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MR. CATANACH: We'll call next  
Case 9007.

MR. SLOAN: This is an  
application of Sun Exploration and Production Company for  
compulsory pooling in Lea County, New Mexico.

MR. CATANACH: Are there  
appearances in this case?

MR. KELLAHIN: If the Examiner  
please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing  
on behalf of the applicant and I have two witnesses to be  
sworn.

MR. CATANACH: Are there other  
appearances in this case?

(Witnesses sworn.)

DOUGLAS A. NOAH,  
being called as a witness and being duly sworn upon his  
oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Noah, for the record would you please  
state your name, sir?

1 A Douglas A. Noah.

2 Q N-O-A-H.

3 A Right.

4 Q Mr. Noah, by whom are you employed and in  
5 what capacity?

6 A Sun Exploration and Production Company as  
7 a landman.

8 Q Mr. Noah, have you previously testified  
9 before the Oil Conservation Division as a petroleum landman?

10 A Yes, sir.

11 Q And have you conducted on behalf of your  
12 company the land transactions with regards to this compul-  
13 sory pooling application that is before the Examiner today?

14 A I have.

15 MR. KELLAHIN: We tender Mr.  
16 Noah as an expert petroleum landman.

17 MR. CATANACH: Mr. Noah is con-  
18 sidered qualified.

19 Q Mr. Noah, let me direct your attention to  
20 what we've marked as Sun Exhibit Number One and have you  
21 first of all simply identify the plat for us.

22 A Okay. This is a land plat. It's color  
23 coded to show the ownership or leasehold interest in the  
24 designated proration unit, being the north half of Section  
25 24, and also the surrounding land.

1 Q What is the principal objection of the  
2 well to be drilled pursuant to a compulsory pooling order?

3 A The objective?

4 Q Yes, sir.

5 A We're going to drill a 13,700 foot Morrow  
6 gas test at the designated location.

7 Q Looking at Section 24, and looking at the  
8 north half of that section, would you identify and describe  
9 for the Examiner who are the various working interest owners  
10 that would commit their interest to a well at this depth in  
11 this location?

12 A Okay. In the north half of Section 24  
13 the acreage in yellow that you see marked "Sun" is actually  
14 owned by Sun, Santa Fe Energy Company, Tenneco Oil Company,  
15 and Santa Fe Exploration Company.

16 We are in a joint operating agreement, an  
17 area of mutual interest agreement with these companies and  
18 Sun is the designated operator of this block, which we call  
19 our Mescalero Ridge prospect.

20 The acreage in orange, marked "ARCO" is  
21 owned by ARCO 100 percent, that being 120 acres out of the  
22 designated 320 acre unit.

23 Q Let's look at the location of the well.  
24 It's obviously at an unorthodox well location. Has Sun ob-  
25 tained prior approval of the Division for that well loca-

1 tion?

2 A Yes, sir. We testified in February of  
3 this year and received approval under Division Order R-8157  
4 for this unorthodox location.

5 Q At this point, Mr. Noah, what is the  
6 status of getting participation in a voluntary effort to  
7 drill the well?

8 A Okay, we've contacted the three partners  
9 that I previously gave, who are co-owners with Sun in the  
10 leasehold that we control. They have signed AFE's and  
11 agreed to participate.

12 We have made several attempts to nego-  
13 tiate with ARCO as to their interest. We started trying to  
14 drill this well late last year and negotiated with ARCO for  
15 several months during which time we received the unorthodox  
16 approval that we just stated.

17 Due to various reasons we postponed this  
18 well until later on this year. We resume negotiations with  
19 ARCO in August and we've sent them several pieces of corres-  
20 pondence proposing terms for the farmout or soliciting par-  
21 ticipation, and we have been unable to secure their  
22 commitment.

23 Q As of today, then, what percentage of the  
24 working interest has not agreed to voluntarily participate?

25 A ARCO controls 37-1/2 percent of the well.

1 Q And all other interests, then, are com-  
2 mitted.

3 A Yes, sir.

4 Q Let's turn now, Mr. Noah, to the corres-  
5 pondence that represents your recent efforts to get ARCO to  
6 voluntarily commit their share.

7 Let me direct your attention first of all  
8 to Exhibit Number Two and have you identify and describe  
9 that exhibit.

10 A Okay, this is a letter drafted by myself  
11 that we sent to ARCO on September 18th. It was a follow-up  
12 offer after several phone conversations that I'd had with  
13 the people at ARCO. It was an offer to either participate  
14 in the proposed well or to farm out, and just for the re-  
15 cord, the terms that we offered, we offered ARCO to reserve  
16 an overriding royalty sufficient to deliver Sun an 80 per-  
17 cent net revenue lease with the option to convert that over-  
18 riding royalty to a 20 percent working interest proportion-  
19 ately reduced.

20 Q Do you have an opinion, Mr. Noah, as a  
21 petroleum landman as to whether or not that offer is a fair  
22 and reasonable offer based upon the standards of your indus-  
23 try for this type of well at this location?

24 A We feel it is, yes, sir.

25 Q What if any response did you get from

1 ARCO to this correspondence?

2 A I got a phone call several days after  
3 they received the letter. They indicated that the back-in  
4 or the reversionary interest was not going to be sufficient  
5 for them to farm out. They were taking it under advisement  
6 and they were processing the AFE through their engineering  
7 group.

8 Q Attached to the correspondence indicated  
9 as Exhibit Number Two did you supply ARCO with a proposed  
10 AFE?

11 A Yes, sir, we did, and you can see it was  
12 an AFE prepared by Sun. This was prepared by a drilling en-  
13 gineer and all the other owners represented by the partners  
14 in our prospect have signed this identical AFE.

15 Q Is this the AFE that you recommend the  
16 Examiner include in the compulsory pooling order?

17 A Yes, it is.

18 Q Let me direct you now to Exhibit Number  
19 Three and have you identify and describe that exhibit.

20 A Okay. This was an additional follow-up  
21 letter dated September 29th that we forwarded to ARCO after  
22 some additional conversations over the phone.

23 Sun upped their offer for the farm-out to  
24 an 80 percent net revenue lease delivered with a 25 percent  
25 reversionary back-in in an effort to secure ARCO's farmout



1 and not have to go through the pooling procedure.

2 Q What if any response did you receive from  
3 ARCO concerning this latest offer?

4 A It was similar to the initial response of  
5 the other letter. They still maintain that the back-in was  
6 not sufficient enough to entice them to farm out and the  
7 latest response that we've had as of last week was they were  
8 requesting a 50 percent back-in, which in Sun's opinion is  
9 not competitive with the market today.

10 Q Is Sun in a position, Mr. Noah, to con-  
11 tinue its negotiation efforts with ARCO or are there time  
12 constraints on commencing this well?

13 A We have gotten, as I said, commitments  
14 from our partners to drill the well. We have committed to  
15 those partners to attempt to drill this well this year and  
16 we have the budgetary constraints, already got the money al-  
17 located and we would be reluctant to extend our spud date  
18 into '87.

19 So in efforts of everything that we've  
20 done, we'd like to drill the well as soon as possible.

21 Q Let me show you and have you identify Ex-  
22 hibit Four. Is this the same AFE that was attached Exhibit  
23 Number Two that was circulated to ARCO?

24 A Yes, it is.

25 Q And does this in fact represent the cur-

1 rent estimate of your company on the reasonable cost for  
2 drilling and completing this well?

3 A It does, yes, sir.

4 Q Let me direct your attention now to the  
5 overhead charges. The Examiner will place in a forced pool-  
6 ing order reasonable overhead charges for a drilling well  
7 rate and a producing well rate.

8 Do you have proposed recommendations to  
9 the Examiner for those monthly rates?

10 A Yes, sir. The joint operating agreement  
11 that our partners have executed had a drilling well rate of  
12 \$4,440 and a producing well rate of \$559.

13 Q To the best of your information are those  
14 prices competitive overhead charges?

15 A Yes, they are.

16 Q And they have been agreed to by Tenneco,  
17 Santa Fe Energy --

18 A And Santa Fe Exploration.

19 Q -- and Santa Fe Exploration.

20 A Yes, sir.

21 MR. KELLAHIN: That concludes  
22 my examination of Mr. Noah.

23 We would move the introduction  
24 of Exhibits One through Four at this time.

25 MR. CATANACH: Exhibits One  
through four will be admitted into evidence.

1

2

## CROSS EXAMINATION

3

BY MR. CATANACH:

4

Q Mr. Noah, what are the -- what are the overhead charges based on?

5

6

A They were the same overhead charges that we put in our joint operating agreement that had been executed by the Mescalero Ridge partners, being Santa Fe Energy, Tenneco, and Santa Fe Exploration.

7

8

9

10

This agreement was prepared and executed last year when this prospect was first initiated.

11

12

MR. CATANACH: I have nothing further of the witness. He may be excused.

13

14

MR. KELLAHIN: Mr. Examiner, our last witness is Pat Dougherty. Mr. Dougherty is a petroleum geologist for Sun Oil.

15

16

17

18

PATRICK B. DOUGHERTY,  
being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

19

20

21

22

## DIRECT EXAMINATION

23

BY MR. KELLAHIN:

24

Q Mr. Dougherty, for the record would you please state your name and occupation?

25

1           A           My name is Patrick B. Dougherty. I'm em-  
2 ployed by Sun Exploration Company as an Exploration Geolo-  
3 gist.

4           Q           Mr. Dougherty, have you previously testi-  
5 fied before the Division as a petroleum geologist?

6           A           No, I haven't.

7           Q           Would you describe for the Examiner when  
8 and where you obtained your degree?

9           A           I graduated from the University of Kansas  
10 in May of 1980 with a Bachelor of Science degrees in geology  
11 and a Bachelor of Arts degree in biology.

12          Q           Subsequent to graduation would you sum-  
13 marize your professional employment experience as a petro-  
14 leum geologist?

15          A           I was immediately employed by Sun and be-  
16 gan work for Sun Exploration and Production in June, 1980.

17                    I began work as a production geologist in  
18 their Houston Production Division office, working the Gulf  
19 of Mexico Onshore. I stayed in that position for approxi-  
20 mately a year and a half, where I moved on to Midland,  
21 Texas, working also as a production geologist in the Permian  
22 Basin. I retained that position for approximately two and a  
23 half years, where I was then later moved on to our Dallas  
24 headquarters office as an exploration geologist and that's  
25 where I've been employed for the last approximately two and

1 a half years.

2 Q Pursuant to your employment have you made  
3 an analysis and reached opinions about the geologic risk in-  
4 volved in drilling this particular well?

5 A Yes, we have.

6 MR. KELLAHIN: We tender Mr.  
7 Dougherty as an expert petroleum geologist.

8 MR. CATANACH: Mr. Dougherty is  
9 considered qualified.

10 Q Mr. Dougherty, let me direct your atten-  
11 tion to Sun Exhibit Number Five and have you identify that  
12 exhibit.

13 A Exhibit Five is a structural contour map  
14 with the datum being the top of the Middle Morrow Clastic  
15 Zone. It's contoured on a 50-foot contour interval.

16 Sun acreage is highlighted in yellow.  
17 The location of our proposed New Mexico Federal Com No. 1 is  
18 highlighted with a red dot. We also have a trace of a  
19 structural cross section, which would be Exhibit Six, A-A',  
20 which extends from the southwest quadrant of the map to the  
21 northeast.

22 Q Did you prepare Exhibit Number Five and  
23 the subsequent cross section, Exhibit Number Six?

24 A Yes, I did.

25 Q Do you have an opinion, Mr. Dougherty as

1 to what the penalty factor you would recommend to the Exam-  
2 iner be for inclusion in this compulsory pooling order?

3 A Well, based on our risk analysis, which I  
4 will get into in a little more detail, we feel that the  
5 maximum penalty of 200 percent is appropriate in this case.

6 Q Would you summarize for the Examiner the  
7 areas that you have determined justify that risk?

8 A We've basically determined our risk using  
9 three factors, those being, lack of nearby subsurface well  
10 control for the Morrow horizon; lack of nearby production or  
11 offset production to the proposed location; and the inherent  
12 depositional characteristics of the Morrow Sands themselves  
13 being lenticular and sporadic in depositional environment.

14 Q All right, sir, let's discuss each of  
15 those issues now by first using the structure map and have  
16 you discuss for us the well control that's available for you  
17 in the area.

18 A All right. First off, all the Morrow  
19 penetrations are circled with the heavy or the larger cir-  
20 cle, so all the deep tests have been identified on the plat.

21 Our New Mexico Fed Com, the nearest Mor-  
22 row penetration to our location, occurs in Section 18 of  
23 Township 18 South, Range 34 East.

24 The Union of Texas Amoco State No. 1,  
25 which was a dry hole in the Morrow zone objective, it's ap-

1 proximately 7700 feet from our proposed location.

2 Also down in Section 30 of Township 18  
3 South, Range 34 East, is the Hilliard McIlvain Well, which  
4 was also a dry hole in the Morrow zone, and those are the  
5 two nearest offset Morrow penetrations in the area.

6 We feel, due to the lack of direct  
7 subsurface Morrow penetrations that we have an inherent risk  
8 built into our geologic interpretation just due to the lack  
9 of subsurface data.

10 Our unorthodox location and the structure  
11 map around our prospect in the immediate vicinity of Section  
12 24, was constructed using a seismic interpretation primar-  
13 ily. The unorthodox location itself was proposed due to  
14 trying to get as close as possible to our seismic control  
15 across Section 24.

16 We're trying to penetrate the Morrow  
17 Sands on an approximate 50 to 75 foot structural closure on  
18 the east half of Section 24 and 50 to 75 foot of closure  
19 trying to identify that at a depth of approximately 13,500  
20 feet from -- strictly from seismic data, which carries an  
21 inherent risk factor. That's a very small closure to try to  
22 identify at that depth.

23 So we -- our first risk factor, actually,  
24 is based upon the fact that we have very little subsurface  
25 control and we're having to rely heavily on the seismic in-

1 terpretation of identifying a subtle structural closure.

2 Q Would you identify for the Examiner the  
3 closest producing Morrow well?

4 A Okay, that's our second factor  
5 controlling our risk. the nearest Morrow production to our  
6 location occurs in Section 29 of Township 18 South, Range 34  
7 East. It's the Sun Pennzoil Federal Well in the southeast  
8 quarter. It is a Middle Morrow producer well of limited  
9 economic potential at this point.

10 To the west the next closest Morrow pro-  
11 duction occurs in Section 27 of Township 18 South, Range 33  
12 East. That's the Aztec Federal "MA" No. 1, which is in the  
13 northeast quarter of Section 27. It is also a Morrow, Mid-  
14 dle Morrow producer of questionable economic capacity.

15 Q Have you turn now to Exhibit Number Six,  
16 which is your cross section.

17 All right, sir, would you identify and  
18 describe for us the cross section and explain then your  
19 third point or basis for your opinion?

20 A Cross section A-A' as I previously men-  
21 tioned, as shown on the Exhibit Five plat, extends from the  
22 southwest portion of the map in the Aztec Federal "MA" No. 1  
23 in Section 27, through the designated location of the New  
24 Mexico Fed Com, onto the northeast, the A', being the Amoco  
25 State "HS" Com in Section 9 of 18 South, 34 East.



1           It's a structural cross section hung at a  
2 -9000 subsea datum, and using this section essentially to  
3 show the sporadic or erratic nature of the Morrow sand depo-  
4 sition in the area.

5           The Morrow sands are a fluvial deltaic  
6 environment in deposition origin. They are inherently spor-  
7 adic in their depositional locations, very hard to predict  
8 even in well-to-well correlations of direct offsets, much  
9 less where we have a mile, mile-and-a-half between wells.

10           Using the cross section I'd like to iden-  
11 tify the Union Texas Amoco State No. 1 has a Middle Morrow  
12 sand section present from approximately 13,622 feet to  
13 13,695 feet; a thick Middle Morrow sand which tested noncom-  
14 mercial.

15           Moving back towards the Southland Royalty  
16 Aztec 22 Federal No. 1, which would be to the south or  
17 southwest and west, that thick sequence of sand is totally  
18 gone in the Southland Royalty Aztec 22 Well, and it indi-  
19 cates the sporadic nature of the depositional environment;  
20 even in well-to-well correlations we have trouble identi-  
21 fying similar sands, and of making sure that they're exactly  
22 the same reservoir. That's very tough to do.

23           And so we're essentially, due to lack of  
24 subsurface control, basing our prospect on our seismic  
25 interpretation and hoping to encounter one of these Middle

1 Morrow or Lower Morrow sands on a structural closure in  
2 Section 24, and the inherent risk of just encountering a  
3 Morrow sand itself should be taken into account for a penal-  
4 ty assignment.

5 Q In terms of the formations to be included  
6 in the compulsory pooling order, are you seeking to pool all  
7 320-acre gas spaced formations and pools from the top of the  
8 Wolfcamp to the base of the Pennsylvanian?

9 A Yes, we are.

10 Q And the primary target for the well will  
11 be this Middle Morrow?

12 A Middle Morrow and Lower Morrow.

13 MR. KE·LAHIN: That concludes  
14 my examination of Mr. Dougherty.

15 We move the introduction of his  
16 Exhibits Five and Six.

17 MR. CATANACH: Exhibits Five  
18 and Six will be admitted into evidence.

19

20 CROSS EXAMINATION

21 BY MR. CATANACH:

22 Q Mr. Dougherty, you may not know about  
23 this, but do you know why Sun chose to dedicate the north  
24 half of that section to the well, as opposed to the east  
25 half?

1           A           Well, it was felt that due to our seismic  
2 interpretation we had a much better feel for that structure  
3 trending northeast/southwest. Our seismic control  
4 essentially, we have a couple of seismic lines which come  
5 pretty close to criss-crossing right at our location. We  
6 have the most confidence in our structural interpretation on  
7 that east half of 24, feeling that we're dropping off struc-  
8 ture to the west.

9                       We felt like due to the trend of the  
10 structure, that forming a laydown 320 on the north half of  
11 24, if we are successful in the -- in our New Mexico Fed Com  
12 No. 1, would give us an opportunity to also test the  
13 structure once again in a south half proration unit,  
14 staying on that structure, moving to the southwest.

15           Q           The two producing Morrow wells that are  
16 closest to your location, you said that they were limited  
17 economic producers?

18           A           Yes. The Sun Pennzoil Federal No. 1 in  
19 Section 29 of 18 South, 34 East, has produced approximately  
20 a half of a bcf from a Middle Morrow zone.

21                       The Aztec Federal "MA" No. 1 in Section  
22 27 of 18 South, 33 East, has about the same potential. It's  
23 about .4 of a bcf. It also has a Strawn zone that's  
24 produced somewhere in excess of 70,000 barrels but the  
25 Morrow production itself is a borderline economic venture.

1 Q That -- that well in Section 27 is also a  
2 Strawn producer, you said?

3 A Yes, it is.

4 Q Is that the closest Strawn producer to  
5 your location?

6 A I believe it is. In Section 22 of 18  
7 South, 33 East, there's also an assigned Strawn well. It's  
8 a Southland Royalty well. It's also a Strawn producer.  
9 It's not as good a well as the Aztec Federal "MA". They're  
10 probably about the same, close to the same distance.

11 Q Has Sun used seismic data in this area  
12 before?

13 A Yes, we have.

14 Q Have they had success with seismic data?

15 A Yes, we've -- to the south, we have a  
16 number of prospects in the area but we've had success in the  
17 area trying to delineate subsurface structures using our  
18 seismic.

19 MR. CATANACH: I have no fur-  
20 ther questions of the witness. He may be excused.

21 MR. KELLAHIN: Mr. Examiner,  
22 Exhibit Number Seven represents our compliance with the  
23 notice requirements of the Division by sending notification  
24 to ARCO along with a copy of the application by certified  
25 mail on October 1st. The return receipt card indicates that

1 they received delivery of the notification on October 3rd.

2 We would request that Exhibit  
3 Number Seven be included among the exhibits in the hearing  
4 of this case.

5 MR. CATANACH: All right,  
6 Exhibit Number Seven will be admitted into evidence.

7 MR. KELLAHIN: And that  
8 concludes our presentation, Mr. Examiner, with the exception  
9 of a request that you accommodate our desire to drill the  
10 well in '86 and if you can provide us with an order at your  
11 earliest convenience we'd certainly appreciate that.

12 MR. CATANACH: Is there  
13 anything further in Case 9007?

14 MR. KELLAHIN: No, sir.

15 MR. CATANACH: If not, it will  
16 be taken under advisement.

17

18 (Hearing concluded.)

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C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY  
CERTIFY the foregoing Transcript of Hearing before the Oil  
Conservation Division (Commission) was reported by me; that  
the said transcript is a full, true, and correct record of  
the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner hearing of Case No. 9007  
heard by me on October 22, 1986.

David R. Caton, Examiner  
Oil Conservation Division