

1 STATE OF NEW MEXICO

2 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

3 OIL CONSERVATION DIVISION

4 CASES 10,814, 10,815, 10,816

5
6 EXAMINER HEARING7
8 IN THE MATTER OF:9
10 Application of Collins and Ware, Inc., for a high-
11 angle/horizontal directional drilling pilot
12 project and special operating rules therefore, Lea
County, New Mexico13 Application of Collins and Ware, Inc., for a high-
14 angle/horizontal directional drilling pilot
project and special operating rules therefore, Lea
County, New Mexico15 Application of Collins and Ware, Inc., for a high-
16 angle/horizontal directional drilling pilot
17 project and special operating rules therefore, Lea
County, New Mexico18 **ORIGINAL**

19 TRANSCRIPT OF PROCEEDINGS

20
21 BEFORE: DAVID R. CATANACH, EXAMINER22
23 STATE LAND OFFICE BUILDING

24 SANTA FE, NEW MEXICO

25 September 9, 1993

A P P E A R A N C E S

FOR THE DIVISION:

ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Division
State Land Office Building
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

CAMPBELL, CARR, BERGE & SHERIDAN, P.A.
Attorneys at Law
By: WILLIAM F. CARR
Suite 1 - 110 N. Guadalupe
P.O. Box 2208
Santa Fe, New Mexico 87504-2208

* * *

I N D E X

Page Number

Appearances

2

RANDELL K. FORD

Direct Examination by Mr. Carr

5

Examination by Mr. Stovall

21

Examination by Examiner Catanach

22

Further Examination by Mr. Stovall

29

Certificate of Reporter

33

* * *

E X H I B I T S

APPLICANT'S EXHIBITS:

Exhibit 1

6

Exhibit 2

9

Exhibit 3

11

Exhibit 4

12

Exhibit 5

13

Exhibit 6

16

Exhibit 7

16

Exhibit 8

18

Exhibit 9

19

* * *

1 WHEREUPON, the following proceedings were had
2 at 8:46 a.m.:

3 EXAMINER CATANACH: At this time we'll call
4 Case 10,814.

5 MR. STOVALL: Application of Collins and
6 Ware, Inc., for a high-angle/horizontal directional
7 drilling pilot project and special operating rules
8 therefore, Lea County, New Mexico.

9 EXAMINER CATANACH: Are there appearances in
10 this case?

11 MR. CARR: May it please the Examiner, my
12 name is William F. Carr with the Santa Fe law firm
13 Campbell, Carr, Berge and Sheridan.

14 I represent Collins and Ware, Inc., in this
15 case, and I have one witness.

16 I would also request at this time that this
17 case be consolidated for purpose of hearing with Case
18 10,815 and 10,816. These all are Applications for
19 horizontal drilling. They are wells which immediately
20 offset one another. They are part of the same project,
21 and the testimony in each case, other than just well
22 locations and the actual interval where they intersect
23 the formation, will be identical.

24 EXAMINER CATANACH: At this time we'll call
25 Case 10,815 and 10,816.

1 MR. STOVALL: Each of these cases is the
2 Application of Collins and Ware, Inc., for a high-
3 angle/horizontal directional drilling pilot project and
4 special operating rules therefore, Lea County, New
5 Mexico.

6 EXAMINER CATANACH: Are there additional
7 appearances in any of these cases?

8 Will the witness please stand to be sworn in?

9 RANDELL K. FORD,
10 the witness herein, after having been first duly sworn
11 upon his oath, was examined and testified as follows:

12 DIRECT EXAMINATION

13 BY MR. CARR:

14 Q. Will you state your name and place of
15 residence?

16 A. My name is Randell Ford, and I reside at
17 Midland, Texas.

18 Q. Mr. Ford, by whom are you employed?

19 A. I'm employed by Collins and Ware as an
20 independent drilling consultant.

21 Q. Have you previously testified before the Oil
22 Conservation Division?

23 A. No, I have not.

24 Q. Initially, would you just tell the Examiner
25 when you first started to work in the oil business?

1 A. I started in 1967. In 1967 to 1977 I worked
2 in various jobs from roughnecking to drilling
3 superintendent.

4 From 1977 to 1981 I worked as a tool pusher
5 and assistant drilling superintendent for Megargel
6 Drilling Company.

7 From 1981 to 1982 I worked as a drilling and
8 completion consultant for Meyers and Moritz,
9 Incorporated, out of Midland, Texas.

10 After that, I went to work for Santa Fe
11 Energy from 1982 to 1989 as a senior drilling foreman,
12 and I've done most of their deep drilling in New
13 Mexico, supervised their field operations.

14 From 1989 to 1993 I worked for Grace Drilling
15 Company -- which, at the time, was the largest drilling
16 contractor in the United States -- as the district
17 drilling engineering putting together well proposals
18 and well plans for our drilling operations.

19 Q. Is Exhibit Number 1 a copy of your résumé?

20 A. Yes, it is.

21 Q. Are you familiar with the Application filed
22 in this case on behalf of Collins and Ware?

23 A. Yes, I am.

24 Q. Are you, in fact, the man who put together
25 this drilling plan for Collins and Ware?

1 A. Yes.

2 Q. Will you be the individual who will be
3 responsible and in charge of the actual drilling of the
4 wells?

5 A. Yes.

6 Q. Are you familiar with the status of the lands
7 involved in this case?

8 A. Yes, I am.

9 Q. Have you prepared certain exhibits and
10 testimony to review for the Examiner that will explain
11 the plans of Collins and Ware for the horizontal
12 drilling of the wells that are the subject of each of
13 these hearings?

14 A. Yes.

15 MR. CARR: Are the witness's qualifications
16 acceptable?

17 EXAMINER CATANACH: They are.

18 Q. (By Mr. Carr) Mr. Ford, could you briefly
19 state what Collins and Ware is seeking with each of
20 these Applications?

21 A. We are seeking the authorization to drill
22 three horizontal wells in the Devonian formation.

23 Q. Is Collins and Ware seeking an exception or
24 exemption from the existing well-location requirements
25 from the well?

1 A. No, we will stay back 330 feet from the outer
2 boundaries, and if we exceed those boundaries we will
3 come back to the Commission.

4 Q. At this point in time, you anticipate you'll
5 stay on the 40-acre tract and back 330 feet?

6 A. Yes.

7 Q. Do you need an exception to the acreage
8 dedication requirements?

9 A. No.

10 Q. What was the spacing unit for each of these
11 wells when they were originally drilled?

12 A. Forty-acre spacing.

13 Q. And you're going to just horizontally drill
14 on that previous 40-acre tract?

15 A. Yes.

16 Q. Are you seeking any special allowable for any
17 of these wells?

18 A. No.

19 Q. Would you just briefly state what the reason
20 is behind each of these Applications?

21 A. These wells haven't produced anything since
22 the late Seventies, and they had produced close to a
23 million barrels of oil apiece, and they had -- the
24 water had coned out on them.

25 And we feel with this new short-radius

1 horizontal technology that we can do a lateral wellbore
2 into the top part of this formation and recover
3 substantial reserves.

4 Q. In fact, if the Applications are approved and
5 the wells are drilled, what are the results you're
6 hoping for?

7 A. Well, we're hoping to make top allowable
8 producing wells, and if the first one is successful,
9 then we will proceed with the second and third. And we
10 think all three will be commercial wells.

11 Q. Let's go to what has been marked Collins and
12 Ware Exhibit Number 2. Would you identify and review
13 that for Mr. Catanach?

14 A. Okay, the first well, the Pope Number 14, is
15 in the bottom half of Section 26.

16 And the second well, the Number 21 well, is
17 in the east half of Section 35.

18 And the Number 6 well is in the west half of
19 Section 36.

20 Q. And you've indicated the 40-acre tracts that
21 will remain dedicated to each of those wells?

22 A. Yes.

23 Q. Does this plat actually show the ownership of
24 the offsetting tracts?

25 A. Yes.

1 Q. Let's, by way of explanation on that, look at
2 the status of Collins and Ware's interest in the
3 acreage that is the south half of 26 and the east half
4 of 35.

5 Who today is the owner of those properties?

6 A. The owners right now are S&J Operating, and
7 we have a farm-in agreement from them right now.

8 Q. And when the well is drilled and production
9 obtained, are they required by that farm-in agreement
10 to assign that acreage to you?

11 A. Yes, sir, there will be an assignment when we
12 establish production.

13 Q. What is the status of the west half of
14 Section 36?

15 A. It is owned by Polaris production, and we
16 have a farm-in agreement from them that when we
17 establish production there will be an assignment.

18 Q. And is this state, federal or fee acreage
19 we're talking about here?

20 A. Fee.

21 Q. What is the current status of each of these
22 three wells?

23 A. They're reported as shut in by the OCD
24 records.

25 Q. And they haven't produced, you said, since

1 the late 1970s?

2 A. That's correct.

3 Q. Could you describe the general
4 characteristics of the Devonian formation in this area?

5 A. In this area, the Devonian is a fractured
6 dolomite. And it's highly fractured, and this is the
7 reason it's a good candidate for the short-radius
8 horizontal.

9 Q. Would the fracturing also be a reason for,
10 perhaps, the water problems that were experienced in
11 the 1970s?

12 A. Yes, it was.

13 Q. All right. Let's go to Collins and Ware
14 Exhibit Number 4. Would you just identify that,
15 please?

16 A. That is a structure map showing --

17 Q. I'm sorry, I meant Exhibit Number 3.

18 A. Okay. That is a log of the Pope Number 14.

19 Q. And what does that show you?

20 A. It shows you that this Devonian producing
21 zone is probably 500 foot thick.

22 Q. Now, what -- This is a log on which well?

23 A. On the Pope 14.

24 Q. And that's the first well you would propose
25 to drill?

1 A. Yes.

2 Q. And that's your primary objective, or at
3 least your initial objective in this project?

4 A. Yes.

5 Q. And this actually shows that there were 500
6 feet that were perforated in the well before?

7 A. Yes, it is. We feel that was part of the
8 water problem, because they had perforated so much of
9 it.

10 This short radius horizontal, we'll stay on
11 the top part of it, and we're trying to stay away from
12 the water. That's our idea.

13 Q. Approximately how much did this well produce
14 before it experienced those water problems?

15 A. All three of these wells averaged
16 approximately a million barrels of oil.

17 Q. In your experience, how does a 500 foot in
18 the Devonian compare with other Devonian wells you've
19 been involved with?

20 A. This is one of the thickest that I've ever
21 worked with.

22 Q. Okay. Now let's go to Exhibit Number 4.
23 Would you just identify that?

24 A. That is a structure map showing all three of
25 these locations.

1 Q. Basically, what is the purpose of including
2 this exhibit?

3 A. It's to show that -- where we're -- On the
4 Number 14 well, we're going to drill southeast. That's
5 going to be in the highest part of the structure; it
6 will be updip. And that should be the best oil
7 reserves there.

8 Q. Now, you're going to take the Number 14
9 southeast. That's upstructure?

10 A. Yes.

11 Q. What direction are you going to drill the
12 Number 21 well?

13 A. It will be northwest.

14 Q. And the Number 6?

15 A. Southeast.

16 Q. What is the reason for taking the horizontal
17 portion of these wells in that general direction?

18 A. Well, we're trying to stay in the best part
19 of the reserves, and we think that we're staying on the
20 high side of the structure.

21 Q. And by going those directions, are you in
22 fact moving to areas which may not have been drained by
23 existing wells?

24 A. That's what we believe.

25 Q. Let's move now to Exhibit Number 5. Would

1 you first go to the first page of that exhibit and
2 explain to Mr. Catanach what this is and what it shows?

3 A. This is just a well diagram. This is a
4 schematic of where the wellbore is sitting today.

5 It's got 13 3/8 casing set at 462 feet, and
6 cement was circulated on it. And it's got 8 5/8 set at
7 4850, and cement was circulated on it. It has a 5 1/2
8 liner run to a total depth of 12,635, and it's setting
9 200 foot up inside the 8 5/8.

10 Q. This is what the wellbore looks like today?

11 A. Yes.

12 Q. All right. Let's go to the second page of
13 this exhibit, and using this second page of Exhibit 5,
14 would you review for Mr. Catanach exactly how you
15 propose to go about the horizontal drilling portion of
16 this project?

17 A. Our operation will start off by gyroing the
18 casing to see where the wellbore is sitting, exactly.

19 Then we will mill 50 foot of this 5 1/2 up,
20 remove it from the hole completely. Then we will set a
21 cement plug in the open interval.

22 Then we will -- Our kickoff point on this
23 particular well will be 12,082, and that's where we
24 will kick off and start building this high angle. We
25 will build to 90 degrees in 40 to 50 foot.

1 And then from there we will drill a lateral
2 300 to 500 feet.

3 Q. Now, you're showing this wellbore actually
4 going updip; is that correct?

5 A. Yes.

6 Q. And why is that?

7 A. We think the first well will be going
8 upstructure, and so we want the ability to do that, and
9 with this new technology you can actually drill five to
10 ten degrees upward.

11 Q. Now, you're proceeding to drill a short-
12 radius curve?

13 A. Yes, sir.

14 Q. What does that mean, short-radius curve?

15 A. Well, short-radius curve means you're going
16 to have it laid down 90 degrees in 50 foot or less, and
17 sometimes you can do it as short as 38 to 42 feet.

18 Q. So actually the portion of the wellbore --
19 The curve is actually going to be confined within the
20 Devonian formation?

21 A. Yes.

22 Q. And who is the drilling company that you're
23 proposing to use with this project?

24 A. The company furnishing the drilling, this
25 technology, is Baker Hughes INTEQ. They are on the

1 leading edge of this new technology to make this kind
2 of curve and drill lateral.

3 Q. Let's go to Exhibit Number 6. Could you just
4 briefly explain to Mr. Catanach what this shows?

5 A. This is the wellbore schematic of Number 6.
6 It's showing a 13 3/8 casing set at 425, and cement was
7 circulated. Then it has 8 5/8 set at 4821.

8 And they pumped 3000 sacks of cement, but
9 they didn't circulate there. You can see the
10 temperature survey at the top of the cement was 850.

11 And in this wellbore they run a 5 1/2 liner
12 to TD of 12,635, and it's hung 200 foot back up inside
13 the 8 5/8.

14 Q. The second page of this exhibit?

15 A. It's showing the same type of program on the
16 first well. The only difference is just our depths
17 from the top of the Devonian where we're doing our
18 kickoff at.

19 Q. So in this well you're kicking off at 12,058,
20 and in the other well you were at 12,052?

21 A. That's right.

22 Q. That's the only difference?

23 A. That's the only difference.

24 Q. Okay. Let's go to Exhibit Number 7. Could
25 you identify and review that?

1 A. That is Well Number 6, and that will be the
2 third well we do.

3 It has 13 3/8 set at 303, and it was
4 circulated cement. Then they ran 9 5/8 to 4771 and
5 they cemented with 2063 sacks, but the cement did not
6 circulate. The top of the cement showed to be 1510 by
7 temperature survey.

8 On this particular well they drilled not
9 completely through the Devonian, but they stopped
10 approximately 200 -- a little over 200 feet from the
11 total depth and run 7-inch casing back to surface. And
12 they cemented it with 600 sacks, and you can see by the
13 temperature survey that the temperature of the cement
14 come up to 8920.

15 Then they went in and did an open-hole
16 completion and drilled the bottom 220-30 feet. So this
17 well is what they call an open-hole completion.

18 Q. All right. Let's go to the second page of
19 this exhibit.

20 A. This is showing the same procedure as on the
21 first two, and the only difference will be depth of
22 zone and kickoff point.

23 Q. What areas do you actually expect to be
24 drained by each of these horizontal wells?

25 A. We expect it just to be the 40 acres that the

1 wells are sitting on now.

2 Q. Do you anticipate there would be excess
3 drainage from any offsetting tracts?

4 A. No, we don't. But in each case the
5 extensions are going toward acreage that is Collins and
6 Ware's, so we don't anticipate that to be a problem.

7 Q. In each of the cases the direction you're
8 taking the horizontal portion of the well moves toward
9 the acreage with the same working and royalty interest
10 ownership as the tract on which the well is being
11 drilled; is that right?

12 A. Yes, it is.

13 Q. What do you anticipate to be the producing
14 life of each of these wells?

15 A. We're expecting it to be approximately ten
16 years.

17 Q. Now, at the end of the drilling effort, each
18 of these wells will be surveyed; is that correct?

19 A. Yes.

20 Q. And that survey will be provided to the Oil
21 Conservation Division?

22 A. Yes, it will.

23 Q. Is Collins and Ware Exhibit Number 8 a copy
24 of an affidavit confirming that notice of these
25 applications and this hearing date has been provided to

1 S&J and Polaris?

2 A. Yes, it is.

3 Q. And that's because they're the current owner
4 of the tracts on which the wells are being drilled?

5 A. Yes, that's correct.

6 Q. And are there any other offsetting owners who
7 would be affected by this Application?

8 A. No.

9 Q. Could you identify the book that has been
10 marked as Exhibit Number 9?

11 A. That is the well plan that Baker Hughes INTEQ
12 has put together, and we worked on it together. That's
13 our cost estimate.

14 Q. Does it provide a detailed summary of the
15 exact work that's going to -- at least, you plan to
16 perform on each of these wells?

17 A. Yes, yes, it does.

18 Q. It shows a proposed azimuth --

19 A. Yes.

20 Q. -- for the proposed horizontal portion of the
21 hole?

22 A. Yes.

23 Q. And it also contains other examples of how
24 this particular technology has worked; is that right?

25 A. Yes, it shows the case histories and our work.

1 Q. This is just for the Number 14 well; is that
2 right?

3 A. Yes.

4 Q. Have you received these similar proposals for
5 the two additional wells?

6 A. No, I have not yet.

7 Q. Would the procedures that you anticipate
8 using for these wells be virtually identical to the
9 procedures set forth in this exhibit?

10 A. Yes, they will.

11 Q. Again, the only difference would probably be
12 the entry point in the formation and the azimuth for
13 the well?

14 A. That's correct.

15 Q. In your opinion, will approval of the
16 Application be in the best interests of conservation,
17 the prevention of waste and the protection of
18 correlative rights?

19 A. Yes.

20 Q. Were Exhibits 1 through 9 either prepared by
21 you or compiled under your direction from the files of
22 Collins and Ware?

23 A. Yes, they were.

24 MR. CARR: At this time, Mr. Catanach, we
25 would move the admission of Collins and Ware Exhibits 1

1 through 9.

2 EXAMINER CATANACH: Exhibits 1 through 9 will
3 be admitted as evidence.

4 MR. CARR: And that concludes my direct
5 examination of Randell Ford.

6 MR. STOVALL: I've got just a couple of
7 questions on the ownership.

8 EXAMINATION

9 BY MR. STOVALL:

10 Q. Are you really familiar with the ownership
11 situation? I mean, are you involved at all in the land
12 issues?

13 A. Well, I know that S&J and Polaris own the
14 acreage now, and Collins and Ware does have farm-in
15 agreements from them.

16 Q. Do you know whether those -- I mean, as is
17 shown on your Exhibit 2, Collins and Ware owns
18 surrounding -- What does the farm-in acreage include,
19 the S&J and the Polaris? Is it just the 40-acre
20 tracts?

21 A. No, it's -- on Section 26 -- It's the bottom
22 half of Section 26 and the east half of 35 from S&J.
23 And from Polaris it's the west half of 36.

24 Q. Does Collins and Ware earn the whole half
25 section by drilling each of these prospective wells?

1 A. Yes.

2 Q. Okay. So it's not just earning the drilling
3 tract; you actually earn the --

4 A. Yes.

5 Q. -- the 320?

6 A. Yes.

7 Q. All right. And Collins and Ware currently
8 owns the west half of 25?

9 A. Yes.

10 Q. All right, that's all I've got.
11 Did you say this was fee acreage?

12 A. Yes.

13 EXAMINATION

14 BY EXAMINER CATANACH:

15 Q. Mr. Ford, on Exhibit Number 3, the log of
16 that well --

17 A. Yes, sir.

18 Q. -- do you intend with your horizontal holes
19 to stay within -- It looks like there's four producing
20 intervals in that well. Do you propose to stay within
21 the first -- the top two or the top three or --

22 A. We really expect to stay right in the top
23 half of the first set of curves, or above it.

24 That's the reason for doing the high-angle
25 short radius, is because we felt that this is a water

1 drive, and this thing coned out on everybody, and --
2 all these wells.

3 And by setting bridge plugs and just 5 1/2 --
4 it's squeezing these top set of perfs off -- we're
5 going to stay in the top 50 to 100 foot of this
6 interval. And that's where we feel that we'll be able
7 to stay out of the water, hopefully.

8 And with this technology, even though it may
9 take us -- we may be 100 foot into zone before we make
10 the curve, but we can actually drill at depth. And the
11 lateral extension we can bring updepth ten foot, twenty
12 foot, possibly thirty or forty.

13 With this technology, we're building 16
14 degrees per hundred as we drill the lateral. And on
15 those case histories you can see where the wellbore is
16 tracking left to right. That's because it's got a
17 built-in assembly in there to build 16 degrees per
18 hundred.

19 Anytime we want to turn it up or down, all we
20 have to do is stop the drilling operation, turn the
21 face of the tool up or down, and we can drill up or
22 down.

23 So if the formation moves on us or the
24 geologist on location wants to go updepth five or ten
25 foot updip, you can do it .

1 That's the reason on the case histories, you
2 can see how the well tracks left or right, versus just
3 a straight line.

4 Q. Okay. So you've got no plans at this point
5 to test any of the other producing zones, other than
6 the top producing zone?

7 A. That's correct.

8 Q. Okay. Is there a specific fracture
9 orientation direction in the Devonian that you know of?

10 A. Not that I know of.

11 Q. The reason you're going in the directions
12 you've chosen is to go upstructure?

13 A. Yes.

14 Q. Did you say these wells averaged a million
15 barrels total cumulative production between the three
16 of them?

17 A. Apiece.

18 Q. Apiece.

19 A. Each. This is a pretty good size field, and
20 most of these wells have averaged about a million
21 barrels.

22 I've looked at the cums on some of them. The
23 low is 600 and 700. Some of them made as much as 1.3
24 million, 1.4 million.

25 Q. Okay, on the Number 6, I believe you stated

1 that the direction will be southeast?

2 A. Yes.

3 Q. Which appears to be going downstructure?

4 A. It is in that particular well, because you
5 can see that it's actually setting 330 off the line,
6 and to stay inside of the 440 proration we would need
7 to go east, northeast or southeast.

8 And so we just picked out east versus
9 northeast. Because if we went west or north we would
10 intersect the limits on our 40-acre boundaries.

11 Q. Uh-huh.

12 A. We also believe that -- If you'll notice,
13 that the -- the reason we picked these directions, too,
14 is that we're taking -- we're hoping for the wellbore
15 to end up between existing wells, and those areas there
16 should be where the best reservoir is left.

17 And so that's one reason that we picked these
18 positions.

19 Q. You don't think drilling downstructure will
20 have any adverse effect on the producing capability?

21 A. We really don't think it will. But this is
22 new technology, and we're all at the bottom of this
23 learning curve.

24 Q. Uh-huh.

25 A. Every time we drill one of these, we learn

1 something we didn't expect.

2 Q. How many of these have you done?

3 A. I personally have not set on one, but while
4 working for Grace Drilling Company we drilled most of
5 them in the Permian Basin, and I worked with the
6 existing operators on putting the well plans together
7 and worked with them on a day-to-day basis.

8 Q. The short-radius technology, has that been
9 tested and proven?

10 A. It has at shallower depths in New Mexico.

11 And then this same company, Baker Hughes
12 INTEQ, they have done one in the Devonian, in the
13 southwest of Odessa to the same depth for Penwell
14 Energy. And they basically had a dry hole -- I mean, a
15 nonproducer.

16 And they come out of the bottom of their
17 casing and then come updepth 30 feet, then went
18 horizontal 700 feet and made a 400-barrel-a-day well.

19 Q. On your -- On the second part of your Exhibit
20 5, we'll just look at this one, the cement plug that
21 you're going to set on the bottom of the milled section
22 of casing, how much cement is that, or how big a plug
23 is that?

24 A. That will be somewhere between 200 to 300
25 foot of cement. And we're setting that because we --

1 after we mill this casing out -- and we need a 50-foot
2 interval there to orient the tools to know what
3 direction we're going.

4 But then to do our kickoff and start our
5 curve, we need a good cement plug to kick off of --

6 Q. Okay.

7 A. -- because if -- You'll notice that we picked
8 a kickoff point 30 foot below the stub of the casing,
9 because they need approximately 25 to 30 feet of open
10 hole to orient their tools. So we know what
11 direction -- And you get the best orientation that way.

12 If you don't have that much open hole, then
13 you can go back and gyro your drill string inside the
14 casing, but then it's not quite as accurate.

15 So this is the base case to know exactly
16 where we're going and have full control of it.

17 Q. How did they used to orient the tool? How do
18 they orient the --

19 A. They used a nonmag drill collar. And we're
20 going to use a steering tool, and the steering tool
21 will be the survey of record.

22 Q. Okay. On all three of these, I noticed you
23 had pictured, you had 500 to 700 feet of lateral
24 distance, but you've testified that you're only going
25 to go 200 to 300 feet?

1 A. Well, hopefully we can get 300 fairly easy,
2 and with some luck we can go out to 500.

3 But 700 is probably a maximum length you
4 could make at this depth, making this short of a curve.
5 The shorter the radius, then usually the shorter the
6 extension you can make.

7 Q. Okay. So maximum will probably be 500 feet?

8 A. Yes.

9 Q. But in all cases you're going to stay within
10 the 330-foot setback?

11 A. Yes. Yes, sir.

12 Q. Are these -- How are these wells proposed to
13 be completed? Are you going to set any kind of liner
14 or casing in the wells?

15 A. For this short-radius curve, where the
16 technology is bottlenecked is doing stimulations and
17 completion techniques. And so you have to get in
18 pretty good reservoir rock and do pretty well a natural
19 completion.

20 So we will -- Hopefully we will just set a
21 packer at the bottom of the casing and run 2 7/8 tubing
22 and swab it, and hopefully we will bring a well in,
23 natural.

24 That's also the idea with this horizontal,
25 because you know exactly where your extension went,

1 versus the frac where you don't know for sure.

2 And so -- So we have no intention of running
3 any kind of liner or anything in that curve.

4 Some people run slotted liners and perforated
5 liners if they're concerned about the wellbore
6 collapsing, but this rock is firm enough we think it's
7 going to hold up.

8 But that would be the only reason to run it,
9 if you thought the hole was going to cave in on you.

10 EXAMINER CATANACH: Okay.

11 FURTHER EXAMINATION

12 BY MR. STOVALL:

13 Q. I've got a question on that. You think
14 there's some water in the lower part of the Devonian?
15 Is that what --

16 A. Yes, it's water-driven, and we think that the
17 water is at the bottom. And when they perforated this
18 whole interval, they brought the water in on them.
19 That's what we think.

20 Where we're standing the top 100 foot, we're
21 hoping to stay away from it.

22 Q. Is there any benefit gained from the
23 horizontal technology in that you don't have a -- sort
24 of a single-point pressure sink? You're got -- Your
25 fluids are flowing in over a length of pipe, and

1 therefore you can minimize any coning or drawing in of
2 water? Does that help?

3 A. That's our idea --

4 Q. Okay.

5 A. -- is to stay as far away from the water as
6 we can.

7 Q. Not only to stay away from, but also to kind
8 of spread out that --

9 A. Yes, yes.

10 Q. -- drawdown; is that correct?

11 A. Yes, yes. Because where you're in one area
12 in a vertical hole, your drawdown pressures increase in
13 the likelihood of water coming in.

14 Q. You could even suck water up --

15 A. Yes, yes.

16 Q. -- into the nonwater zones that way, even if
17 you perf'd up high, right?

18 A. Yes, that's the reason that we're going to
19 set bridge plugs in this 5 1/2 and squeeze off the top
20 set of plugs -- or -- I mean, top set of perfs, because
21 we're -- Just in case we do draw the pressure down the
22 wellbore again, hopefully water won't come up the
23 wellbore. That's the reason we're doing that.

24 Q. And you also don't pump this type of water;
25 is that right? Is there a lifting mechanism at all

1 that you can use?

2 A. Well, hopefully, they'll flow. But if they
3 don't, then we will pump them from the top of the
4 curve.

5 And like you said, hopefully when the
6 wellbores bend, the lateral extension, that drawdown
7 will be spread out over such a large area it won't pull
8 the water up from the bottom, or it won't pull up as
9 fast.

10 We anticipate making a little bit of water.
11 I mean, it's -- because it's a water-driven zone, so
12 we're probably going to make some.

13 Q. Hopefully that will be after you get most of
14 the oil out, huh?

15 A. Yes.

16 EXAMINER CATANACH: Mr. Ford, would you
17 anticipate having any problems plugging a well of this
18 kind?

19 THE WITNESS: I wouldn't think so.

20 Q. (By Mr. Stovall) Would you plug the
21 horizontal length, or just plug up the -- where you
22 made the curve?

23 A. I think we could plug any part of it that the
24 Commission wanted us to.

25 Because we're drilling the lateral extension

1 with tubing, so if we had to plug it, we could go back
2 in the tubing. I feel very confident of that.

3 Q. Would there be any -- I mean, what would you,
4 just based on what you know now, what would you
5 recommend as far as plugging?

6 Would there be a reason to go back and plug
7 the horizontal, or would you just want to plug where
8 the channel -- or basically the wellbore itself?

9 A. I would think that you would just plug the
10 curve right there at the top, like you would in a
11 normal plugging operation.

12 EXAMINER CATANACH: I don't have anything
13 further of the witness. He may be excused.

14 MR. CARR: We have nothing further in this
15 case, Mr. Catanach.

16 EXAMINER CATANACH: There being nothing
17 further, Case Numbers 10,814, 10,815 and 10,816 will be
18 taken under advisement.

19 (Thereupon, these proceedings were concluded
20 at 9:22 a.m.)

21 * * *

22

23

24

25

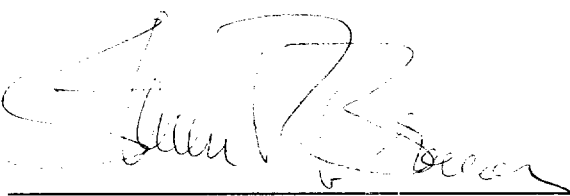
CERTIFICATE OF REPORTER

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

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

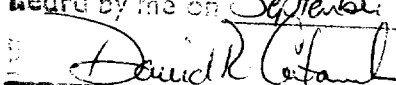
I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL September 16th, 1993.



STEVEN T. BRENNER
 CCR No. 7

My commission expires: October 14, 1994

I do hereby certify that the foregoing is a complete record of the proceedings before the Examiner hearing on September 9, 1993. 10814-10816
 heard by me on September 9, 1993. 8

 Oil Conservation Division