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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
CASE 9913, CASE 9914

EXAMINER HEARING

IN THE MATTER OF:

Application of Oryx Energy Company for an
Unorthodox Gas Well Location, Lea County,
New Mexico; Application of Oryx Energy Company
for Acreage Rededication and an Unorthodox Gas
Well Location, Lea County, New Mexico.

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

April 18, 1990

ORIGINAL

A P P E A R A N C E S

FOR THE APPLICANT:

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1 WHEREUPON, the following proceedings were had
2 at 10:27 a.m.:

3 EXAMINER STOGNER: At this time I'll call
4 Case Number 9913, which is the Application of Oryx
5 Energy Company for an unorthodox gas well location, Lea
6 County, New Mexico.

7 Prior to this case, the -- Counsel has asked
8 that I also call Case Number 9914, which is also the
9 Application of Oryx Energy Company for acreage
10 rededication and an unorthodox gas well location, Lea
11 County, New Mexico.

12 At this time I'm going to call for
13 appearances in both cases.

14 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin
15 of the Santa Fe law firm of Kellahin, Kellahin and
16 Aubrey, appearing on behalf of the Applicant, and I
17 have one witness to be sworn.

18 EXAMINER STOGNER: Are there any other
19 appearances in either or both 9913 and 9914?

20 Will the witness please stand to be sworn?

21 (Thereupon, the witness was sworn.)

22 EXAMINER STOGNER: Mr. Kellahin?

23 MR. KELLAHIN: Thank you, Mr. Examiner.
24
25

1 CLIFF MURRAY,

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

4 EXAMINATION

5 BY MR. KELLAHIN:

6 Q. For the record, Mr. Murray, would you please
7 state your name and occupation?

8 A. My name is Cliff Murray, and I'm a petroleum
9 geologist.

10 Q. Mr. Murray, on prior occasions have you
11 testified before the Oil Conservation Division?

12 A. No, I have not.

13 Q. Would you describe for us when and where you
14 obtained your geologic degree?

15 A. Yes, sir. I graduated in 1975 from Arkansas
16 Tech at Russellville, Arkansas, with a BS degree in
17 geology.

18 Q. Summarize for us what has been your
19 employment background as a petroleum geologist.

20 A. I've been working for the past 11-1/2 years
21 for Oryx Energy.

22 Q. Have you made a specific study of the facts
23 surrounding these two consolidated applications which
24 deal with the Grama Ridge Morrow Gas Pool in Lea
25 County, New Mexico?

1 A. Yes, sir, I have.

2 Q. Describe for us in a general way what
3 constituted your study.

4 A. Looking at previous maps in the area and
5 studying the logs and conversing with the reservoir
6 engineer of the area, I've become acquainted with the
7 area, and comparing the data of work previously done
8 and satisfying my mind of the validity of it.

9 Q. As a result of that study, have you come to
10 certain geologic conclusions with regards to how to
11 most effectively and efficiently develop those Morrow
12 gas reserves that underlie Section 9 that's the subject
13 of these two Applications?

14 A. Yes, sir, I have.

15 MR. KELLAHIN: We tender Mr. Murray as an
16 expert petroleum geologist, Mr. Stogner.

17 EXAMINER STOGNER: Mr. Murray is so
18 qualified.

19 Q. (By Mr. Kellahin) Mr. Murray, let me have
20 you direct your attention to what is marked as
21 Applicant Exhibit Number 1. In dealing with the Grama
22 Ridge Morrow Gas Pool in Lea County, New Mexico,
23 describe for us whether or not we are dealing in this
24 gas pool with one specific portion of the Morrow in
25 preference to other portions of the Morrow or whether

1 or not these various Morrow stringers produce in one or
2 more wells.

3 A. There are numerous stringers in the Morrow
4 interval, and they do produce in various wells.

5 Q. How is the spacing established for wells that
6 are drilled to and produce from this pool? What's the
7 spacing of the wells?

8 A. They're 320-acre spacings.

9 Q. Does Oryx now have a well in Section 9 that's
10 producing from the pool?

11 A. Yes, sir, we do.

12 Q. What have you concluded as a geologist is the
13 -- Well, let me ask you this before that question:
14 What is the current configuration of the 320-spacing
15 unit assigned to the current well in that section?

16 A. Currently it's a laydown, rectangular block,
17 320 acres on the north half of Section 9.

18 Q. As a result of your study, then, what do you
19 propose to do?

20 A. We propose to reorient these 320-acre units
21 to be standup units, east half, west half, of Section
22 9.

23 Q. You're allowed to drill a second well in the
24 section under these rules?

25 A. Yes, sir, we are.

1 Q. And where do you propose to place the second
2 well in the section?

3 A. We'd like the second well in the section to
4 be 1046 feet from the north line, 1273 feet from the
5 west line. That's in the northwest quarter of Section
6 9.

7 Q. As a result of reorienting the spacing unit
8 and the location of the second well, both the existing
9 well and the new well will be at unorthodox well
10 locations, will they not?

11 A. That's correct.

12 Q. Let me have you go now to the type log that
13 is marked as Exhibit Number 1 and identify for us what
14 well this log is taken from.

15 A. This is the Grama Ridge Number 1. It's Oryx-
16 operated. It's in the northeast quarter of Section 9.

17 Q. Describe for us the geologic information on
18 the type log.

19 A. Yes, sir, this is a type log of the Morrow
20 interval, starting -- the Morrow interval penetrated or
21 that we'll be dealing with here -- starting with the
22 base of the Atoka, is the top designation on the left-
23 hand side of this log. It is a neutron-density log,
24 gamma rays on the left-hand.

25 But the base of the Atoka also is the top of

1 the Morrow formation, and it's not labeled as such, and
2 that will come in later in a structure map. That's the
3 top of the Morrow.

4 Below that is the top of the Morrow A, a
5 gross subdivision, and below that is the top of the
6 Morrow A Lower, also referred to as the A-1 in our
7 designations. That sand has colored in on the porosity
8 track the crossover of the neutron over the density
9 porosity.

10 Below that is the top of the Morrow B sand or
11 B interval, and then further down in that left-hand
12 side of the type log is the top of the Morrow C.

13 And then labeled "C" Middle Pay is the sand,
14 Morrow sand -- We're calling it the C -- that is
15 productive or perforated and producing in this Grama
16 Ridge Number 1.

17 Q. Give us a brief summary of the current
18 capacity of this well to produce out of the C zone of
19 the Morrow.

20 A. Currently we're producing about 8 million
21 cubic feet a day, and we've produced approximately half
22 a BCF to date.

23 Q. What is the potential, as you understand it,
24 that exists for the A zone?

25 A. It has good porosity, on the order of 12

1 percent average porosity. And it has good pressure
2 that we've tested previously, although it does appear
3 to be somewhat drained by some offsetting wells. But
4 we feel that it will be a productive zone.

5 Q. Why have you not opened up the A zone in this
6 well and produced it in conjunction with the production
7 out of the C zone?

8 A. As tested on open-hole test by a repeat
9 formation tester, that upper sand, the A-1 -- A Lower
10 sand, as it's labeled -- had approximately 4200 pounds
11 pressure, where that lower sand has approximately 7300
12 pounds, and we're unable to commingle those because of
13 cross-flow that may occur. And also mechanically, we
14 have a 5-1/2 inch and don't feel we can deal with the
15 well.

16 Q. In reviewing the geology and reaching your
17 conclusions, Mr. Murray, what was the criteria that you
18 selected by which to judge the best orientation and the
19 best locations for each of the two wells, as you
20 develop Section 9?

21 A. Well, as in any sand, really, you're looking
22 for a combination of maximum sand thickness, favorable
23 structural position and any protection from drainage in
24 offsetting sections.

25 Q. In making your investigation of the geology,

1 have you prepared a structure map?

2 A. Yes, sir.

3 Q. Let me direct your attention to what is
4 marked as Exhibit Number 2. Is this the structure map
5 that you've relied upon in formulating your
6 conclusions?

7 A. Yes, sir.

8 Q. Take a moment and identify the display for
9 us.

10 A. This is the top-of-the-Morrow structure map
11 with a contour interval of 50 feet.

12 Q. And how have you located the proposed
13 unorthodox location in the west half of 9?

14 A. I've used a red circle, "2" beside it, and
15 then I have a red arrow pointing towards that location.

16 Q. And the existing well in the east half of
17 Section 9 is identified how?

18 A. It's labeled as the Oryx Grama Ridge Federal
19 Number 1.

20 Q. Just to the south in Section 9 of the
21 proposed unorthodox location, there is a blue circle?

22 A. Yes, sir.

23 Q. What does that represent?

24 A. That's a 1980-foot setback from the end line
25 of the unit, which would be the normal or orthodox

1 location.

2 Q. In looking first of all about the question of
3 the orientation of the spacing unit --

4 A. Yes, sir.

5 Q. -- why would you not simply leave this with a
6 north-half spacing unit dedicated to the Number 1 well
7 and then seek a location in the south half for the
8 second well in this section?

9 A. The structural position that we're concerned
10 about, we're mainly concerned about being updip to
11 offsetting wells that have produced water from our
12 subject A sand. And that south half, as indicated by
13 the structure map, would be in the lower portion. It's
14 the lowest portion of the section.

15 Q. Can you identify for us the data available
16 that tells you about the approximate location of the
17 gas-water contact in this vicinity?

18 A. Yes, sir.

19 Q. How would you do that?

20 A. I'm going to point out the wells that we know
21 have encountered water. One well that particularly has
22 encountered water, and that's the Enron Oil and Gas.
23 It's the west offset to this proposed unit.

24 Q. In Section 8?

25 A. Yes, sir.

1 Q. And that's the dry-hole symbol there in the
2 northeast quarter of that section?

3 A. Yes, sir.

4 Q. What happened in that well?

5 A. That well production-tested, perforation-
6 through-casing production-tested, this interval and
7 produced water and a small amount of gas.

8 Q. Now, this interval is what portion of the
9 Morrow Pool?

10 A. The A-zone sand.

11 Q. Which you have identified as the highest-
12 producing sand in the Morrow Pool?

13 A. Yes, sir.

14 Q. Okay, and that tested wet?

15 A. Yes, sir.

16 Q. When you mapped the structure in the Morrow
17 for that well, you get a minus 9055 feet?

18 A. Yes, sir, that's the top of the Morrow.

19 Q. Within the vicinity of this structure as it
20 affects Section 9, have you found any wells that tested
21 wet at a higher structural position?

22 A. No, sir.

23 Q. What represents the lowest structural
24 position of a gas-free completion -- I mean of a water-
25 free gas completed well?

1 A. The wells in Section 10, in the north half of
2 Section 10 labeled Superior Oil Government A 1 and the
3 Minerals, Inc., Government A 2 are both completed in
4 the A-1 sand, and no report of water being produced.

5 Q. What do either one or both of those
6 completions tell you in terms of where you would want
7 to locate your well in Section 9, so that you would
8 minimize the risk of encountering water in the A sand?

9 A. It tells me I want to be no lower than those
10 two sands, than those two wells in that sand. And in
11 particular they, both wells when -- The A 1 well, when
12 it was being recompleted into that zone, had
13 significant work done to squeeze off water channeling
14 that it had, and I want to stay as far above that as
15 possible.

16 Q. When we look at the location of the proposed
17 unorthodox well in the west half of 9, it appears to be
18 on the minus 8900-foot contour line?

19 A. (Nods)

20 Q. That is above the minus 8923 found in the
21 Number 1 well in Section 10?

22 A. Correct.

23 Q. Why have you located it at a point higher
24 than the point found in the Number 1 well, as opposed
25 to a more standard location, if you will, in the west

1 half of 9?

2 A. I want to remain as far to the north or high
3 as I can from that, due to risk and error in mapping,
4 and also mainly just any encroachment of water that may
5 occur at a future date, after production.

6 Q. Having determined, now, Mr. Murray, that in
7 order to place yourself at a favorable structural
8 position for the full development of the hydrocarbons
9 in Section 9, have you concerned yourself about the
10 structural position of your well insofar as you might
11 be affected by the drainage from any of the offsetting
12 gas wells in this pool?

13 For example, when we look at Section 9,
14 there's a well in the north half of Section 16 to the
15 south. Does that well pose any risk to your space --
16 to your section?

17 A. No, sir, not from the sand.

18 Q. Why not?

19 A. There is no production from that -- this
20 particular interval, from the sand that correlates to
21 the sand in the Grama Ridge 8 Number 1.

22 Q. When we look at the relationship of your well
23 to Section 8 to the west, is there any concerns about
24 drainage in that direction?

25 A. No, sir.

1 Q. Why not?

2 A. That well was tested earlier and was found to
3 be water-productive in the sand, and there was no
4 drainage from that direction.

5 Q. Okay. If you've now found yourself a good
6 structural position in the west half of 9 for the
7 second well, how do you know that you've also found
8 yourself in a thickness of the Morrow that's adequate
9 to you as a geologist in order to penetrate the
10 reservoir?

11 A. I prepared an isopach map of that particular
12 interval and compared our location to the thickness of
13 that channel.

14 Q. Let's turn now, sir, to Exhibit Number 3. Is
15 this your map of the net pay of the A sand in the
16 Morrow that you've just referred to?

17 A. Yes, it is.

18 Q. Describe it to us.

19 A. This is the Morrow A-1 sand, a net porous
20 sand isopach that's that sand that's above with a
21 porosity of greater than seven-percent porosity.

22 Q. When we look at the map, you have mapped that
23 net pay to show various ranges of thickness of the
24 reservoir from zero up to a maximum thickness of ten
25 feet of net pay?

1 A. Yes, sir.

2 Q. Describe what causes you to reach the
3 conclusion about the orientation and the shape and the
4 thickness of that sand as it moves through your
5 section. What have you used for control?

6 A. Located below each well are the net-pay
7 footages for those particular wells, and we have
8 offsetting wells to the west, being that Enron State
9 well which had 13 feet, and the Grama Ridge Federal
10 Number 1 which had 12 feet of pay. To the south we
11 have two feet of pay, and to the north zero feet of
12 pay.

13 So with those delineations, that guided us in
14 controlling the orientation as a northeast-southwest
15 trending sand body.

16 Q. When we compare the proposed unorthodox
17 location on this map with the closest standard
18 location, the blue circle, do you gain thickness of
19 reservoir in the A sand if you move to the south to a
20 standard location?

21 A. Yes, sir.

22 Q. I don't think I made myself clear.

23 A. All right.

24 Q. Do you gain thickness?

25 A. By moving south of the standard location you

1 would gain thickness.

2 Q. How do you show that if your map shows no
3 change in thickness within that interval, the ten foot?

4 A. I'm sorry, there's no further increments in
5 there. I would expect the thicker portion to be in the
6 center of the channel as mapped.

7 Q. Okay. Why then would you not move to the
8 south?

9 A. Due to the structural position and water
10 encroachment.

11 Q. The risk of moving south, then, and losing
12 structure is a greater risk than gaining a foot or two
13 of thickness in the A sand as you move to the south?

14 A. Yes, sir.

15 Q. All right. Let's look at the A sand in terms
16 of its relationship to the offsetting section. Look at
17 the relationship of Section 9 to 8 and see the well,
18 the Enron Well, immediately to the west of you?

19 A. Yes, sir.

20 Q. That had 13 feet of net pay in the A sand?

21 A. Net -- I'm sorry.

22 Q. Yes?

23 A. Net porous sand.

24 Q. Net porous sand.

25 A. The difference is that this -- Porous sand

1 could be water-filled, and it would be porous but it
2 would not be pay. And so by the water being present,
3 that would eliminate this as pay. But it does have the
4 porosity.

5 Q. And that well encountered 13 feet of porous
6 sand in the A but it was wet?

7 A. Yes, sir.

8 Q. All right. When we look up in Section 5, the
9 diagonal offset to the north and west, there is a fault
10 shown on the display; do you see that?

11 A. Yes, sir.

12 Q. Just to the west of the fault there's a well?

13 A. Yes.

14 Q. Describe that to me.

15 A. That well was drilled through the Morrow
16 interval. It was completed as dry originally in 1984,
17 is the date above it, it shows. But later in 1986 it
18 was recompleted as a Bone Springs well, which is around
19 11,000 feet. It had no pay, no net porous sand in the
20 A sand interval.

21 Q. So you've assigned zero feet to that well at
22 that point in the A sand?

23 A. Yes, sir.

24 Q. Your other control point in this area is the
25 Bettis Well in the north half of 4?

1 A. Yes, sir.

2 Q. And in this sand you've also assigned zero
3 feet of porous -- of net porous sand in the A sand?

4 A. Yes, sir.

5 Q. Okay. When you use those data points and
6 contour the zero line, you have shown what in
7 relationship to that portion of Section 9 that is on
8 the upside of the fault, adjacent to your northwest
9 corner? What does it tell you about the A reservoir in
10 that Section 5?

11 A. There's no net porous sand mapped on that
12 unit.

13 Q. Does your unorthodox location gain an
14 advantage over the owners in Section 5, then, if this
15 location is approved?

16 A. No, sir.

17 Q. Why not?

18 A. They have no net pay to be drained by our
19 proposed location.

20 Q. Okay. In examining the geology in this area,
21 Mr. Murray, have you also examined what the sand looks
22 like, if you map the C -- the C sand?

23 A. Yes, sir, we have.

24 Q. Let's turn to your map that shows the isopach
25 of the C sand. That's identified as Exhibit Number 4,

1 is it?

2 A. Yes, sir.

3 Q. Describe for us what this shows you.

4 A. This is the Morrow C sand net porous sand
5 isopach, also with the porosity -- using a porosity
6 cutoff of seven percent.

7 Q. In looking at the map of the C sand, your
8 proposed unorthodox location is somewhere between 10
9 and 20 feet of thickness --

10 A. Yes, sir, it is?

11 Q. -- in the C sand?

12 If we move to the closest standard location
13 for the west-half well, your thickness increases to
14 something slightly over 20 feet of thickness in the C?

15 A. Yes, it does.

16 Q. Why wouldn't you put this well at a point
17 where it has the greatest thickness in the C sand
18 portion of the pool?

19 A. Well, normally, if the interest -- royalty
20 interest or owners in the east half and the west half
21 were different, that would be the optimum location for
22 this well.

23 Q. Why would that be the optimum location if the
24 ownership was different?

25 A. I'm sorry, so the owners -- There would be

1 competing drainage between the C sand, and they could
2 -- The owners then would be sharing in the production
3 from that C sand.

4 Q. Is that the situation for the ownership in
5 Section 9?

6 A. No, sir. We have the luxury of this all
7 being one base lease, and we have common ownership in
8 this 640-acre section.

9 Q. If the ownership is common in the section,
10 Mr. Murray, is it necessary in your opinion as a
11 geologist to locate the second well so it has the best
12 position in the C portion of the pool?

13 A. No, sir.

14 Q. Why not?

15 A. We feel the Grama Ridge Federal Number 1 is a
16 very good well and will produce, as my reservoir
17 engineers tell me, it's a very capable well of
18 producing in this section and will help protect the
19 whole unit from drainage, and the optimum location on
20 the A-1 sand would be in the north half.

21 And to optimize this well, we'll be getting
22 that -- We'll be getting net porous sand in the
23 proposed location as well as in the optimum location
24 for the A-1.

25 Q. Okay, Explain that to me. If the Grama Ridge

1 Number 1 Well is producing out of the C sand only, why
2 do you want the Number 2 Well located in this favorable
3 position in the A sand in order to produce the A sand?
4 Why can't you wait and produce the A sand with the
5 Number 1 Well later?

6 A. We've -- In the pressure tests that I stated
7 earlier when we were looking at the type log in that
8 interval, it had a much lower pressure, 4200 pounds, in
9 this interval, which is corresponding to the A-1 --
10 pressure data we have on the A-1 sand in Section 10,
11 which both the A-1 and the A-2 are completed in that --
12 in that A-1 sand. And both those wells have pressure
13 -- or the Number 1, which we have pressure data on, is
14 very similar pressure. And we feel there's drainage
15 occurring from that unit to the east.

16 Q. Your reservoir engineers have advised you,
17 then, to -- as a geologist, to find them another
18 location in 9 to protect the A sand reserves in Section
19 9 because they're being drained by offsetting wells?

20 A. Yes, sir.

21 Q. And the source of the drainage is coming from
22 wells in 10?

23 A. Yes, sir.

24 Q. In looking at the size and the shape of the
25 net porous sand map on the C sand --

1 A. Yes, sir.

2 Q. -- describe for me the confidence that you
3 have as a geologist in the southwestern extent of this
4 pod, if you will, in the C reservoir.

5 A. It's an optimistic interpretation, and it
6 does extend further southwest than known control is
7 present.

8 Q. Can you honor the available well control in 8
9 and 16, acknowledge the absence of control in 17, and
10 reconfigure the net pay map so that it does not extend
11 into 17?

12 A. It will be close. It will be close as far as
13 not extending into 17, but you can crop it shorter for
14 more conservative interpretation.

15 Q. Would that be a reason not to locate a well
16 in the south half of 9, to penetrate the C reservoir?

17 A. Yes, sir. It would be more questionable to
18 the southwest where there is no control extending in
19 that direction.

20 Q. Now, we've described the lack, in your
21 opinion, of an unfair advantage gained by Oryx over any
22 owners in Section 5, the absence of any concern in 8,
23 there's a dry hole immediately offsetting you. Let's
24 look at 4 to the north.

25 A. Yes, sir.

1 Q. You'll have a well at an unorthodox location
2 in relation to the owners in 4. Would you recommend
3 that the Division Examiner penalize your well because
4 of its location in relationship to the owners in 4?

5 A. No, sir.

6 Q. Why not?

7 A. Well, on the A sand -- Well, both sands, we
8 are going to be providing control data for the
9 development of Section 4 with our test well, and they
10 are oriented as a laydown 320-acre unit and will be
11 capable of being 660 feet from our north line at a
12 legal, orthodox location.

13 Q. The spacing unit for the Bettis Boyle Well in
14 Section 4 is oriented in what direction?

15 A. It's laydown or -- It's east-west.

16 Q. So it would be the north-half dedication?

17 A. Yes, sir.

18 Q. Is the south half of Section 4 available,
19 then for another well in Section 4?

20 A. Yes, it is.

21 Q. And that well could be as close as 660 to the
22 section line that separates 4 from 9?

23 A. Yes, sir.

24 Q. And your position is that they will have the
25 opportunity, then, to learn the results of your

1 drilling and take advantage of that in order to locate
2 their well?

3 A. Yes, sir.

4 Q. The ownership of the working interest for the
5 south half of 4 is held by Hadson Petroleum, is it not?

6 A. Yes, sir.

7 Q. Have, to your knowledge, you received any
8 objection or concerns by that company with regards to
9 your location?

10 A. We have not.

11 Q. In fact, has anyone objected to your
12 location?

13 A. No, sir.

14 Q. Let's go now and talk about the cross-
15 sections that you've prepared.

16 A. Yes, sir.

17 Q. So we don't get lost, Mr. Murray, I think the
18 index map for your cross-sections are shown on your
19 Exhibit Number 3.

20 A. Yes, sir.

21 Q. Okay. What's the first one you want us to
22 look at?

23 A. The first cross-section is the west-to-east
24 cross-section, that's from left to right on the cross-
25 section, and it's indicated on that A-1 sand map as

1 showing it's from the -- It's the big W in the west,
2 the E on the east end of the cross-section.

3 Q. What type of cross-section is this?

4 A. It's stratigraphic. It's hung on the top of
5 the Morrow B interval.

6 Q. And what does this tell you?

7 A. The continuity -- or it shows the continuity
8 and discontinuity between the different Morrow sands.
9 And in the particular east-west alignment, the C sand
10 shows good continuity, correlatable continuity between
11 all the wells on the cross-section.

12 Q. Let's examine that for a moment. The
13 engineers have told you they are concerned about
14 drainage of the A sand from wells in Section 10?

15 A. Yes, sir.

16 Q. As a geologist, can you confirm geologically
17 the continuity of that sand as it affects Section 9?

18 A. Yes, sir, that's the uppermost colored-in
19 interval on this cross-section, and it shows good
20 continuity and correlation from one side of the map to
21 the other.

22 Q. Is there a geologic explanation, then, to
23 demonstrate the lack of encountering virgin reservoir
24 pressure in the A sand when you tested it in the well
25 in the northeast quarter of 9?

1 A. Right, there's communication between the
2 wells.

3 Q. And you see that by a comparison of the logs
4 and the continuity of that sand?

5 A. Yes, sir.

6 Q. What do you see when you get to the C sand?

7 A. You also see continuity between the sands.
8 You see that thinning, thinning to the west and the
9 Enron Well. It's pinching out. And then the Superior
10 Well has a thick section, a thicker section. And then
11 the Government A Number 2 is thinning a little.
12 Although we see pressure, significant pressure
13 differences between the two, there's a tightness.

14 And on our previous exhibit, which was the
15 C -- the Morrow C sand, we're showing that as a
16 permeability barrier between the two, we're seeing a
17 pressure difference between these zones.

18 Q. You're looking at your Exhibit Number 4,
19 then?

20 A. Four, yes, sir.

21 Q. When we look at that, you've identified for
22 us your interpretation of a permeability barrier?

23 A. Yes, sir, that squiggly line, it's
24 identified. The identification is in the upper left-
25 hand corner of the map, permeability barrier, with an

1 arrow, line and arrow, pointing to the line.

2 Q. When we look at your cross-section in the C
3 and compare that to your net-pay map, Number 3 -- I'm
4 sorry, that's the wrong one. -- Number 4, have you
5 concluded geologically that there is not a necessity
6 for a second well in the south half of 9 in order to
7 fully develop the C sand reserves in Section 9?

8 A. Phrase that again, please?

9 Q. Do you want me to do it again? Yes, sir.
10 Looking at 4 and 5 --

11 A. Okay, yes, sir.

12 Q. -- and we're looking at the thickness of the
13 C sand, and the thickness, particularly how penetrated
14 by the Number 1 Well in the northeast. Based upon an
15 analysis of those two documents, these two geologic
16 maps, can you conclude that it is necessary to have a
17 second C-sand producing well in the section?

18 A. No, sir. I believe this Number 1 well is an
19 adequate well to -- It's a very good well.

20 Q. What is accomplished, then, Mr. Murray, if
21 the Examiner approves your Application for the
22 unorthodox location of the well that's already drilled
23 and completed, which is necessitated by the orientation
24 of the spacing units? What's accomplished for the
25 section if both those wells are approved?

1 A. We can lower our risk in the A-1 zone and
2 drill a well -- a well with lower risk, and complete
3 and protect the unit from drainage in that A-1 sand.

4 Q. In the absence of a well as you propose to be
5 located in the west half of 9, in your opinion is there
6 going to be drainage occurring?

7 A. Yes, sir.

8 Q. And it will continue?

9 A. Yes, sir.

10 Q. Are you seeking this location to gain an
11 advantage over any offset operator?

12 A. No, sir.

13 Q. Okay, let's go to Exhibit Number 6, Mr.
14 Murray, and have you identify and describe that for us.

15 A. This is the same interval as the previous
16 cross-section, and again it's the north-south, the
17 north being the left-hand portion of the cross-section,
18 south to the right, which starts in Section 4 and
19 proceeds through Section 9 to Section 16 on the south
20 end.

21 Q. What conclusions do you reach?

22 A. It shows the discontinuity of the
23 particular -- of the C sand in that we're penetrated,
24 we're perforated in. This Morrow C net porous sand
25 map, Exhibit Number 4, shows the thickness of 22 feet,

1 and that sand, that thickness is actually from a lower
2 pod or portion in the C interval. So the map
3 represents the C interval in that net porous sand, but
4 as the cross-section shows, these pods are not really
5 continuous through the area.

6 Q. Well, insofar as it describes the area
7 between Sections 4 and 9?

8 A. Correct.

9 Q. Okay. All right. Let's turn to Exhibit
10 Number 7. Would you identify Exhibit 7 for us?

11 A. Yes, sir. This is a plat of the area of
12 interest in the Grama Ridge Morrow Field showing the
13 existing Morrow proration units, and those are cross-
14 hatched diagonal lines with the -- and the Number 2
15 Well is located with a red arrow.

16 Q. And this also shows the orientation of the
17 other spacing units in this area as well as those wells
18 that, in this vicinity, are completed in this pool?

19 A. Yes, sir.

20 Q. And you have labeled the operators of those
21 wells that are either currently producing or had
22 produced in the past --

23 A. Yes, sir.

24 Q. -- or penetrated this pool?

25 A. Yes, sir.

1 Q. Okay. What have you shown with Exhibit
2 Number 8?

3 A. Number 8 is the same area, and it's showing
4 or proposed Morrow units. Also is the footage offsets
5 from the nearest boundary line for the proposed well,
6 as well as the existing Grama Ridge Federal Number 1.

7 Q. Summarize for us your geological conclusions,
8 Mr. Murray.

9 A. That by the development and the optimal
10 development of the A-1 sand, we need to remain as
11 structurally high as possible to maintain structural
12 position above any encroaching water, as well as
13 staying in the reasonable thickness of the sand, of the
14 A-1 sand.

15 And for that orientation, we would need to
16 realign the east-west trending 320-acre unit, proration
17 units, to being standup units, being east half, west
18 half of Section 9.

19 MR. KELLAHIN: At this time, Mr. Examiner, we
20 move the introduction of Exhibits 1 through 8.

21 That concludes my examination, Mr. Murray.

22 EXAMINATION

23 BY EXAMINER STOGNER:

24 Q. Let me make sure I understand this right.
25 The Bettis Boyle Federal Number 4 is producing from the

1 A sand?

2 A. No, sir, that one's in the -- in that lower C
3 sand in Section 4.

4 Q. Is that -- Are the perforations shown on
5 Exhibit 6?

6 A. Yes, sir. It's that red interval, as well as
7 those up around 12,900.

8 Q. Let's see, I show a fairly large perforated
9 interval, then. It shows some in the A sand.

10 A. Is that that diagonal line? I'm sorry I
11 don't have a cleaner exhibit for you. The large -- Can
12 I come down, please? I just want to make sure I'm
13 clear on that.

14 Q. You can give me some footages.

15 A. This -- Okay, these are DST, the diagonal
16 line beginning at approximately 12,630, extending down
17 to 13,030, was the DST interval that was just used.

18 And the same is true of the interval at
19 approximately 13,050 feet to 13,180 feet, was also DST
20 intervals that was marked on the log used for cross-
21 section.

22 Q. Now, I show some little boxes, about 12,900
23 and -- it looks like 13,100.

24 A. Yes, sir.

25 Q. What are those?

1 A. Those are perforations.

2 Q. Those are perforations?

3 A. Yes, sir.

4 Q. Are those the present perforations?

5 A. Yes, sir.

6 Q. I show some to be in the B sand. I assume
7 that the B sand is not of interest to you, or is that
8 not prolific? What's the --

9 A. No, sir, it's not very widely distributed,
10 and since we didn't find it in our Number 1 Well and
11 haven't mapped it in the area to be productive, we're
12 not considering it potential at this time.

13 There does exist to the north -- Those wells
14 in Section 4 and 3 are portions of a gas storage unit,
15 and that's one way that we established the barrier, the
16 permeability barrier, is that our pressure taken by the
17 repeat formation testers in those wells -- in our well
18 in Section 9 -- is significantly higher than those
19 wells in Section 3 and 4.

20 Q. What storage project are you referring to?

21 MR. KELLAHIN: May I get you another map --

22 EXAMINER STOGNER: Yes.

23 MR. KELLAHIN: -- Mr. Examiner? I don't
24 think we have one that extends that far north.

25 (Off the record)

1 MR. KELLAHIN: Mr. Stogner, there was
2 attached to the Application when it was filed a
3 landman's map, and I'll show you another copy of that
4 same map, but it shows the Llano Gas Storage Unit in
5 the township north of this section, and that's the
6 storage unit to which Mr. Murray refers.

7 Q. (By Examiner Stogner) So that takes in all
8 of Section 3; is that -- Am I reading that right? And
9 Sections 33 and 34 of the township just north? Is that
10 what you show?

11 A. That's what the map -- It's my understanding
12 that the north half of 4, that 4 is also in that unit.

13 Q. The north half of 4?

14 A. Four, yes, sir.

15 Q. But it's presently being produced; is that
16 correct?

17 A. It's in operation, yes, sir.

18 Q. Was the production of 4 out of the gas
19 storage, or is it virgin production?

20 A. Gas storage. I believe that well has been
21 used to inject gas. The wells in the west half of --
22 northwest of 3 and in 4 are used as injection, I
23 believe, with the northeast quarter being a producer.

24 Q. And that's in the Morrow production, or
25 Morrow zone; is that correct?

1 A. Yes, sir. And we've designated it in an
2 agreement as the B and C sand. Those are the zones
3 that are in the gas unit.

4 Q. Are there any future plans to open up the A
5 sand in your Number 1 well?

6 A. No, sir, not pending the depletion,
7 significant depletion of that C sand.

8 Q. I'm thinking out loud, but in the form of a
9 question about future development, specifically the
10 south half of Section 4. Where, in your opinion, would
11 be the best place to locate a well for both the C and
12 the A zones?

13 A. Southeast quarter. And then you'd have --
14 You'd be in the maximum thickness of the A as well as
15 the C sand.

16 Q. And more than likely that would need to be an
17 unorthodox location, would it not?

18 A. That 1980 from that end line, I would say,
19 would require that you come off of that 1980 to be in
20 the maximum thickness.

21 Q. So it could be a standard location?

22 A. It could be, yes, sir.

23 Q. But to get to the C, you would probably want
24 to drill to the east a little bit further?

25 A. Yes, sir.

1 Q. Would Oryx have an objection to an unorthodox
2 location in the south half of Section 4 if it
3 encroached no further than 660?

4 A. No, sir.

5 Q. In that case, I have no further questions of
6 this witness.

7 Are there any other questions of this
8 gentleman?

9 MR. KELLAHIN: No, sir. What I have, Mr.
10 Examiner, is various waivers I have received along with
11 our certificates of Notice. They've been marked as
12 Exhibits 9, 10, 11 and 12, Mr. Examiner.

13 EXAMINER STOGNER: The first one being to
14 Hadson, Mr. Kellahin, his interest is in the south half
15 of 4; is that correct?

16 MR. KELLAHIN: That's correct.

17 EXAMINER STOGNER: And Exhibit Number 10, you
18 have C.W. Trainer. His interest is in what area?

19 MR. TRAINER: All of 5.

20 EXAMINER STOGNER: I'm sorry, I heard a new
21 voice.

22 MR. TRAINER: I'm C.W. Trainer, and I own all
23 of Section 5 and 6 and 9.

24 EXAMINER STOGNER: Five and 6. And 9?

25 MR. TRAINER: Seven, not 9. Seven, I'm

1 sorry.

2 EXAMINER STOGNER: Seven, 8 and 9?

3 MR. TRAINER: No, 5, 6 and 7. Section 5 is
4 the main --

5 EXAMINER STOGNER: Mr. Trainer, I see you
6 showed up late. Are you going to present any
7 testimony?

8 MR. TRAINER: I'd like to make a statement is
9 all. I didn't bring any exhibits or any attorney or
10 anything. I do have some feelings in the matter.

11 EXAMINER STOGNER: Okay, let me run through
12 this first, and then we will end with some closing
13 statements.

14 Okay, Mr. Kellahin. I'm going to Exhibit
15 Number 11 here, and this is a -- What am I looking at
16 on Exhibit 11? That's Texaco, Incorporated, waiver?

17 MR. KELLAHIN: Yes, Mr. Examiner, and what we
18 have done is provided them a Notice. Texaco has the
19 south half of 3, and what we have done is provided them
20 with copies of the Application and Notice. They have
21 acknowledged receipt of it, and what this does is show
22 that they have waived the Notice period.

23 We did not recognize that they had a
24 potential interest offsetting us until after 20 days --
25 22 days had lapsed in the first Notices. So we

1 provided them with copies of the Application, and they
2 have waived any objection as to the Notice. That's for
3 Texaco.

4 The same thing was done for Llano.

5 EXAMINER STOGNER: And what is Llano's
6 interest?

7 MR. KELLAHIN: Llano, because of our
8 proximity to the gas storage area to the north, we
9 elected to notify them.

10 MR. TRAINER: You bought this lease from
11 them, didn't you?

12 EXAMINER STOGNER: Excuse me, Mr. Trainer.
13 Let's get this done first, and then I'll open it up.

14 MR. TRAINER: Okay.

15 MR. KELLAHIN: We would move the introduction
16 of those Notice exhibits at this time, Mr. Examiner.

17 EXAMINER STOGNER: And that's Exhibits 9
18 through 12; is that correct?

19 MR. KELLAHIN: Yes, sir.

20 EXAMINER STOGNER: Exhibits 9 through 12 will
21 be accepted.

22 MR. KELLAHIN: Might I have a few moments? I
23 didn't recognize that Mr. Trainer would be appearing
24 today, and I'd like to visit with him for a moment
25 before we conclude the case; if that's all right.

1 EXAMINER STOGNER: Let's do that and go off
2 the record.

3 (Thereupon, a recess was taken at 11:14 a.m.)

4 (The following proceedings were had at 11:17
5 a.m.):

6 EXAMINER STOGNER: Okay, call this hearing
7 back to order. At this time I believe we're ready for
8 some statements.

9 Mr. Trainer, do you want to come forward and
10 state your name?

11 MR. TRAINER: I'm C.W. Trainer. I live in
12 Sunrise Beach, Texas, and I drill in Lea County, New
13 Mexico. I've been here many times.

14 (Off the record)

15 EXAMINER STOGNER: Do you have some
16 statements, Mr. Trainer?

17 MR. TRAINER: Yes, my -- I told you I owned
18 the acreage adjoining this, and my reaction is that
19 Oryx has an excellent well on the north half of Section
20 9. It is an orthodox location. Everything is fine.

21 And in my opinion, that's a good enough well
22 that it will drain all of Section 9 and whatever I've
23 got productive in Section 5 and, you know, a long ways,
24 because it's a good well.

25 And what Oryx is asking now is another

1 unorthodox location to drain me double. This is
2 against everything this Commission has been doing, to
3 tear down an orthodox and make two unorthodox out of it
4 just to give Oryx a competitive advantage over me.

5 And so I register a protest. I don't think
6 you should do it.

7 EXAMINER STOGNER: Is that all you have
8 today, Mr. Trainer?

9 MR. TRAINER: Well, I think I said it pretty
10 well. You understood it, didn't you?

11 EXAMINER STOGNER: I understood what you
12 said, Mr. Trainer. If that's all you have today --

13 MR. TRAINER: That's all. I just treasure
14 this Commission, and they always do good, and I want
15 you to keep doing good.

16 EXAMINER STOGNER: Thank you, Mr. Trainer.
17 Are there any other comments, or is there anything
18 further in either Case 9913 or 9914?

19 If not, both of these cases will be taken
20 under advisement.

21 (Thereupon, these proceedings were concluded
22 at 11:20 a.m.)

23

24

25


1 CERTIFICATE OF REPORTER

2
3 STATE OF NEW MEXICO)
4) ss.
5 COUNTY OF SANTA FE)

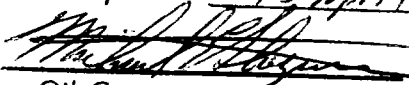
6 I, Steven T. Brenner, Certified Shorthand
7 Reporter and Notary Public, HEREBY CERTIFY that the
8 foregoing transcript of proceedings before the Oil
9 Conservation Division was reported by me; that I
10 transcribed my notes; and that the foregoing is a true
11 and accurate record of the proceedings.

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

16 WITNESS MY HAND AND SEAL April 25, 1990.

17
18 
19 STEVEN T. BRENNER
20 CSR No. 106

21 My commission expires: October 14, 1990

22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
24 the Examiner hearing of Case Nos 4913 and 4914
25 heard by me on 18 April 1990.
 Examiner
Oil Conservation Division