5 Section 20 to 350 feet. They encountered water in  
6 them at 345 feet and had five feet of water. Neither  
7 one of these wells, according to our conversation with  
8 Phillips, was capable of producing any significant  
9 amount of fresh water, potable water, and they're not  
10 usable.

11           In Section 34 there are three shallow test  
12 wells which all three have been drilled to 575 feet.  
13 We think two of those three were used at one time or  
14 another, and these have been declared for oil well  
15 drilling. They're commercial wells operated by  
16 Halfway Water Company. The last level that we can  
17 find that was shot in any of those wells was in 1987,  
18 I believe.

19           And one other well I'll mention is in  
20 Section 31 in the northwest quarter. That was  
21 originally drilled--it was the Middleton #1 Federal  
22 and it was an oil well, but it has been converted to a  
23 Capitan reef hydrology observation well. This  
24 summarizes the groundwater test wells drilled in this  
25 area.

1           Q.     All right, sir. When you were discussing  
2 the type log earlier, you located for us on that type  
3 log the top of the Rustler. Could you now refer to  
4 what we've marked as Exhibit No. 7 and discuss the  
5 information reflected on that exhibit?

6           A.     Yes. This is a structural contour map.  
7 The datum is the top Rustler Anhydrite which is an  
8 excellent marker in this area. At the proposed  
9 operational site, which is going to be the pit site,  
10 is just slightly northwest of the Mobil Federal #4.

11                 The structure in this area is a southeast  
12 plunging nose; dip at that particular site would be to  
13 the northeast. As you come around the nose you have,  
14 of course, southeast dip and then southern dip, on up  
15 to the south end of our lease block.

16                 This map also shows locations of two  
17 structural cross-sections that we're going to present  
18 here.

19           Q.     Before we get to the structural  
20 cross-sections, could I have you please refer to what  
21 we marked as Exhibit No. 8 and discuss that for us,  
22 please?

23           A.     Yes. Exhibit No. 8 is a topographic  
24 quadrangle, 15-minute quadrangle, contoured on the  
25 surface with a contour interval of 10 feet. I would

1 like to point out on this exhibit that Section 21 of  
2 19 South, 32 East, everything in Section 21, the  
3 surface dips almost due south to southwest, a total  
4 Laguna Plata, which, according to my understanding, is  
5 a saline line. The surface drainage would drain in  
6 that area.

7 Q. I would ask you now, please, to approach  
8 what we've hung on the wall as Exhibit No. 9 to this  
9 proceeding, I would ask you to speak up a little as  
10 you discuss that, and describe it for us, please?

11 A. I'll start with Cross-section A to A'.  
12 These are both structural cross-sections with sea  
13 level as the datum and discuss the potential  
14 groundwater aquifers that are encountered in the  
15 roughly upper 1,500 feet of the stratigraphic  
16 section.

17 As we pointed out, the test wells drilled  
18 in this area indicate that the near surface  
19 reservoirs, which are in the quaternary/tertiary  
20 alluvium, lack significant volume and capacity to be  
21 usable water wells.

22 The first and the most shallow aquifer of  
23 any significance that we've found of record is,  
24 according to U.S. Geological Survey, is the Santa Rosa  
25 formation, the Lower Triassic, and contains some

1 sandstones that do contain fresh water.

2           Immediately overlying, and this is a depth  
3 of approximately 400 to 450 feet, immediately  
4 overlying the Santa Rosa aquifer is anywhere from 300  
5 to 350 feet of the Chinle formation, which consists of  
6 mainly clay stones, shales, silt stones and rocks that  
7 have very low permeability or no permeability. We  
8 consider this whole section to act as an aquiclude or  
9 to act as a permeability barrier, which would not  
10 allow the migration of disposed surface water, and  
11 gravity drainage would not allow migration into the  
12 Santa Rosa Reservoir.

13           Another interesting point is the Santa Rosa  
14 Reservoir is an Artesian, under Artesian conditions,  
15 is abnormally pressured to the normal hydrostatic  
16 gradient, so the pressure differential across this  
17 interface would be toward the surface and, once again,  
18 would probably not allow any percolation of water into  
19 this aquifer.

20           The next formation which has any  
21 significant aquifers is the Rustler formation. And  
22 the top of the first bed in the Rustler formation is  
23 usually an Anhydrite, which also lacks permeability,  
24 and would probably not allow any water to migrate down  
25 into the sandstones and dolomites which act as

1 groundwater aquifers.

2           So we feel like the significant reservoirs,  
3 groundwater aquifers, are the Santa Rosa and the  
4 Rustler aquifers will probably not have any migration  
5 of the salt water to be disposed at the surface  
6 because of the permeability barriers lying between our  
7 pit and the top of these formations.

8           Q.     Go quickly, please, to what we've marked as  
9 Exhibit 10.

10          A.     This is the same type of structural  
11 cross-section north/south, showing the very same  
12 sequence of rocks, and locating the potential  
13 aquifers, the Santa Rosa and Rustler. I won't go  
14 through these again unless somebody has a question.

15          Q.     All right, sir. If you could return to  
16 your seat, please, I would ask you to direct your  
17 attention to what we've marked as Exhibit No. 11 to  
18 this proceeding. Could you discuss the information  
19 reflected on that exhibit for us, please?

20          A.     Yes. This is an exhibit which shows the  
21 proposed salt water disposal pit that Woodbine would  
22 like to utilize. There is an existing pit which was  
23 used in drilling operations to store mud, and that pit  
24 is located in the northwest quarter of the northeast  
25 quarter of the southwest quarter, or slightly



1 northeast of the Mobil Federal #4.

2           This pit at the top is 100 feet by 120  
3 feet. It is 12 feet deep. At the base it is 100 feet  
4 by 60 feet, so an average area of this pit would be  
5 100 feet in length and 80-feet wide. It's 12-feet  
6 deep. There's a 2-foot berm around it, so I'm  
7 assuming a 10-foot hole.

8           The volume of this pit is 96,000 cubic feet  
9 and covers a surface area of .18 acres. The estimated  
10 salt water production that Woodbine wants to be able  
11 to handle is approximately 10,000 barrels per month.  
12 This would have a capacity of 72,000 cubic feet or a  
13 17,098 barrel capacity. It should be sufficient to  
14 handle the salt water produced.

15       Q.     All right, sir. With regard to the salt  
16 water which is produced, I would like to direct your  
17 attention, please, to what we've marked as Exhibit No.  
18 12.

19       A.     This is a laboratory water analysis that  
20 was run Monday--well, as a matter of fact, it was run  
21 on the date recorded, 9/20/90.

22       Q.     So this is current information?

23       A.     30 days from the last of the month. This  
24 shows the average chlorides to be 179,667 parts per  
25 million; specific gravity to be 1.19, which would give

1 a water gradient of .51 or .52. It also shows, of  
2 course, the other elements that occur in the water;  
3 calcium, magnesium, bicarbonates. Nothing appearing  
4 here is toxic.

5 Q. As our final exhibit, I would refer your  
6 attention, please, to what we have marked as Exhibits  
7 13 and 14. I would ask you to describe those for us,  
8 please.

9 A. These are letters of notification to  
10 surface owners that are contiguous to Section 21,  
11 which is the U.S. Government, Bureau of Land  
12 Management, notifying them of this hearing, and to the  
13 State of New Mexico, Commissioner of Public Lands,  
14 notifying them of this hearing.

15 Q. Mr. Mairs, you have discussed for us and  
16 summarized for us a good deal of information on this  
17 area. After your review of this area, do you believe  
18 that the approval of an exception to Division Order  
19 3221 to allow disposal of produced water into an  
20 unlined pit, is in the best interest of conservation  
21 of resources in that it will allow increased  
22 production because of cost savings?

23 A. Yes, I do.

24 Q. Do you believe that there is protection  
25 afforded to aquifers in the area if the approval is

1 granted?

2 A. To the best of my knowledge.

3 MR. PEARCE: Mr. Examiner, at this time I  
4 have nothing further of the witness. I would move  
5 admission of Applicant's Exhibits 1 through 14.

6 EXAMINER CATANACH: Exhibits 1 through 14  
7 will be admitted as evidence.

8 MR. PEARCE: I have nothing further.

9 EXAMINER CATANACH: Go ahead, Mr. Boyer.

10 MR. BOYER: Yes, Mr. Examiner, my name is  
11 David Boyer. I'm a hydrogeologist and Environmental  
12 Bureau Chief. I have a couple of questions of the  
13 witness.

14 EXAMINATION

15 BY MR. BOYER:

16 Q. Do you have any water quality analysis of  
17 any of the water in the Santa Rosa?

18 A. I do not.

19 Q. What is your hypothesis as to where this  
20 water is going to go, as far as which direction it's  
21 going to seek after it moves into the pit? Is it  
22 going to move towards the northeast or is it going to  
23 follow the topographic gradient or follow the top of  
24 the Chinle, essentially?

25 A. Okay. Well, in discussing that I might

1 have to refer to the U.S. Geological Survey Reports  
2 I've read. Average annual rainfall in this area is  
3 approximately 15 inches. Evaporation in area lakes is  
4 seven inch per year, which is approximately  
5 12--somewhere in the neighborhood of 12 to 15 percent  
6 of the amount of water that we store on the surface  
7 will be lost through evaporation. There's very little  
8 runoff in this area, .27 inches per year.

9           In my opinion, it appears to me this water  
10 would immediately percolate down surface. I've not  
11 been to the surface, but in talking to the people who  
12 have been to the surface, there are gravels and a lot  
13 of caliche in the area, and there is a caliche quarry,  
14 I believe, two miles due east of us.

15           So that would be my opinion, that most of  
16 the water would percolate straight down until it  
17 reaches a permeability barrier or an aquiclude, and  
18 then it would start moving down structure, probably to  
19 the east, northeast, southeast, and a long strike in  
20 that direction along the permeability barriers of the  
21 aquicludes.

22           Q.     Based on your evaluation of the superficial  
23 geology, it would migrate downward until it hit the  
24 top of the Chinle that you've presented on your  
25 charts?

1           A.       That would be my best opinion that it would  
2 do that, migrate down to the top of the Chinle, which  
3 is a very low permeability section of 200, 300 feet,  
4 and probably migrate along those bedding points.

5           Q.       Is the striking dip of that formation  
6 approximately the same as the top of the Rustler  
7 structure map you've shown in Exhibit 7?

8           A.       As you can see, the top of the Chinle on  
9 the east/west cross-section, the dip is actually  
10 toward the west as opposed to the top of the Rustler,  
11 which is to the east. The top of Santa Rosa is very  
12 flat, so there could be some migration along the  
13 Chinle, if the Chinle does not absorb the water to the  
14 west. But it would be my opinion that any water that  
15 got below that, eventually it would migrate to the  
16 east, south and north.

17          Q.       It would be very dependent on the actual  
18 contour on the top of the Chinle--

19          A.       That's correct.

20          Q.       --right beneath the pit, though?

21          A.       That's correct. It's going to take a path  
22 of least resistance and highest permeability, which  
23 is--that's hard to predict.

24                   MR. BOYER: No further questions.

25                                   EXAMINATION

1 BY EXAMINER CATANACH:

2 Q. Mr. Mairs, are you familiar with the case  
3 that Harvey Yates put on in Section 16?

4 A. Yes, I am.

5 Q. They did a pretty extensive study in that  
6 area. Is it your opinion that the geology is pretty  
7 much the same in Section 21 as that in Section 16?

8 A. Yes. We feel like ours is a little more  
9 extensive, but, yes, they're very similar. In their  
10 structural map and our structural map?

11 Q. I'm talking about the actual structures  
12 and--

13 A. Yes. Their structure map is on the same  
14 horizon so they're very similar. We include a little  
15 larger area. I think they had a--well, I don't  
16 remember whether they had anything else; 16 square  
17 miles, I believe.

18 Q. Is what you stated was the first fresh  
19 water aquifer is above the Santa Rosa?

20 A. Well, there are some--

21 Q. Isolated?

22 A. --isolated, and they're probably not very  
23 contiguous, limited sandstones in the  
24 quaternary/tertiary alluvium. The test wells that  
25 have been drilled in the area indicate that they're

1 not of commercial value due to low volume and low  
2 capacity.

3           The United States Geological Survey, in  
4 their reports, recognize as the first significant  
5 groundwater aquifer to be the Santa Rosa sandstones  
6 occurring about 400, 450 feet.

7           Q.     It's your opinion, due to the low  
8 permeability in the Chinle, it would never reach that  
9 point?

10          A.     Yes. Those are very low permeable rocks in  
11 that particular stratigraphic interval, plus the fact  
12 that the Santa Rosa's pressure is under Artesian  
13 conditions.

14          Q.     Is your volume going to change  
15 significantly from what you've proposed, at any time?  
16 Do you foresee that volume changing significantly?

17          A.     The volume of all--

18          Q.     The volume in the pit.

19          A.     Oh, the volume in the pit. We're  
20 anticipating a maximum of 320 barrels. The decline  
21 rate in this area is somewhere between 12 and 15  
22 percent a year. They'll probably reach a peak and  
23 then start declining in total production of water and  
24 oil.

25          Q.     Will your water cut increase?

1           A.       Will the water cut increase? Not  
2 particularly in this reservoir. Probably the total  
3 fluid will decrease. It will reach a peak starting--  
4 This is a closed reservoir, not a strong water-drive  
5 reservoir. It's a limited reservoir even though we're  
6 producing quite a bit of water. It will eventually  
7 start decreasing.

8                   MR. BOYER: Mr. Hearing Examiner, I do have  
9 information in my files from the EPA study that he's  
10 talking about because we were involved in receiving  
11 some of that information. I would like to have an  
12 opportunity to make that available to the record as  
13 part of this case, if you think it would be helpful in  
14 your evaluation. I don't know what the procedure is  
15 on that, though.

16                   EXAMINER CATANACH: Is it your opinion, Mr.  
17 Boyer, that it might be helpful?

18                   MR. BOYER: Yes, it is.

19                   THE WITNESS: That is this report?

20                   MR. BOYER: I do have some groundwater  
21 quality data.

22                   THE WITNESS: This is the Phillips'  
23 report.

24                   MR. BOYER: Does that include the  
25 groundwater quality of the Santa Rosa?



1           THE WITNESS: To be quite honest with you,  
2 I did not find that in here. I've read most of this  
3 report, but not all of it.

4           MR. BOYER: I would like to make whatever  
5 information I have available in my file that might  
6 pertain to this available for the record.

7           EXAMINER CATANACH: We'll take  
8 administrative notice of any information the Division  
9 has regarding this area.

10           Are there any further questions of this  
11 witness?

12           MR. PEARCE: I have nothing further.

13           EXAMINER CATANACH: There being nothing  
14 further, Case 10053 will be taken under advisement.

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## CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, Certified  
Shorthand Reporter and Notary Public, HEREBY CERTIFY  
that the foregoing transcript of proceedings before  
the Oil Conservation Division was reported by me; that  
I caused my notes to be transcribed under my personal  
supervision; and that the foregoing is a true and  
accurate record of the proceedings.

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

WITNESS MY HAND AND SEAL August 24, 1990.

  
CARLA DIANE RODRIGUEZ  
CSR No. 91

My commission expires: May 25, 1991

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner hearing of Case No. 10053  
heard by me on August 22 1990

, Examiner  
Oil Conservation Division