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

A P P E A R A N C E S

FOR THE APPLICANT:

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E X H I B I T S

APPLICANT'S EXHIBITS:

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

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

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

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

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

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

Will the witness please stand to be sworn?

(Thereupon, the witness was sworn.)

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

CLIFF MURRAY,

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

EXAMINATION

BY MR. KELLAHIN:

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

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

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

A. No, I have not.

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

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

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

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

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

A. Yes, sir, I have.

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

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

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

A. Yes, sir, I have.

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

EXAMINER STOGNER: Mr. Murray is so qualified.

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

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

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

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

A. They're 320-acre spacings.

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

A. Yes, sir, we do.

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

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

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

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

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

A. Yes, sir, we are.

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

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

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

A. That's correct.

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

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

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

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

But the base of the Atoka also is the top of

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

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

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

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

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

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

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

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

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

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

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

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

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

Q. In making your investigation of the geology,

have you prepared a structure map?

A. Yes, sir.

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

A. Yes, sir.

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

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

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

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

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

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

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

A. Yes, sir.

Q. What does that represent?

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

location.

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

A. Yes, sir.

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

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

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

A. Yes, sir.

Q. How would you do that?

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

Q. In Section 8?

A. Yes, sir.

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

A. Yes, sir.

Q. What happened in that well?

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

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

A. The A-zone sand.

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

A. Yes, sir.

Q. Okay, and that tested wet?

A. Yes, sir.

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

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

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

A. No, sir.

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

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

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

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

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

A. (Nods)

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

A. Correct.

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

half of 9?

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

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

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

A. No, sir, not from the sand.

Q. Why not?

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

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

A. No, sir.

Q. Why not?

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

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

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

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

A. Yes, it is.

Q. Describe it to us.

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

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

A. Yes, sir.

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

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

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

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

A. Yes, sir.

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

A. All right.

Q. Do you gain thickness?

A. By moving south of the standard location you

would gain thickness.

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

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

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

A. Due to the structural position and water encroachment.

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

A. Yes, sir.

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

A. Yes, sir.

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

A. Net -- I'm sorry.

Q. Yes?

A. Net porous sand.

Q. Net porous sand.

A. The difference is that this -- Porous sand

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

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

A. Yes, sir.

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

A. Yes, sir.

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

A. Yes.

Q. Describe that to me.

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

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

A. Yes, sir.

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

A. Yes, sir.

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

A. Yes, sir.

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

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

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

A. No, sir.

Q. Why not?

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

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

A. Yes, sir, we have.

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

is it?

A. Yes, sir.

Q. Describe for us what this shows you.

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

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

A. Yes, sir, it is?

Q. -- in the C sand?

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

A. Yes, it does.

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

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

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

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

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

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

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

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

A. No, sir.

Q. Why not?

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

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

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

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

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

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

A. Yes, sir.

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

A. Yes, sir.

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

A. Yes, sir.

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

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

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

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

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

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

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

A. Yes, sir.

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

A. No, sir.

Q. Why not?

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

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

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

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

A. Yes, sir.

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

A. Yes, it is.

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

A. Yes, sir.

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

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

A. Yes, sir.

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

A. Yes, sir.

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

A. We have not.

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

A. No, sir.

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

A. Yes, sir.

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

A. Yes, sir.

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

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

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

Q. What type of cross-section is this?

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

Q. And what does this tell you?

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

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

A. Yes, sir.

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

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

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

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

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

A. Yes, sir.

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

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

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

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

A. Four, yes, sir.

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

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

arrow, line and arrow, pointing to the line.

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

A. Phrase that again, please?

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

A. Okay, yes, sir.

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

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

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

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

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

A. Yes, sir.

Q. And it will continue?

A. Yes, sir.

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

A. No, sir.

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

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

Q. What conclusions do you reach?

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

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

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

A. Correct.

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

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

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

A. Yes, sir.

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

A. Yes, sir.

Q. -- or penetrated this pool?

A. Yes, sir.

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

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

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

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

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

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

That concludes my examination, Mr. Murray.

EXAMINATION

BY EXAMINER STOGNER:

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

A sand?

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

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

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

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

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

Q. You can give me some footages.

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

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

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

A. Yes, sir.

Q. What are those?

A. Those are perforations.

Q. Those are perforations?

A. Yes, sir.

Q. Are those the present perforations?

A. Yes, sir.

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

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

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

Q. What storage project are you referring to?

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

EXAMINER STOGNER: Yes.

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

(Off the record)

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

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

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

Q. The north half of 4?

A. Four, yes, sir.

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

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

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

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

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

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

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

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

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

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

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

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

Q. So it could be a standard location?

A. It could be, yes, sir.

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

A. Yes, sir.

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

A. No, sir.

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

Are there any other questions of this gentleman?

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

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

MR. KELLAHIN: That's correct.

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

MR. TRAINER: All of 5.

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

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

EXAMINER STOGNER: Five and 6. And 9?

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

sorry.

EXAMINER STOGNER: Seven, 8 and 9?

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

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

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

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

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

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

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

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

The same thing was done for Llano.

EXAMINER STOGNER: And what is Llano's interest?

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

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

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

MR. TRAINER: Okay.

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

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

MR. KELLAHIN: Yes, sir.

EXAMINER STOGNER: Exhibits 9 through 12 will be accepted.

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

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

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

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

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

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

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

(Off the record)

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

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

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

And what Oryx is asking now is another

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

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

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

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

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

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

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

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

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

CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Shorthand 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 April 25, 1990.

STEVEN T. BRENNER
CSR No. 106

My commission expires: October 14, 1990

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9913 and 9914 heard by me on 18 April 1990.

, Examiner
Oil Conservation Division