

1 STATE OF NEW MEXICO  
2 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
3 OIL CONSERVATION DIVISION  
4 STATE LAND OFFICE BUILDING  
5 SANTA FE, NEW MEXICO

6 9 August 1989

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Steve Sell for directional CASE  
10 drilling, an unorthodox gas well location, 9720  
11 non-standard gas proration unit, and to  
12 amend Order No. R-8928, Eddy County, New  
13 Mexico.

14 BEFORE: Michael E. Stogner, Examiner

15 TRANSCRIPT OF HEARING

16 A P P E A R A N C E S

17  
18 For the Division: Robert G. Stovall  
19 Attorney at Law  
20 Legal Counsel to the Division  
21 State Land Office Building  
22 Santa Fe, New Mexico  
23 For Steve Sell: W. Thomas Kellahin  
24 Attorney at Law  
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I N D E X

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1 MR. STOGNER: Call next Case  
2 Number 9720.

3 MR. STOVALL: Application of  
4 Steve Sell for directional drilling and unorthodox gas well  
5 location, nonstandard gas proration unit, and the amend  
6 Order R-8928, Eddy County, New Mexico.

7 MR. STOGNER: Call for appear-  
8 ances.

9 MR. KELLAHIN: Mr. Examiner,  
10 I'm Tom Kellahin of the Santa Fe law firm of Kellahin, Kel-  
11 lahin & Aubrey, appearing on behalf of the applicant and I  
12 have two witnesses to be sworn.

13 MR. STOGNER: Are there any  
14 other appearances?

15 Will the witnesses please  
16 stand and be sworn?

17

18 (Witnesses sworn.)

19

20 MR. KELLAHIN: Mr. Examiner, I  
21 have two witnesses this morning, Mr. Curt Boley, who's a  
22 petroleum geologist. He spells his last name B-O-L-E-Y.  
23 Mr. Boley testified on -- at the original hearing which re-  
24 sulted in the directional drilling being approved for the  
25

1 drilling of this Shafer Federal Com Well. It was Case  
2 9643. The prior order is R-8928. It was entered by the  
3 Division on May of 1989. Mr. Boley is going to talk about  
4 the drilling of that well pursuant to the order and then  
5 his desire to re-enter the same wellbore and directionally  
6 drill now to the southeast area of the spacing unit.

7 My second witness is Mr. Larry  
8 Massey. He spells his last name M-A-S-S-E-Y. Mr. Massey  
9 is an engineer with DIG and will talk about the directional  
10 directional drilling survey itself.

11 We've prepared for your con-  
12 sideration a draft order for entry in this case and I'll  
13 show it to you as a sample so that as we go through the  
14 technical presentation if there are any questions the  
15 witnesses are available to answer those questions.

16  
17 CURT BOLEY,

18 being called as a witness and being duly sworn upon his  
19 oath, testified as follows, to-wit:

20  
21 DIRECT EXAMINATION

22 BY MR. KELLAHIN:

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

25 A Curt Boley, petroleum geologist.

1 Q Mr. Boley, where do you reside, sir?

2 A Midland, Texas.

3 Q What is your relationship with Steve  
4 Sell, the applicant in Case 9720?

5 A I'm a consultant for Steve Sell.

6 Q On a prior occasion have you testified  
7 as a petroleum geologist on behalf of Mr. Sell for the ap-  
8 proval of a downhole location and directional drilling of  
9 the Shafer Federal Com Well?

10 A Yes, I did.

11 Q And pursuant to that employment are you  
12 again appearing before the Division as a petroleum geolo-  
13 gist?

14 A Yes.

15 Q Pursuant to that employment have you  
16 made a further geologic study of this particular area?

17 A I have.

18 MR. KELLAHIN: We tender Mr.  
19 Boley as an expert petroleum geologist.

20 MR. STOGNER: Mr. Boley is so  
21 qualified.

22 Q Mr. Boley, I think it might be helpful,  
23 sir, if you would go to what is marked as Exhibit Number  
24 One, which is the display on the wall, and before you be-  
25 gin describing the details of the display, if you'll simply

1 explain to us what information you have put on Exhibit  
2 Number One.

3 A Well, on Exhibit One I have a structure  
4 map on top of the Cisco (unclear) contour interval. I've  
5 got an enlarged one inch equals 500 foot scale of the Sec-  
6 tion 35, Township 21 South, Range 24 East, showing the sur-  
7 face the location and the bottom hole location from the  
8 previous order and showing the proposed bottom hole loca-  
9 tion (not clearly understood.)

10 Q Have you also constructed a cross sec-  
11 tion, structural cross section, that's shown on Exhibit  
12 Number One?

13 A Yes, I have, from west to east showing  
14 the separation.

15 Q Based upon a study of the information  
16 shown on the structural cross section, Mr. Boley, what is  
17 it that you're trying to accomplish now with the redrilling  
18 of the Shafer Well?

19 A Well, the cross section goes -- starts  
20 west to east, A to A', from Section 33 of Township 21  
21 South, Range 24 East, to Section 6 of Township 22 South,  
22 Range 25 East.

23 It shows, basically, from the Indian  
24 Basin Pool itself a dip of approximately 250 feet per mile  
25 from the Section 33 Well in Township 21 South, Range 24

1 East, through our bottom hole location on our original  
2 Shafer Well in Section 35, Township 21 South, Range 24  
3 East.

4 It shows a 250 feet per mile dip and our  
5 Shafer No. 1, the original well, bottom hole location is  
6 -3972.

7 Then going to the HEYCO Anadarko Federal  
8 No. 1 Well in Section 35 of Township 21 South, Range 24  
9 East, from our original well to this well it shows going up  
10 dip from -3972 to -3945, as indicated on the cross section,  
11 showing an algal mound bioherm somewhat close to us because  
12 it's in this section, and then from the HEYCO Anadarko Well  
13 on to the Atlantic Canyon Well at Section 6, Township 22  
14 South, Range 25 East, showing the resumption of the 250-foot  
15 per mile dip on off the shelf.

16 So we see a definite reversal of dip  
17 here, indicating another structural trap and it's also  
18 further separated by the pressures in the wells. The only  
19 well still producing on this entire map, Indian Basin or  
20 any other, well, actually of thirty wells, the well in  
21 Section 12, Township 22 South, Range 24 East, is a Cisco  
22 well in another field, McKittrick Hills, and the well in  
23 the northeast corner of Section 11, Township 22 South,  
24 Range 24 East, is a Morrow well. The only other productive  
25 Cisco Well on this entire map is in Section 29 of Township

1 21 South, Range 24 East, and it's the only well still  
2 productive from the Cisco that hasn't watered out.

3 The last reported bottom hole pressure  
4 available on that particular well was, as of September,  
5 1987, is 1829 pounds. Currently the wells -- currently,  
6 wells producing just a little further to the east of Sec-  
7 tion 29, Township 21 South, Range 24 East, excuse me, to  
8 the west, currently have a bottom hole pressure of around  
9 1600 pounds.

10 Our bottom hole pressure in the original  
11 Shafer Well is 2110 in two and a half hours.

12 The HEYCO Anadarko Well, drilled in  
13 1979, had 1600 -- 1824 pounds shutin 60 minutes, and in  
14 5-1/2 hours it had 2347 pounds, so we can see a pressure  
15 difference between these two wells, the HEYCO Anadarko and  
16 the Steve Sell Shafer Federal No. 1 to the wells still  
17 producing in Indian Basin at a much lower pressure. That  
18 further indicates we have another trap besides the struc-  
19 tural reversal in dip.

20 Q What's the primary objective of the re-  
21 drilling of the Shafer well?

22 A Well, it's to get as high as possible  
23 from -- we're keying off the HEYCO Anadarko Federal Well.  
24 The well almost made a well and it flowed large volumes of  
25 gas, up to 2.9-million cubic feet a day. It flowed up to

1 3-to-400 barrels of oil a day before it watered out rather  
2 quickly within a month, and we feel like this well is (un-  
3 clear) of an algal mound bioherm. At least that's my  
4 opinion.

5 Q Did the first directional drilling of  
6 the Shafer Well result in your ability to produce hydro-  
7 carbons out of this formation?

8 A No, it did not. It's -- initially we  
9 thought the high could be west, the high could be east. We  
10 didn't know which side, actually, it was on. We needed  
11 another point.

12 At the time it made more sense that the  
13 structural buildup was to the west and we drilled the well  
14 and it -- the structural high is not to the west and basi-  
15 cally now we have quite a bit of control. We believe the  
16 structure to be in this vicinity marked with a red dot on  
17 the map of Exhibit One.

18 Q Why can't you drill the proposed well to  
19 a standard bottom hole location as opposed to the proposed  
20 unorthodox bottom hole location?

21 A Well, based on compilation of a lot of  
22 data, this particular bioherm, I've mapped it several ways.  
23 I've had some other geologists map it and from that infor-  
24 mation, one, and number two, from our formation micro-  
25 scanner and dipmeter from Schlumberger, interpreted by

1 their really world-known dipmeter expert, Mr. Mike Grace,  
2 we talked in depth (unclear) formation microscanner and the  
3 dips and everything we see off this reef, he believes this  
4 to be an optimum location and mapping it, no matter how you  
5 map the structural high, this location should be high  
6 enough on all the maps that I've done.

7 Q This location being the proposed unorthodox  
8 bottom hole location for the redrill?

9 A Yes, 2500 from the east line, 900 from  
10 the south, and basically, to get orthodox as to the interior  
11 40 acres, we would have to go almost approximately 190  
12 feet more to the east and based on the size of these, I  
13 would be a little uncomfortable deviating the well on more  
14 to the east that much further. I just would hate to go off  
15 the other side and I want to stay as close as possible to  
16 our initial show well and not -- not drill too far away  
17 from being as high as possible.

18 Q What is the basis for re-entering the  
19 Shafer well and using it as a well to then directionally  
20 drill from as opposed to simply drilling another well overlying  
21 the location that you chose as the optimum location  
22 in the south half of the section?

23 A We spent approximately \$30,000 on this  
24 location and -- and from our kickoff point to surface we  
25 have approximately \$160,000 worth of wellbore in use.

1 That's a strong incentive.

2                   Number two, we -- there's a very hard --  
3 actually a very difficult problem in setting your inter-  
4 mediate in this area. Most operators have one inch inter-  
5 mediate casing and we flowed and circulated cement to sur-  
6 face on our intermediate casing and that is sort of unusual  
7 but it was nice that we circulated because we are in the  
8 Capitan Reef area and there are pays in this area (not  
9 clearly understood) intermediate casing, so, basically,  
10 it's economics that's our reasoning, and we've had an  
11 archaeological survey and our (unclear) are ready to go.  
12 It's \$160,000 worth of hole and we're ready to go.

13                   Q           In what way is your well, as you under-  
14 stand it, to be unorthodox? Why is it an unorthodox bottom  
15 hole location?

16                   A           It's unorthodox bottom hole location be-  
17 cause it's less than 330 feet from the interior 40 acres.

18                   Q           You meet the offsetting side boundary  
19 requirements for a standard well location?

20                   A           Yes.

21                   Q           And it's the interior 160 acres in the  
22 320 that is encroached on.

23                   A           Yes.

24                   Q           The bottom hole location is located,  
25 then, in the southwest of the southeast of 35?

1           A           Yes, it is.

2           Q           If you 'll return to your seat, now, Mr.  
3 Boley.

4                       The advertisement indicates that this  
5 section is a nonstandard size section?

6           A           Yes, it is.

7           Q           Can you describe in a general way why it  
8 is unorthodox or a nonstandard section?

9           A           It's slightly larger than 640 acres.  
10 I'm trying to think of -- it's -- it's slightly more than a  
11 mile north to south and approximately a mile east to west,  
12 so it's slightly taller, if you will, than it should be and  
13 that's why it's a little bit larger than 640 acres.

14          Q           If the south half of Section 5 is dedi-  
15 cated to this as a wildcat Pennsylvanian gas well, will  
16 that south half contain 334.47 acres, approximately?

17          A           Yes, it will.

18          Q           Let me show you what is marked as Exhi-  
19 bit Number Four. We'll skip Exhibit Number Two and Three.

20                       MR. KELLAHIN: Exhibit Number  
21 Four is a certificate of mailing, Mr. Examiner.

22          Q           In sending out notices for the hearing  
23 of this matter, Mr. Boley, would you describe to the  
24 Examiner, first of all, what parties you contacted?

25          A           We contacted the lease owners in Sec-

1 tion 2, Section 1, 2 and 3, Township 22 South, Range 24  
2 East, and also Section 36 of Township 21 South, Range 24  
3 East, which was Mitchell Energy; Sections 1 and 2 of  
4 Township 22 South, Range 24 East was, excuse me, is Near-  
5 burg Producing Company; and Section 3, Township 22 South,  
6 Range 24 East, is Yates Petroleum, and we noted, either by  
7 FAX or by hand delivery, all of these people.

8 Q And that notification took place on July  
9 18th for the hearing today?

10 A Yes, sir.

11 MR. KELLAHIN: That concludes  
12 my examination of Mr. Boley, Mr. Examiner.

13 We would move the introduction  
14 at this time of his Exhibits One and Four.

15 MR. STOGNER: Exhibits One and  
16 Four will be admitted into evidence.

17  
18 CROSS EXAMINATION

19 BY MR. STOGNER:

20 Q Mr. Boley, what -- we're talking about  
21 the Pennsylvanian formation here. Let's be a little bit  
22 more specific. What portions of the Pennsylvanian forma-  
23 tion are you going to be testing and how deep are you ac-  
24 tually going to test this new directional well?

25 A Well, approximately it's going to be the

1 upper Pennsylvanian. It's going to be Cisco only, basic-  
2 ally. We're not interested in deep formations.

3 Q Okay.

4 A The approximate depth of this should be  
5 approximately 7780 feet true vertical depth and, of course,  
6 measured depth on this would be 8,175 feet, approximately.

7 Q Now that is the true vertical depth in  
8 which we went on on your sidetracked well to the east, is  
9 that correct, was 7 -- about 7780?

10 A Yes, sir.

11 Q Okay.

12 A Approximately, yes.

13 Q Did that go into the Morrow or did you  
14 just --

15 A No, no, it did not go deep enough for  
16 the Morrow, which -- we didn't elect to go that deep.

17 MR. STOGNER: Let's go off the  
18 record for awhile and let me go get something from my  
19 office.

20

21 (Thereupon a recess was taken.)

22

23 MR. STOGNER: Back on the re-  
24 cord.

25 Q Mr. Boley, in your application you've



1 the structural separation.

2 The closest well to this location is  
3 approximately 2.7 miles. It's in the Indian Basin over  
4 here in Section 33, Township 21 South, Range 24 East.

5 Now that well's been shut in for 17  
6 years because it watered out in 1972.

7 As you -- as you can see, we're appro-  
8 ximately 300 feet down dip from a well that watered out 17  
9 years ago and we have a big reversal in dip on our struc-  
10 ture at -- just as the McKittrick Hills small algal mound  
11 bioherm, it's a separate -- it's a separate trap, and we  
12 know it's separate, one, because we're dipping 250 feet a  
13 mile, then all of a sudden, you know, it gets to the Steve  
14 Sell (unclear) Federal Well in Section 35, Township 21  
15 South, Range 24 East, to the HEYCO Anadarko Well in Section  
16 35 of the same township and range, we started going back up  
17 dip again, and we have a reversal in regional -- in region-  
18 al dip there, and also these -- these two wells exhibit a  
19 much higher bottom hole pressure than any current producing  
20 well in the Indian Basin Pool itself, and that's any well  
21 in the whole pool, the whole 56 square mile pool.

22 Poolwide the pressure is approximately  
23 14-to-1600 pounds, if you look at all the wells still pro-  
24 ducing in the Indian Basin Pool itself.

25 So we're separated by -- the closest

1 well is 2.7 miles and we've the structural reversal and  
2 we've got higher pressures, so if we thought this was even  
3 a part of this field, we wouldn't drill the well because,  
4 obviously, it better be a separate trap or otherwise it  
5 would be way too low --

6 Q Now what --

7 A -- structurally.

8 Q What did you say the -- let's see,  
9 pressure in the Indian Basin areawide or poolwide is 1400  
10 psi?

11 A 1400 to 1600 psi.

12 Q And you're expecting what kind of a  
13 pressure?

14 A I'm expecting, probably, 2600 pound  
15 bottom hole pressure.

16 Q Is that what you saw in your original  
17 deviated hole in the Cisco?

18 A Well, what we saw is -- first of all, we  
19 stuck our DST tool and lost circulation in the reef itself,  
20 and we had a bottom hole pressure in 2-1/2 hours of 2110  
21 pounds. We could read that but extrapolating the curve on  
22 that DST was a little difficult because we (unclear) trying  
23 to get out of the hole.

24 The HEYCO Well, as you can see, a 60-  
25 minute shutin was only 1824; 5-1/2 hour was 2347. If we

1 had shut our well in longer, we would have seen a little  
2 higher pressure, more like this HEYCO Anadarko Federal Well  
3 next to the Steve Sell Federal, and the McKittrick Hills,  
4 this one well Cisco Field, has about -- had originally  
5 about 2600 pounds, and I assume we will have approximately  
6 that pressure if we get in the good porosity and get ap-  
7 proximately just 25 feet high to the HEYCO Anadarko (not  
8 clearly audible).

9 Q Now the McKittrick Hills, is that a  
10 Morrow Pool or a Cisco?

11 A Well, sir, the well in Section 11 --

12 Q Uh-huh.

13 A -- Township 22 South, Range 24 East, is  
14 a Morrow well.

15 The well in Section 12, Township 22  
16 South, Range 24 East, is a Cisco well.

17 Q Has that been designated a part of the  
18 pool at this point?

19 A It's the McKittrick Hills Upper Penn  
20 Pool and I believe they dedicated the south half of that  
21 Section 12 there, 22, 24, as a (unclear).

22 Q The McKittrick Hills Upper Penn?

23 A Yes, sir.

24 Q And what kind of pressures did they see  
25 in the Cisco formation in that well in Section 12?

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A They originally had 2600 pounds and I believe currently the pressure is -- I'm not sure and I'll tell you why. They just -- they drilled the well in the late seventies for the Cisco, and it made up to 6.2-billion cubic feet of gas and they had some downhole problems and casing collapsed, and they just redrilled it again. It's been making 8-million a day for the last 4 months or 5 months (unclear) no water, and I'm -- I'm not aware of what the pressures currently are in that well. It's about 1700 pounds. I believe the well's been producing for 12 years, I'm almost certain.

13

14

15

Q Okay, back to the Indian Basin Penn, what -- do you know what some of the initial pressures that we saw in some of those wells are?

16

17

18

19

A Yes, sir, it was fieldwide 2900 pounds.

Q 2900 pounds.

A 1964 and 1965. Almost every well was 2910 or 2900 pounds, every well.

20

21

Q Let's see, on your original deviation where you said you lost the DST tool.

22

23

A Well, we -- we were stuck with our DST tool.

24

25

Q Oh, you were stuck, you didn't lose it.

A No, we just almost lost it; came within about 30 minutes of losing it. (Unclear) 5 or 6 hours

1 before we (unclear), and that's one of the reasons we did  
2 not elect to go to the Morrow at that time, because we  
3 didn't feel like we could drill (unclear).

4 THE REPORTER: Do you want  
5 that on the record?

6 A I'm sorry.

7 THE REPORTER: You'll have to  
8 say it again.

9 MR. KELLAHIN: Repeat it.

10 A That's one of the reasons we elected not  
11 to drill to the Morrow because we felt we would get stuck  
12 in the Cisco formation.

13 MR. STOGNER: I have no other  
14 questions of this witness.

15 Are there any further ques-  
16 tions of Mr. Boley?

17 MR. KELLAHIN: No, sir.

18 MR. STOGNER: He may be ex-  
19 cused at this time.

20

21 LARRY MASSEY,

22 being called as a witness and being duly sworn upon his  
23 oath, testified as follows, to-wit:

24

25

## 1 DIRECT EXAMINATION

2 BY MR. KELLAHIN:

3 Q Mr. Massey, would you please state your  
4 name and occupation?5 A I'm Larry Massey. I work for DIG. I'm  
6 a directional drilling consultant.

7 Q And where do you reside, Mr. Massey?

8 A In Midland.

9 Q Have you on a prior occasion testified  
10 before the Oil Conservation Division of New Mexico?

11 A No, I haven't.

12 Q Would you take a few moments and de-  
13 scribe for us your educational background?14 A I went to Texas State, where I studied  
15 accounting and worked in the Permian Basin in the direc-  
16 tional drilling business for fifteen years, seven for East-  
17 man Whipstock and eight years for DIG.18 Q Describe for us what, if any, involve-  
19 ment you had on behalf of your company with the directional  
20 drilling of the Shafer Federal Well pursuant to the ori-  
21 ginal order, R-8928.22 A I dealt with Dennis Moore of -- for  
23 Miller and Associates on the initial planning of the well,  
24 initial engineering, and I did some of the directional  
25 survey work on the well initially and on a day to day basis

1 I took morning drilling reports from our directional drill-  
2 ing operator, Millard Jones, that drilled the well.

3 Q Describe for us what you have done with  
4 regards to the drilling program for the directional drill-  
5 ing now, the second directional drilling, if you will, of  
6 the Shafer Federal Well?

7 A With the sidetrack and redrill we -- we  
8 intend to have a 250-foot cement sidetrack plug laid at  
9 3900 feet and sidetrack the well, sidetrack the well with  
10 -- as an 8-3/4 wellbore with a high speed mud motor and  
11 steering tool orientation to -- to the proposed trajectory  
12 of south 75 degrees east.

13 Our intention is to build 4 to 5 degrees  
14 of angle with the sidetrack motor assembly; then to trip  
15 back into the hole with the conventional fulcrum angle  
16 building assembly and build this well up at 2 degrees per  
17 100 foot of measured depth, up to a tangent angle of 28  
18 degrees.

19 At that time we -- our intention is to  
20 go back in the hole with a stiff, fully packed bottom hole  
21 assembly and drill the well to TD with correction runs as  
22 required along the wellbore.

23 Problems that we -- that we expect to  
24 encounter is that during the building section of the well  
25 on the initial drill of the Shafer we had some radical

1 directional walk back to the southwest and we're antici-  
2 pating some sort of radical walk on this well. We can't  
3 really anticipate the direction at this time, though.

4 Q How often are you involved on behalf of  
5 your company with the directional drilling of wells of this  
6 nature?

7 A The current market for our services  
8 lends itself strongly to redrilling of existing wells. I  
9 would say that we do 15 to 25 a year out of the DIG Midland  
10 office.

11 Q Is the proposed directional drilling  
12 program proposed for the Shafer Federal No. 1 Well, how  
13 would you characterize that program in relation to other  
14 types of directional drilling?

15 A I'm not sure if I follow you, Tom.

16 Q Well, there are all different kinds of  
17 directional drilling programs. Some are more difficult,  
18 more complicated, more -- more exotic than others. Some  
19 are what might be categorized as more routine.

20 Where within that range does this parti-  
21 cular well fall?

22 A This is fairly straightforward. The --  
23 as far as categorizing the well, the sidetrack features of  
24 this well will be simpler than most redrills. We're ex-  
25 pecting a considerable directional control problem on this

1 well and this is an extended reach directional well common  
2 in -- common to Lea County, where the majority of our work  
3 is, we'll 3-to-600 foot kicks. Eddy County tends to see  
4 longer directional kicks which presents additional prob-  
5 lems.

6 Normally, for economic purposes, it re-  
7 quires larger targets.

8 Q Other than testifying for today's hear-  
9 ing, what involvement will you have with regards to the  
10 drilling of this well?

11 A I will be the directional coordinator in  
12 the office taking day to day phone calls from our operator  
13 and translating -- translating this information and making  
14 explanation to the SDX office.

15 MR. KELLAHIN: At this time,  
16 Mr. Stogner, we tender Mr. Massey as an expert drilling  
17 engineer.

18 MR. STOGNER: Mr. Massey is so  
19 qualified as a directional drilling expert --

20 Q Mr. Massey --

21 MR. STOGNER: -- with his ex-  
22 perience and what he's testified today.

23 Q Mr. Massey, let me show you Exhibit  
24 Number Two, which is the directional drilling profile.  
25 It's been reduced on Exhibit Number Three. You may use

1 either one, and have you reviewed both of those exhibits?  
2 Exhibit Number Two and Exhibit Number Three?

3 A Yes, I have.

4 Q And to the best of your opinion and  
5 belief are the information shown on those two displays true  
6 and accurate?

7 A The information is correct.

8 Q Take either one, and perhaps the smaller  
9 one is easier to work with, if you'll take Exhibit Number  
10 Three, describe for us whether or not in your opinion a 200  
11 foot radius target at the true vertical depth in the Cisco  
12 formation is a reasonable target.

13 A It would be a -- be a reasonable target  
14 in that a 50 or 100 foot target would be impractical from  
15 the economical standpoint of the operator.

16 What we've got here at the kickoff  
17 point, we've got a perspective of a moderately wide target  
18 to hit. If we have angular control, holding our angle,  
19 which we'd anticipate towards the lower end of the well  
20 will have latitude to still be inside the legal target  
21 limits, if we have the radical directional walk tendency  
22 that the first drill of the Shafer exhibited, we we maybe  
23 can prevent something like a \$16,000 correction motor run.

24 The way this is laid out, we expect the  
25 initial sidetrack motor run and we expect one correction

1 run somewhere in the interval of the angle building por-  
2 tion, and with the 200 foot target, we should be able to  
3 stiff, stiff pack the assembly to stay within the confines  
4 of the 200 foot restriction.

5 Q What's the basis for the kickoff point  
6 shown on the display of approximately 3900 feet?

7 Why -- why has that been selected as a  
8 kickoff point?

9 A We initially drilled the Shafer with a  
10 kickoff off bottom at 4900 feet, so definitely we wanted to  
11 stay above the doglegs employed in the wellbore at that  
12 depth.

13 Casing set at 2500 feet and so we  
14 selected the 3900-foot interval not due to any formation  
15 requirements but due to the fact that 28 degree trajectory  
16 is a -- is comfortable range of angle to work with. We  
17 worked with a 15 degree trajectory on the initial drill of  
18 the Shafer and feel like that's -- that's a portion of the  
19 directional control problems we incurred.

20 Boosting the angle up will have more  
21 directional stability once we get the angle boosted.

22 Q How often will you survey the direction  
23 of the directional drilling? How often will you run a sur-  
24 vey of where you are?

25 A After the initial kickoff, through the

1 build section we'll take single shot wireline surveys on 60  
2 to 90 foot intervals because this is what we consider the  
3 critical stage of the directional part of this well.

4                   After we get -- after we get our angle  
5 up, our direction locked in with the appropriate packed  
6 hole assembly, we'll stretch our surveys out to the 120 to  
7 150 foot interval so as to economically -- as an economic  
8 thing to not over-survey the well. Our intention is to go  
9 in the hole at around 6500 feet and run a drop multishot  
10 survey to correct single shot coordinates to coincide with  
11 legal multishot coordinates so that we will have a minimal  
12 error and yet have room to make any -- any corrections, and  
13 that would be an optional thing if we're not coming in  
14 strong to the center of the target.

15                   MR. KELLAHIN: That concludes  
16 my examination of Mr. Massey.

17                   We would move the introduction  
18 of Exhibits Two and Three.

19                   MR. STOGNER: Exhibits Two and  
20 Three will be admitted into evidence.

21

22                   CROSS EXAMINATION

23 BY MR. STOGNER:

24                   Q           Mr. Massey, let's see, the original  
25 kickoff point was at 4900 feet?

1           A           Yes, sir.

2           Q           With a maximum angle of 15 --

3           A           Yes, sir.

4           Q           -- degrees? Let's see, you're going to

5 be coming out on the new kickoff point in what size of

6 casing?

7           A           9-5/8ths casing is set at 2500 feet.

8           Q           Oh.

9           A           We're drilling 8-3/4 wellbore.

10          Q           And the 9-5/8ths was set at what, again?

11          A           2500.

12          Q           2500 feet. So you're going to be coming

13 out of an open hole, not a --

14          A           Yeah, we'll have 1400 foot of hole be-

15 tween us and (unclear).

16          Q           On your initial buildup, what kind of

17 a formation is that? Is that a sandstone or a limestone or

18 what are we looking at?

19          A           We're looking at a shaly formation.

20          Q           Do you know what that is, by chance?

21          A           No, sir, I don't.

22                           MR. STOGNER: Mr. Boley, do

23 you remember?

24                           MR. BOLEY: At what depth are

25 you talking about?

1 MR. STOGNER: During the  
2 initial buildup period.

3 MR. BOLEY: The original  
4 kickoff at 4900?

5 MR. STOGNER: No, on your  
6 proposed --

7 MR. BOLEY: Oh, at 3900.

8 MR. STOGNER: Yes.

9 MR. BOLEY: That would be, oh,  
10 call it Lower Glorieta. It's not (unclear) formation.

11 Q What does DIG stand for?

12 A Directional Investment Guidance.

13 Q Okay.

14 A That's why we say DIG.

15 MR. STOGNER: I have no fur-  
16 ther questions then.

17 Okay, this witness may be ex-  
18 cused.

19 Mr. Kellahin, do you have  
20 anything else?

21 MR. KELLAHIN: We have nothing  
22 further, Mr. Examiner.

23 MR. STOGNER: Do you have any-  
24 thing further in this case?

25 MR. KELLAHIN: No, sir.

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MR. STOGNER: Does anybody else have anything further in Case Number 9720?

This case will be taken under advisement.

(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 that 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. 9770  
heard by me on 9 August 1989.

Richard C. Rogers, Examiner  
Oil Conservation Division