#### STATE OF NEW MEXICO

# ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

APPLICATION OF NEARBURG EXPLORATION COMPANY FOR AN UNORTHODOX GAS WELL LOCATION AND NONSTANDARD GAS PRORATION UNIT, LEA COUNTY, NEW MEXICO

CASE NO. 11,535

ORIGINAL

# REPORTER'S TRANSCRIPT OF PROCEEDINGS

#### EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

May 16th, 1996

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH,
Hearing Examiner, on Thursday, May 16th, 1996, at the New Mexico Energy, Minerals and Natural Resources Department,
Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico,
Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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#### APPEARANCES

#### FOR THE APPLICANT:

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

\* \* \*

WHEREUPON, the following proceedings were had at 1 2 10:25 a.m.: 3 EXAMINER CATANACH: At this time I'll call Case 4 11,535, the Application of Nearburg Exploration Company for 5 an unorthodox gas well location and nonstandard gas 6 proration unit, Lea County, New Mexico. 7 8 Are there appearances in this case? 9 MR. CARR: May it please the Examiner, my name is 10 William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan. 11 We represent Nearburg Exploration Company, and I 12 have two witnesses. 13 EXAMINER CATANACH: Any additional appearances? 14 15 Will the two witnesses please stand to be sworn 16 in? 17 (Thereupon, the witnesses were sworn.) 18 MR. CARR: Initially, Mr. Catanach, I would request that the portion of the case which relates to a 19 20 nonstandard spacing or proration unit be dismissed. There are 317-plus acres in this nonstandard 21 22 unit, and that would qualify as a standard unit under the general rules of the Division, so that portion can be 23 dismissed. 24 25 EXAMINER CATANACH: Okay.

1		MICHAEL M. GRAY,
2	the witne	ss herein, after having been first duly sworn upon
3	his oath,	was examined and testified as follows:
4		DIRECT EXAMINATION
5	BY MR. CA	RR:
6	Q.	Would you state your name for the record, please?
7	Α.	Michael Gray.
8	Q.	Where do you reside?
9	Α.	Midland, Texas.
10	Q.	By whom are you employed?
11	Α.	Nearburg Exploration Company.
12	Q.	What is your position with Nearburg Exploration
13	Company?	
14	Α.	Senior Landman.
15	Q.	Mr. Gray, have you previously testified before
16	this Division?	
17	Α.	Yes.
18	Q.	At the time of that testimony, were your
19	credentials as a landman accepted and made a matter of	
20	record?	
21	Α.	Yes.
22	Q.	Are you familiar with the Application filed in
23	this case	?
24	А.	Yes.
25	Q.	Are you familiar with the proposed well?

1	A. Yes.		
2	Q. And are you also familiar with the current status		
3	of the lands surrounding this proposed well?		
4	A. Yes.		
5	MR. CARR: Are the witness's qualifications		
6	acceptable?		
7	EXAMINER CATANACH: Yes, they are.		
8	Q. (By Mr. Carr) Could you briefly state what		
9	Nearburg seeks in this case?		
10	A. Nearburg seeks an unorthodox location for an		
11	approximately 14,500-foot Morrow test at a location 3300		
12	feet from the south line and 1310 feet from the west line		
13	of Section 1, 21 South, 32 East, in Lea County, New Mexico.		
14	Q. And this is an irregular section, is it not?		
15	A. Yes, it is.		
16	Q. And what we're doing is developing a standup unit		
17	in what is basically the northwest portion of this		
18	irregular section?		
19	A. That's correct.		
20	Q. What pool are you projecting the well to?		
21	A. I'm not sure, sir.		
22	Q. The Hat Mesa-Morrow Pool?		
23	A. Yes, that's correct.		
24	Q. Subject to check? Okay.		
25	And what is the name of the well?		

The name of the well is the Minis "1" Federal Com A. 1 Number 3 well. 2 How many acres exactly, do you know, are in this Q. 3 irregular unit? 4 A. 317.66 acres. 5 Let's go to what has been marked Nearburg Exhibit 6 Q. Number 1. Could you identify that, please? 7 Yes, this is a locator map depicting the outline 8 9 of the proposed 317.66-acre unit, along with the location 10 -- proposed location spotted in that unit. In this irregular section there is a laydown unit Q. 11 in the southernmost portion of the section. Who operates 12 that? 13 Nearburg Producing Company, for Nearburg 14 Α. Exploration Company. 15 And is there currently a well on that tract? 16 Yes, there's a location spotted on the locator 17 Α. map that is a well that was drilled at an approved 18 unorthodox location by the Commission that is now being 19 production tested. 20 What about the remaining spacing unit in the 21 Q. section, which has basically been a standup unit in the 22 northeast portion of the section? What is the status of 23 24 that?

That's a unit, again operated by Nearburg

25

Α.

Producing Company for Nearburg Exploration Company. 1 Are all of the working interest owners in the Q. 2 proposed spacing unit voluntarily participating in this 3 well? 4 Yes, they are. 5 Α. What are the well-location requirements in this 6 Q. area for a Morrow well? 7 The standard location would be 660 feet from the 8 Α. 9 long line and 1650 feet from the short line. 10 Q. And you are how far from that short line? 660 feet. 11 Α. So in essence, we are encroaching to the south? 12 Q. 13 Α. Yes, that's correct. 14 0. Let's go to Exhibit Number 2. Will you identify and review that, please? 15 16 This is an ownership map depicting the offsetting units towards which this well is encroaching and the 17 ownership thereof. 18 19 Q. So to the south we're encroaching on other Nearburg-operated properties? 20 To the south we're encroaching on ourselves, to 21 the southwest we're encroaching on Phillips Petroleum 22 Company. 23 Is Exhibit Number 3 an affidavit confirming that

notice of this hearing has been provided to Phillips in

24

accordance with OCD rules? 1 2 Α. Yes. Will Nearburg also call a geological witness to 3 review the reasons for this particular unorthodox well 4 location? 5 Α. Yes, we will. 7 Q. Were Exhibits 1 through 3 prepared by you or compiled under your direction? 8 9 A. Yes, they were. MR. CARR: At this time, Mr. Catanach, we move 10 the admission into evidence of Nearburg Exhibits 1 through 11 12 3. 13 EXAMINER CATANACH: Exhibits 1 through 3 will be admitted as evidence. 14 15 MR. CARR: That concludes my direct examination 16 of Mr. Gray. 17 EXAMINATION BY EXAMINER CATANACH: 18 19 Mr. Gray, that south half of Section 1, that's an existing Morrow proration unit? 20 Yes, the south half of Section 1 is a proration 21 22 unit operated by Nearburg Producing Company, a well that 23 was TD'd, oh, some few months ago, at an unorthodox location approved by the Commission. 24

It is a Morrow well, though?

25

Q.

- A. Yes, it is being production tested in the Morrow.
- Q. And similarly in the east half of Section 1 is also a Morrow well?
  - A. That's a Morrow well also.

- Q. Do you know if the well on Phillips' acreage is also a Morrow well?
  - A. That's a Hat Mesa-Morrow well.
- Q. Okay. Can you tell me if the interest ownership between the proposed spacing unit and the Nearburg spacing unit in the south half of Section 1 is common, if the interest is common?
- A. No, sir, it's not common.
  - Q. Are there substantial differences between those?
- A. There is -- well, the interest -- there's one party in the south half of Section 1 that will -- Well, there are numerous parties with interests in the south half of Section 1. There is one party that does not have an interest in the northwest one-third of Section 1, and they have been notified and informed of this location and have not objected to it.
- Q. They're the only interest owner that's not common to those two spacing units?
  - A. Yes.
- Q. And they've been notified?
- A. Yes. Now, the interests vary among the interest

In other words, some may own more in one and less 1 2 in the other. But other than that one party, all the rest of the interest owners have a piece of every unit. 3 That one interest owner has expressed no 4 0. Okay. concern about the proposal? 5 No, in fact they were aware a number of years ago 6 Α. 7 that this acreage was not part of a package that they 8 purchased, and they have been informed and have not 9 objected. 10 0. Has Phillips expressed any concern about your well location? 11 None that I know of. 12 13 EXAMINER CATANACH: I have nothing further of the 14 witness. He may be excused. 15 MR. CARR: At this time we call Mr. Elger. 16 JERRY B. ELGER, the witness herein, after having been first duly sworn upon 17 his oath, was examined and testified as follows: 18 19 DIRECT EXAMINATION BY MR. CARR: 20 Would you state your name for the record? Q. 21 22 Α. My name is Jerry Elger. Where do you reside? 23 Q. I reside in Midland, Texas. 24 Α. 25 Q. By whom are you employed?

1 Α. I'm employed by Nearburg Exploration Company. 2 What is your position with Nearburg? Q. I am a senior exploration geologist. 3 Α. Mr. Elger, have you previously testified before 4 Q. this Division? 5 Yes, I have. 6 A. At the time of that testimony, were your 7 Q. 8 credentials as a petroleum geologist accepted and made a 9 matter of record? 10 Yes, they were. A. Are you familiar with the Application filed in 11 Q. this case? 12 Yes, I am. 13 Α. Have you made a geological study of the area 14 Q. surrounding the proposed well? 15 16 Yes, I have. Α. 17 Are you prepared to present the results of that Q. study to Mr. Catanach? 18 Α. 19 Yes. 20 MR. CARR: Are the witness's qualifications 21 acceptable? 22 EXAMINER CATANACH: They are. 23 Q. (By Mr. Carr) Let's go to what has been marked 24 Nearburg Exhibit Number 4. Would you identify and review

25

that, please?

Exhibit Number 4 is a structure map on top of the 1 2 lower Morrow, across the prospect area, including the subject acreage and proposed well location. The wells that 3 are shaded green on this display are producers in the Hat 4 5 Mesa-Morrow field. Included with the structure is a total cumulative 6 production from each of these wells from the Morrow, listed 7 in terms of BCF of gas and barrels of oil. 8 9 What you're actually trying to do as we go 10 through these exhibits is show that you're placing the well in the center of what is really a Morrow thick; is that not 11 correct? 12 Yes. 13 Α. 14 And you also were before this Division seeking Q. approval for the location of the well in the south half of 15 the section; isn't that right? 16 That's correct. 17 Α. 18 And you had mapped the sands at that time? Q. 19 Α. Yes. And when you drilled the well, how did the well 20 Q. 21 confirm your mapping in that area? Α. Well, that case was held in October of last year. 22 23 It was Case Number 11,393. It was held October 5th of 24 1995.

At that time, the same -- basically the same

exhibits were prepared for testimony and introduced into testimony. They showed an interpretation applied to this area, was that the main sand pays in this portion of Hat Mesa field were deposited as offshore marine bars with a northeast-southwest orientation.

On that basis, the proposed well in the south half -- or south one-third of Section 1 was drilled adjacent to a well that was already previously drilled and abandoned in the south one-third of Section 1. The intent was to get -- capitalize on the orientation of those sandbodies and maximize the thickness.

When that well was drilled and completed and open-hole logs were obtained in that new wellbore, basically the sand maps -- the interpretation of the offshore bars was affirmed.

We did get what we consider to be significant sand thicks in all of the different mapped units. On that basis, each one of those maps was revised to include the new well data.

- Q. And these maps are what you will be presenting here today?
  - A. That is correct.
- Q. And the purpose will be to show that, in fact, this location is necessary to maximize the position of the well in this Morrow structural thick?

A. That's correct.

- Q. All right, let's go to what has been marked as Nearburg Exhibit Number 5. Would you identify and review that for Mr. Catanach?
- A. Exhibit Number 5 is a -- one of the sands in the Upper Morrow that was mapped previously for Hearing 11,393. It shows again the new well control point in the south half of Section 1, which four feet of sand was encountered in this particular unit.

The interpretation, again, is a northeastsouthwest oriented bar sand, and we think that the proposed
unorthodox location in the north one-third -- northwest
one-third of Section 1, will actually thicken in terms of
this particular sand.

On this display, each of the wells that has been shaded orange is producing from this particular sand unit, and that's the case with each of the aspect maps that I will present here. Each one of these exhibits, the wells that are producing from these particular units have been shaded orange.

- Q. In preparing these maps, have you relied strictly on well-control information?
- A. No, as you go back -- refer back to Exhibit

  Number 4, you will see that there are -- there's a north
  south and an east-west seismic line, shot points which are

displayed also on this exhibit, and the structural interpretation was aided by the use of this seismic.

- Q. Mr. Elger, when we look at Exhibit Number 5 and we look at the upper Morrow, if in fact you were required to move the well to a standard location, what impact would that have on your plans to develop this acreage, in this zone?
- A. In this particular zone there might be approximately the same as the proposed location.
- Q. Let's move to Nearburg Exhibit Number 6. Would you identify and review that, please?
- A. Exhibit Number 6 is a net sand isopach with an 8-percent density -- equal to or less than 8-percent density porosity cutoff in this particular sand package that was identified within the Morrow.

Again, the interpretation is bar-type -- offshore bar-type of deposit, with a northeast-southwest orientation.

Again, I would point out the two wells located in the southern one-third of Section 1, and the fact that the previous well with ten feet of sand in this particular unit was basically a noncommercial well. That production -- again, I refer back to Exhibit 4, which was the structure production map -- produced less than one half of a BCF.

You can see that the unorthodox location that was

previously drilled in the south half of -- south one-third of Section 1 by Nearburg, this particular sand increased in thickness by some 37 feet over that previously drilled well.

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In order to obtain commercial quantities of gas from this particular sand unit, it would be necessary in this remaining proration unit to drill within that sand fairway.

- Q. And that is why you need to place the well in this interval at an unorthodox location?
- A. That's correct. This sand in particular, and the sand which we'll address in Exhibit Number 7, if you'll refer to each of those you'll see that by moving to an unorthodox location -- or a standard location within that spacing unit, you would be moving out of the main sand fairways that have been identified.
- Q. Let's go to Exhibit Number 7. Can you review that for Mr. Catanach?
- A. Exhibit Number 7 is a net sand isopach of the early portion of the middle Morrow. Again, the wells that are producing from this unit have been shaded in orange.

And again you see that the big difference between the two wells, the older existing well in the south one-third of Section 1, which had six feet of sand in this unit, and the new control point in that same spacing unit

that Nearburg drilled with 31 feet of sand.

Again, this -- the orientation of this is northeast-southwest, and the interpretation is it's an offshore -- represents an offshore sand deposit.

In order to again be within the fairway and have a commercial or significant amount of sand developed within this unit, we would need to drill at an unorthodox location.

- Q. Mr. Elger, let's go to Nearburg Exhibit 8, the cross-section. Would you review this for Mr. Catanach?
- A. Exhibit Number 8 has been identified as a stratigraphic cross-section which was hung on the top of the Morrow clastics. It's been identified on each of these respective isopach maps, as well as the structure map.

This cross-section differs a little bit from the previous cross-section that was introduced in Case 11,393, in that it incorporates the new well control, the new well that was drilled by Nearburg in the south one-third of Section 1. That well is being -- being the second well on the left -- from the left side of the cross-section, from A.

You can see the sand units, the identification of the sand units that have been isopached, in the left-hand margin of this cross-section, the upper Morrow sand that was isopached. Those sands which comprise the late middle

Morrow have been identified, and those sands which comprise the early middle Morrow have been identified, and they have been color-contrasted with one another.

You can see where each of these individual wells has been perforated. That has been indicated by the little red ticks within the depth column of each one of these well sections, and you can see that the Nearburg Number 1 -- Minis Number "1" Federal Number 2, encountered significant sand thicknesses within both the late and early middle Morrow portions of the Morrow.

Currently, that well is being production tested from a lower Morrow pay, which has been colored green on this particular log. And at this time it's questionable whether that is a commercial sand.

- Q. What about the green sand down at the bottom, shaded green? Is that what you were talking about?
- A. Yes, uh-huh. That well is currently perforated in that sand only.
- Q. Mr. Elger, in your opinion is the proposed unorthodox location the best location available to produce the remaining reserves in Section 1?
  - A. Yes, it is.

- Q. Will it result in increased recovery of hydrocarbons from this tract?
  - A. Yes, it will.

Will approval of the Application otherwise be in 1 Q. 2 the best interest of conservation, the prevention of waste and the protection of correlative rights? 3 Yes, it will. A. Were Exhibits 4 through 8 prepared by you? 5 Q. 6 Α. Yes, they were. MR. CARR: At this time, Mr. Catanach, we move 7 the admission into evidence of Nearburg Exhibits 4 through 8 9 8. 10 EXAMINER CATANACH: Exhibits 4 through 8 will be admitted as evidence. 11 MR. CARR: And that concludes my direct 12 examination of Mr. Elger. 13 14 EXAMINATION BY EXAMINER CATANACH: 15 Mr. Elger, is structure -- Does that have any 16 Q. part in your location? 17 Structure really does not seem to have any 18 Α. significance as to the stratigraphic trapping of gas within 19 20 these sands, although by drilling at a standard location we would probably be moving downdip some. 21 22 That's not significant, though? 0. 23 Α. Not really. 24 Can you identify one of these zones as being the 25 most prolific of the three, or --

A. I think probably the sands of the early portion of the middle Morrow, which are shaded orange on the cross-section, are in fact the -- probably the most prolific unit within this sequence.

The upper Morrow sands are probably of no consequence in terms of -- you know, insignificant in terms of the total recoveries. Both of the middle Morrow units are the main pay section out here.

- Q. You do expect to encounter some first sand upper Morrow?
- A. Yes. We would hope, based on the projections across this area, of encountering approximately 10 feet of sand within that unit.
- Q. I'm curious as to -- On the late middle Morrow, on that sand zone, why was that 30-foot contour interval interrupted there on your proration unit? Why didn't that extend up into the well onto the east half of Section 1?
- A. Was this Exhibit 6, the late middle? Is that what you said?
- Q. Yeah, that 30-foot contour line is interrupted there.
- A. That's just an interpretation. You're looking at a little -- Basic orientation, again, is northeast-southwest, of this particular sand, and it develops in these little lobate bar-type deposits.

I would point out also in reference to this map that Nearburg operates the well in the northeast portion of Section 1, which is the re-entry of a well that was drilled to the Morrow by Gulf Oil, and we completed out of this particular sand unit in the late middle. That well is on the cross-section at A'.

You can see the development that occurs in that well. There's 33 or so feet of pay section in that well.

And that well has a cumulative production to date of about 1.1 BCF. And I'm not -- This is a guess, but I would say that the total cumulative for that well is going to be somewhere -- maybe 1.2 to 1.3 BCF, which for a 14,500-foot-depth well is really not commercial. You really need probably in excess of 2 to 3 BCF for this depth, and these AFE costs to be commercial.

So that again, in reference to your question about which zone is the most prolific, I would say it's primarily the early middle Morrow sand package. And you can see on this -- on that well how poor that section is developed in that well. There's one little sand that's been perforated in it, basically a very low amount of sand there.

Q. Are you saying that the 33 feet of sand encountered in that late middle Morrow section is probably not as sufficient?

- A. In and by itself would not be sufficient to carry a well, that's right.
  - Q. That's why you're trying to move south to target -- to get more into the 40-foot range?
  - A. That's right, that's correct, for this particular sand, but also for -- to accommodate the thicknesses as they've been mapped for these other sand sections as well.
  - Q. I still -- I show a -- Is that a seismic line on the west half of that proration unit?
- 10 A. Yes.

- Q. Is that 2-D seismic?
- 12 A. Yes.
  - Q. Did you utilize that in mapping these sands?
  - A. Both of the seismic lines that you see that's displayed here were not shot by Nearburg, but they were market data, they were purchased. And the -- it's very questionable -- I think the jury is out as to whether you can identify sands of these magnitudes at this particular depth within the Morrow, and we did not have a very high comfort level in interpreting sand thicknesses off of these seismic data, so therefore it was just strictly used for structural interpretation.
  - Q. Really, what you're targeting is the early interval, as your primary --
    - A. That's correct.

Q. -- target?

And the way you've got it mapped out here, you -what do you figure you gain, moving to this proposed
unorthodox location, in terms of sand thickness in that
interval?

- A. Over the orthodox?
- Q. Right.
- A. The contour interval for this early middle is five foot. You can see we're at the -- where we're proposing to drill is roughly 25 feet of prospective pay. By moving to the 1650 from that short line we would probably move up to the -- somewhere between the 10- and 15-foot contour. So we would lose roughly -- you know, potentially close to half of our pay.

That same relationship exists between -- very closely exists between the two wells that were drilled in the south one-third of Section 1, the old Kimball well that was drilled there, and the Nearburg Minis "1" Federal Number 2.

We went from six feet to 31 feet. I think by moving, again, from the proposed unorthodox location to a standard you could see a thinning of that sand, about the same ratio as between those other two wells.

Q. Do you feel like a well at this location would effectively drain that northwest one-third?

A. Yes, I do.

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- Q. Now, the well that you just drilled in the south one-third of Section 1, that's still being tested; is that correct?
  - A. That's correct.
- Q. But that will be completed in the middle Morrow interval?
  - A. Eventually, that's correct.
  - Q. Right now you're testing the lower?
- 10 A. Yes.
- Q. Do you know what -- Is the Phillips well producing from all three of these Morrow intervals?
- A. Yes, the Phillips well in Section 2, I believe, is the one you're referring to.
- 15 | Q. Right.
- A. That log section is displayed at A on the crosssection.
- 18 | Q. Okay.
- A. And again, you can see that virtually every sand
  that's developed within the Morrow is presently open and
  producing in that wellbore.
- 22 That includes one lower sand, a fairly well
  23 developed section of early middle Morrow sands, a fairly
  24 well developed section of late middle Morrow sands, and
  25 then that one upper Morrow sand.

1	EXAMINER CATANACH: I have nothing further.
2	MR. CARR: May it please the Examiner, Nearburg
3	has a rig available to drill the well June the 15th, and we
4	would request that the order, if convenient, be expedited
5	in this case.
6	EXAMINER CATANACH: We'll do our best.
7	MR. CARR: We know you will, and we have nothing
8	further in this case.
9	EXAMINER CATANACH: There being nothing further,
10	Case 11,535 will be taken under advisement.
11	(Thereupon, these proceedings were concluded at
12	10:57 a.m.)
13	* * *
14	
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20	
21	I do hereby certify that the foregoing is
22	a complete record of the proceedings in the Examiner was interfered by me on Lay 16 1966.
23	Daniel Chilada
24	Oil Conservation Division
25	

#### CERTIFICATE OF REPORTER

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

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

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

WITNESS MY HAND AND SEAL May 18th, 1996.

STEVEN T. BRENNER CCR No. 7

talleting

My commission expires: October 14, 1998