

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

23 September 1987

EXAMINER HEARING

IN THE MATTER OF:

Application of Meridian Oil, Inc. CASE
for a horizontal directional drilling 9217
pilot project and special operating
rules therefor, Rio Arriba County,
New Mexico.

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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MR. CATANACH: Call next Case Number 9217. This is the application of Meridian Oil, Incorporated, for a horizontal directional drilling pilot project and special operating rules therefor, Rio Arriba County, New Mexico.

Are there appearances in this case?

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin, the Santa Fe law firm of Kellahin, Kellahin & Aubrey. We're appearing on behalf of Meridian Oil, Inc., and I have two witnesses to be sworn.

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

Will the witnesses please stand to be sworn in?

(Witnesses sworn.)

VAN L. GOEBEL,
being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

1

2

DIRECT EXAMINATION

3

BY MR. KELLAHIN:

4

Q Mr. Goebel, for the record would you

5

please state your name?

6

A Van Goebel.

7

Q And how do you spell your last name?

8

A G-O-E-B-E-L.

9

Q Mr. Goebel, what is it that you do?

10

A I'm a landman for Meridian Oil.

11

Q Have you previously testified before the

12

Oil Conservation Division as a landman?

13

A No.

14

Q Would you take a moment and summarize for

15

the Examiner what has been your educational background?

16

A I have a Bachelor of Science degree from

17

the University of Texas.

18

Q And in what year?

19

A 1971.

20

Q Subsequent to graduation, Mr. Goebel,

21

would you describe for us what has been your work experience

22

as a petroleum landman?

23

A I've been a petroleum landman for nine

24

years now.

25

Q With what company?

1 A With El Paso Natural Gas, El Paso Explor-
2 ation Company and now Meridian Oil.

3 Q With regards to Meridian's application
4 before the Examiner this morning, what has been your invol-
5 vement in that case?

6 A I'm handling the land portion of this
7 case.

8 MR. KELLAHIN: Mr. Examiner, we
9 tender Mr. Goebel as an expert petroleum landman.

10 MR. CATANACH: Mr. Goebel, what
11 was your degree in?

12 A Bachelor of Science.

13 MR. CATANACH: In what?

14 A Biology with a minor in geology.

15 MR. CATANACH: Mr. Goebel is so
16 qualified.

17 Q Mr. Goebel, let me show you what is mar-
18 ked as Meridian Exhibit Number One. Would you identify that
19 exhibit for us?

20 A Okay. Exhibit One is a land plat outlin-
21 ing the San Juan 30-6 Unit.

22 Q Is this an exhibit that was compiled by
23 you or prepared under your direction and supervision?

24 A Yes.

25 Q What is indicated by the dashed outline

1 on the border of the exhibit?

2 A It indicates the outline of the unit
3 boundary.

4 Q And what is the name of this unit?

5 A It's the San Juan 30-6 Unit. It's a Fed-
6 eral unit.

7 Q And all of the property in here is Fed-
8 eral lease property?

9 A The majority of it is Federal leases; but
10 you have some State and fee acreage involved.

11 Q And who is the operator of the unit?

12 A The -- El Paso Natural Gas is the opera-
13 tor and Meridian Oil does the drilling and handles the land
14 work on behalf of El Paso Natural Gas.

15 Q Can you generally describe for the Exami-
16 ner where this unit is located in -- we're in Rio Arriba
17 county, aren't we?

18 A Yes.

19 Q Where in Rio Arriba County are we lo-
20 cated?

21 A Well, this is located in Rio Arriba Coun-
22 ty. It's approximately 50 miles outside of Farmington near
23 Navajo Lake in the northwestern part of New Mexico.

24 Q What are the formations that are unitized
25 for unit operations?

1 A Okay, all formations are unitized under
2 the unit agreements.

3 Q Let me direct your attention to the red
4 dot on the Exhibit One display and ask you to identify that,
5 please?

6 A Okay, the red dot indicates where Meri-
7 dian, on behalf of El Paso Natural Gas Company, proposes to
8 drill the San Juan 30-6 Unit 404 High Angle Fruitland Coal
9 Well.

10 Q This will be a new well from the surface?

11 A Yes.

12 Q This is not a re-entry of an existing
13 wellbore?

14 A No, this will be a new well.

15 Q Okay. Within that unit area how is the
16 drilling blocks or participation in areas designated?

17 A They -- well, the State for Fruitland
18 Coal has established 160-acre spacing. Under the terms of
19 the unit agreement drill blocks are established on 320-acre.
20 Therefore, for this well the east half of Section 23 will be
21 designated as the drill block.

22 Q Let's turn to Exhibit Number Two. Would
23 you identify for us Exhibit Number Two?

24 A Okay. This is a 9-section land plat
25 indicating the ownership surrounding the proposed High Angle

1 Fruitland Coal Well.

2 Q Identify for us the color code indicated
3 on the display.

4 A The yellow indicates El Paso Natural Gas
5 Company acreage.

6 The striped indicates T. H. McIlvain and
7 (unclear) acreage, which is cross hatched over El Paso's,
8 indicating we share as partners in those drill blocks.

9 The blue indicates Tenneco and Conoco ac-
10 reage to the north.

11 Q Pursuant to the unit operations, what is
12 the status of approval by the unit working interest owners
13 for this particular well?

14 A Okay. Under the terms of the unit agree-
15 ment, okay, we're required to submit our drilling programs
16 to the regulatory agencies, which consist of the Bureau of
17 Land Management, the Commissioner of Public Lands, and the
18 State Oil Conservation Commission.

19 Q Under that procedure have you obtained a
20 100 percent commitment of the working interest owners to
21 participation in the well?

22 A Okay. If a well is drilled outside an
23 established participating area within the unit, then we
24 would need only the drill block interest owners. We have
25 contacted the other drill block interest owners, which would

1 be in the east half of Section 23, and they have indicated
2 they will join in the drilling of this well.

3 Q Pursuant to the notice requirements of
4 the Oil Conservation Division, have you notified all offset
5 operators of this particular application?

6 A Yes, we have sent a letter to Tenneco and
7 Conoco advising them of our intent to drill a horizontal or
8 high angle well, and notified them that the hearing would be
9 this date.

10 Q Let me direct your attention, Mr. Goebel,
11 to Exhibit Number Three and ask you to identify and describe
12 that exhibit.

13 A Okay. Exhibit Three is the letter to the
14 San Juan 30-6 Unit working interest owners indicating that
15 the 404 Well would be drilled on a drill block basis; there-
16 for the costs of the well would be borne 100 percent by the
17 drill block owners.

18 Attached to that letter is a copy of the
19 letter which was sent to the regulatory agencies.

20 Q Have you received any objection or com-
21 plaints from any of the offset operators about the proposed
22 application?

23 A No.

24 Q And does the drilling of the proposed
25 well fall within the contractual terms of the unit agreement

1 and the unit operating agreement?

2 A Yes.

3 MR. KELLAHIN: That concludes
4 my examination of Mr. Goebel, Mr. Catanach. We'd move the
5 introduction of Exhibits One, Two, Three, and Four.

6 MR. CATANACH: Exhibits One
7 through Four will be admitted as evidence.

8

9 CROSS EXAMINATION

10 BY MR. CATANACH:

11 Q Mr. Goebel, I'm not sure I understand how
12 that works when you drill a well outside the participating
13 area, is that correct?

14 A Yes. In the -- under the terms of the
15 unit, once a well is drilled and determined to be
16 commercial, then a participating area is established.

17 For example, if you're -- when the -- we
18 have an established Mesaverde participating area in the unit
19 and when the first Mesaverde well was drilled and determined
20 commercial, that 320-acre drill block became the initial
21 participating area.

22 Then upon drilling of another well on
23 other acreage, and once that well was determined commercial,
24 it would be brought into the participating area.

25 So then those 640 acres would establish a

1 a participating area and the owners therein would share in
2 the production from the wells.

3 Q So are you saying there are no Fruitland
4 wells within the unit right now?

5 A Okay, at this time there is no estab-
6 lished Fruitland Coal participating area.

7 Q I see, all right. So should you make a
8 commercial well, the 160-acre block would be designated as a
9 participating area?

10 A Yeah, the 320 acres of Section 23 will be
11 brought into the participating area.

12 Q Why the -- why 320 acres?

13 A Under the terms of the unit agreement the
14 drill block is set up at 320 acres, so 320 acres are brought
15 into the participating area.

16 We have drilled other coal wells and at
17 this time they're being evaluated to determine if they're
18 commercial. So once they're determined commercial, then
19 they will be brought into a participating area.

20 Q Where are these other coal tests or gas
21 tests?

22 A Okay, we have one in Section 15 in the
23 west half of the southwest, 402.

24 Okay, in Section 14 in the southwest, the
25 No. 400. You can see that better on your second exhibit.

1 Then in the -- in Section 13 we have the
2 401 in the southwest.

3 Q Those have already been drilled.

4 A Yes.

5 Q And are being evaluated, is that what you
6 said?

7 A Yes.

8 Q So the only people that initially
9 participate in the well are the interest owners in the
10 drilling block.

11 A Right, and then see once the wells are
12 determined commercial and brought into a participating area,
13 then if you were to drill an infill well on that 320, then
14 you would go to the partners within the participating area
15 and see if they agreed to join in the drilling. It's
16 determined by a majority vote, but at this time we're
17 drilling outside any participating area.

18 MR. CATANACH: Okay, that's all
19 I have for Mr. Goebel. He may be excused.

20 MR. KELLAHIN: Mr. Examiner,
21 we'll call our engineering witness next, Mr. Randy Lim-
22 bacher.

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RANDY LIMBACHER,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Limbacher, would you please state your
name and occupation?

A Randy Limbacher. I'm Regional Reservoir
Engineer for Meridian Oil in Farmington.

Q Would you spell your last name for the
record, sir?

A L-I-M-B-A-C-H-E-R.

Q Mr. Limbacher, have you previously testi-
fied as an engineer before the Oil Conservation Division?

A No, I haven't.

Q Would you describe for the Examiner what
has been your educational background?

A I have a Bachelor of Science in petroleum
engineering degree from Louisiana State University and I
graduated in 1980.

Q Subsequent to graduation, Mr. Limbacher,
would you describe your employment experience as a petroleum
engineer?

1 you or compiled under your direction and supervision?

2 A Yes, it was.

3 Q Would you describe for us what is depicted on the display?

5 A Again our original plans will be to drill
6 a vertical hole to the top of the coal at 2910 feet. At
7 that point we will take several cores, again going vertically
8 through the coal seam, and at TD run a suite of open hole
9 logs.

10 Q From surface to the point of deviation or
11 directional drilling, will you describe what the casing and
12 cementing program is that you've proposed?

13 A Okay. We will, after evaluating the results of the core and the open hole logs, we'll plug back to
14 -- approximately to the Kirtland, and kick off at that point
15 and build angle over a 790-foot course length again stopping
16 at approximately the top of the coal seam at 29 feet -- 2910
17 feet true vertical depth and with a measured depth of about
18 3184 feet at that point.

20 At that point we'll run 7-inch casing
21 back to surface and cement it.

22 From that point, then, we will begin to
23 drill the lateral portion of the hole and we will continue
24 on at the same inclination to a total depth of 2990 feet to
25 true vertical depth, which is a measured depth of 4146 feet.

1 Q Would you describe for the Examiner what
2 your proposed plan is for controlling the angle and deflec-
3 tion in the directional drilling?

4 A We will use a continuous update MWD sys-
5 tem and while -- while we're drilling the build angle por-
6 tion of the hole, we will back up those readings with a --
7 with a wireline survey to check the accuracy of the MWD
8 tool.

9 Q Describe for us the method by which you
10 monitor the continuous survey of your directional drilling.

11 A The MWD tool is set up to give us a -- or
12 can be set up to give us a readout on tool face orientation
13 at virtually any interval of time that we want it to. We
14 would anticipate taking readings probably every thirty
15 seconds to one minute initially.

16 We can also shut down, shut down our
17 pumps and at that time we're able to take a reading on azi-
18 muth and the inclination.

19 Q Let me direct your attention to Exhibit
20 Number Six. Would you identify that exhibit for us?

21 A Exhibit Number Six is designed to show
22 the surface and proposed bottom hole location for our hori-
23 zontal well, high angle well.

24 Q What are the statewide or special rules
25 with regards to well spacing for the Fruitland Coal?

1 A I understand that there's -- that prora-
2 tion units are set up on 160-acre spacing currenty.

3 Q Within that 160 acres what would consti-
4 tute standard locations for wells drilled?

5 A From the -- it would have to be a setback
6 of 790 feet from any of the quarter section lines.

7 Q Have you placed on the overlay for the
8 Exhibit Six display an indication of what standard locations
9 would be within that 160-acre tract?

10 A Yes, sir.

11 Q The overlay has the State orthodox loca-
12 tion boundaries highlighted in red.

13 Q What is outlined in green?

14 A Okay, the green outline is the Bureau of
15 Rec boundary and the blue outline is the Navajo Lake bound-
16 ary.

17 Q If we take the overlay off, there is an
18 arc, a pie-shaped wedge, if you will, that is outlined in
19 pink. What is the purpose of that?

20 A That wedge or that arc is the area in
21 which we're seeking approval to have a TD for our bottom
22 hole location.

23 We have a surface location 1135 feet from
24 the north line and 1635 feet from the east line. We seek
25 approval to have a TD anywhere in that 90 degree arc with a

1 1470 foot radius bounded by a line running due south and due
2 east from the surface location.

3 Q What are you attempting to do with a well
4 drilled in this fashion, Mr. Limbacher?

5 A What we're attempting to do is accelerate
6 production from our coal seam project by hopefully exposing
7 additional surface area of the coal we'll see increased
8 rates which will also hopefully improve the profitability of
9 the well.

10 Q In examining this project, Mr. Limbacher,
11 are you aware of any adverse affect on the correlative
12 rights of any offset owner or operator?

13 A I am not.

14 Q Do you have any reasons for reaching that
15 opinion?

16 A Again we feel like under the framework of
17 the unit agreement that the correlative rights of all wor-
18 king interest owners are going to be protected. In Section
19 23 as well as Section 24 we have identical working interest
20 owners holding interest in identical proportions.

21 Q Is it possible for you at this point to
22 determine the exact length and direction of deviation for
23 the well?

24 A We feel like the exact length will be
25 1470 feet but depending on mechanical problems, could be

1 somewhat less, but as far as the exact direction, we want
2 approval to drill anywhere within that arc until we've been
3 able to analyze our core and open hole log results.

4 Q At the time the vertical portion of the
5 well is drilled and you obtain your log information, only at
6 that point, then, will you have data upon which to determine
7 within this arc the direction you intend to commence for the
8 directional drilling.

9 A Yes, sir.

10 Q How have you determined the approximate
11 length of the drilling distance, the 1470 feet?

12 A The -- are you asking the significance of
13 the 1470 feet or --

14 Q Yes, sir. Why have -- why is that number
15 used?

16 A Okay. 1470 feet is not necessarily a
17 magical number but what we are hoping to do is turn the
18 Fruitland Coal project into one in which it can compare eco-
19 nomically with other prospects in the San Juan Basin, and
20 what we're hoping to see is anywhere from a five to tenfold
21 increase in production and the 1470 feet will roughly ex-
22 pose, I believe, ten times the surface area that the conven-
23 tional vertical well would expose.

24 Q And that distance is determined in part
25 by the thickness of the Fruitland Coal seam as you anticipate

1 encountering it?

2 A Yes, sir. We anticipate that the Fruit-
3 land Coal seam will cover approximately an 80-foot interval
4 with a shale break in between, and our desire is to contact
5 with the wellbore a portion of each of those seams.

6 Q And that distance allows you, then, to
7 add an angle commenced at the top of that coal seam until
8 you reach a point where you intersect the base of the coal
9 seam.

10 A Yes, sir.

11 Q That liner that's established in that
12 portion of the well through the coal seam, describe that
13 liner for us.

14 A Well, we will run a 5-1/2 inch predrilled
15 liner to total depth and set with a liner hanger back in the
16 7-inch. It will not be cemented.

17 Q In summary, Mr. Limbacher, what can you
18 identify and describe for us as the technical advantages
19 that you attempt to demonstrate by this pilot project?

20 A What we're hoping to see is an
21 accelerated production rate from the well lowering the life
22 of the well, which will improve our overall profitability of
23 the Fruitland Coal project.

24 Q The methodology is one, then, that will ac-
25 celerate the withdrawals from the acreage involved in the

1 drilling block or the participating area as opposed to the
2 intent to recover additional reserves.

3 A Yes, sir.

4 MR. KELLAHIN: That concludes
5 my examination of Mr. Limbacher.

6 We'd move the introduction of
7 his Exhibits Five and Six.

8 MR. CATANACH: Exhibits Five
9 and Six will be admitted into evidence.

10

11 CROSS EXAMINATION

12 BY MR. CATANACH:

13 Q Mr. Limbacher, let's just go over your
14 procedure one more time, all right?

15 You're going to drill the vertical well
16 down to what depth?

17 A We'll drill the vertical well down to
18 the top of the coal, which is at 2910 feet and then we will
19 take a core, or several cores, through the coal interval and
20 the vertical portion at 3030 feet.

21 Q Okay, and next you plug back.

22 A And at the time we'll plug back. We'll
23 set a plug across the Fruitland interval and a second plug
24 will be set to approximately the Kirtland and dressed off to
25 around 2394 feet, which will be our kickoff point.

1 Q 2394.

2 A Yes, sir.

3 Q And at that point you'll drill your high
4 angle radius --

5 A Yes, sir.

6 Q Do you have any idea what the angle is
7 going to be on the -- on the --

8 A Final angle will be 85-1/2 degrees.

9 Q Final angle, now that's after you --
10 where is that angle located?

11 A Well, at 20, again, at 2394 feet we'll
12 kick off. We'll build angle at 12 degrees per 100 foot over
13 a 790-foot course length, which will take us to a -- to the
14 top of the coal, which is at 2910 feet true vertical depth,
15 or 3184 feet measured depth.

16 Q Okay, and this liner, you said 5-1/2 inch
17 liner to TD?

18 A Yes, sir.

19 Q From the kickoff point?

20 A Right, from 150 feet above the base of
21 where our 7-inch casing is.

22 Q Now that's mostly gas production, right,
23 the Fruitland formation?

24 A Yes, sir, gas and water production.

25 Q Is -- do you anticipate a lot of water

1 production?

2 A Yes, I would anticipate a lot of water.

3 Q What procedure are you going to use to
4 complete the well and produce it?

5 A At this time, again, we'll run a predril-
6 led liner. It won't be cemented. No stimulation is plan-
7 ned. We'll run a 2-3/8ths tubing string, tubing string to
8 TD, and probably due to the large volume of water that we do
9 expect, we'll circulate gas down the tubing string and pro-
10 duce up through the casing.

11 Q What is the radius of your arc depicted
12 in Exhibit Number Six?

13 A The radius of the arc is 1470 feet.

14 Q When will you know which -- which direc-
15 tion you're going to take off to?

16 A After evaluating our open hole logs,
17 which will include a borehole televiewer, and our core ana-
18 lysis results, we'll have an idea of what, what direction we
19 want to take.

20 Q How will that be determined? What para-
21 meters?

22 A What we are looking for is basically the
23 orientation and any secondary fractures that we might see,
24 and we will want to take a direction that hopefully opti-
25 mizes the intersection of those fracture systems.

1 Q Mr. Limbacher, why was the surface loca-
2 tion put where it was, where it was?

3 A As Van mentioned, we have four wells that
4 have been drilled to the north and we are attempting to stay
5 on pattern, on pattern with the spacing of those wells, and
6 we are hoping that this location will give us one where
7 we're recovering unique reserves and not accelerating any
8 production otherwise recoverable by those other locations.

9 In other words, we didn't want to move
10 any further to the north essentially because we've received
11 archaeological clearance for the location as it's currently
12 set out, and we did not want to move further to the south
13 because we wanted to stay on the existing spacing pattern
14 that is set up in the unit right now.

15 Q Okay, let me ask you this. Who is going
16 to -- who will share in the production from the well, the
17 interest owners you have listed? What working interest own-
18 ers?

19 A Initially, until this well is determined
20 commercial and is brought into a participating area, my un-
21 derstanding is that Meridian Oil and T. H. McIlvain and
22 James Raymond will share in the production of the well.

23 Q What happens when it breaks, when it
24 becomes a participating area?

25 A They will continue to share in the

1 production of that well, as well as prouction of wells which
2 may be brought into a participating area formed by drill
3 blocks deemed commercial to the north.

4 Q Okay. Did I hear you say that the own-
5 ers, the ownership is common in Section 23 and 24?

6 A That's my understanding.

7 Q So the correlative rights of the people
8 in Section 24, which you'll be crowding by the well, will be
9 protected.

10 A Yes, by the fact that it's essentially
11 the same interest owner, the same interest owners in the
12 same proportions in both sections.

13 Also, the interest owners, of course, in
14 Section 24 have the right to propose and drill a well in
15 Section 24.

16

17 QUESTIONS BY MR. STOGNER:

18 Q I hate to keep beating a dead horse here.
19 Let me again, I'm Michael Stogner, petroleum engineer.

20 If I look at Exhibit Number Six and if I
21 connected all your little red squares and make it one, sin-
22 gle, solid red square, why couldn't you drill up there in
23 the far northwest quarter of the standard location and ex-
24 tend no further than the extreme southeasterly quarter of
25 that red circle, or the red square, I should say?

1 A In other words from the northwest quarter
2 of the red square to the southwest quarter of the southwest
3 red square?

4 Q Yeah. Of the extreme southeastern
5 square?

6 A I haven't looked at that option. I do
7 not know what that distance would be between those two
8 points right offhand.

9 Q Well, let me put it this way: What
10 could be the minimum horizontal distance to make this well
11 economical?

12 A Again we're not really sure because we're
13 not sure what percentage increase in production we'll see.
14 It was more or less designed to give us a percentage in-
15 crease in surface area to what we would see in production,
16 hopefully. In other words, we had a tenfold increase in
17 surface area, hopefully we'd see a tenfold increase in pro-
18 duction.

19 Q So any restrictions that I alluded to
20 that would further restrict the arc that you had made would
21 not allow Meridian to fully evaluate this type of drilling
22 in this type of a reservoir, would it not?

23 A Our position on this is that the
24 Fruitland Coal is a commercial venture but it is not as
25 attractive, perhaps, as some other prospects in the basin

1 right now, and we are looking at ways to -- to make it at-
2 tractive and we want to give the horizontal hole every --
3 idea every chance to succeed.

4 Q And this is somewhat of a risky type of a
5 drilling, is it not?

6 A It's risky from the standpoint that, that
7 we're spending additional dollars over what a conventional
8 type well would be. We feel like the up side results are
9 great enough that it warrants it.

10 Q And in that you would like to allow as
11 much freedom as you could without violating anybody's corre-
12 lative rights and in doing, in keeping within the bounds or
13 your pink arc on Exhibit Number Six would allow you to do
14 that, is that correct?

15 A Yes, sir, we believe the location within
16 that arc would allow us to evaluate the hole and would pro-
17 tect the correlative rights of all parties.

18 Q I'm still a little confused on Exhibit
19 Number Five, as to where your 7-inch intermediate casing is
20 going to be set, and at what time.

21 A Okay, the 7-inch intermediate casing will
22 be set after we drilled the -- or after we build angle over
23 a 790-foot course length till we intersect the top of the
24 coal. So from the kickoff point building angle to 3184 feet
25 measured depth, 2910 true vertical depth, when we reach that

1 true vertical depth, we'll cement that 7-inch string back to
2 surface.

3 Q Okay, so this is going to be an open hole
4 all the way from about 200 feet to a maximum of 3030 feet
5 while you were talking your core samples and plugging back
6 and building your angle?

7 A Could you repeat the question, sir?

8 Q This is going to be an open hole from 200
9 feet all the way down to a maximum depth of 3030 feet. In
10 this time you're going to be drilling vertical down to that
11 depth, coring, taking your logs, plugging back, coming back
12 in with the drill string, and building angle.

13 A Right.

14 Q Okay. Let's see, what is your diameter
15 of your hole out from underneath, the horizontal hole out
16 from underneath the 7-inch going to be?

17 A I believe it will be a 6-1/8th inch hole.

18 Q Okay, now when you said a predrilled
19 liner, a 5-1/2, could you elaborate a little bit more on
20 what type of a liner? Is it slotted or --

21 A As opposed to trying to perforate with a
22 tubing conveyed system, or something of that nature, we'll
23 just go in and actually drill the size hole that we want in
24 the liner.

25 Q Okay. So it's just going to be predril-

1 led.

2 A Yes, sir.

3 Q What, about a 1/2 inch hole or --

4 A I'm not certain.

5 MR. STOGNER: I have no further
6 questions.

7

8 RE CROSS EXAMINATION

9 BY MR. CATANACH:

10 Q Let me see if I understand this. What is
11 the vertical depth that you will need to build your angle?

12 A We will, my notes, I believe angle was --
13 we'll build a 12 degree angle over 100 -- per 100 feet, and
14 I believe that requires a TVD of 516 feet over the build
15 portion.

16 Q Okay. What I was looing at was the dif-
17 ference in the 1470 and the 958 horizontal displacement, so
18 the other --

19 A Okay, The horizontal displacement from
20 the top, from where we intersect the top of the coal to TD
21 will be 958 feet and the horizontal displacement from where
22 we turn vertical till we reach the top of the coal will be
23 570 -- 507 feet, excuse me, for a total displacement of 1465
24 feet.

25 We're requesting approval for an arc of

1 1470 feet just to leave us a little bit of leeway.

2 MR. CATANACH: I think that's
3 all the questions I have at this time.

4 Are there any other questions
5 of the witness?

6 If not, he may be excused.

7 Is there anything further in
8 Case 9217?

9 MR. KELLAHIN: No, sir.

10 MR. CATANACH: If not, it will
11 be taken under advisement.

12

13 (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. 9217, heard by me on Sept 23, 1987.

David R. Catorah, Examiner
Oil Conservation Division