NEW MEXICO OIL CONSERVATION COMMISSION **EXAMINER HEARING** SANTA FE \_\_\_, NEW MEXICO \_Time:<u>8:15 A.M.</u> Hearing Date **JANUARY 9, 1997** REPRESENTING LOCATION Yate, Pe Michael D. Hayes 1010.l Nearburg Wike Gran I'M MAC DONALD NEMBURG Jerry Elger Nearburg Milloud, TK hable Cour Fin

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#### 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:

CASE NO. 11,683

APPLICATION OF NEARBURG PRODUCING COMPANY FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO

**ORIGINAL** 

### REPORTER'S TRANSCRIPT OF PROCEEDINGS

### **EXAMINER HEARING**

BEFORE: MICHAEL E. STOGNER, Hearing Examiner

January 9th, 1997

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MICHAEL E. STOGNER, Hearing Examiner, on Thursday, January 9th, 1997, 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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### I N D E X

January 9th, 1997 Examiner Hearing CASE NO. 11,683

	PAGE
APPEARANCES	3
APPLICANT'S WITNESSES:	
<u>JERRY B. ELGER</u> (Geologist)	
Direct Examination by Mr. Kellahin	5
Examination by Examiner Stogner	14
MICHAEL M. GRAY (Landman)	
Direct Examination by Mr. Kellahin	18
Examination by Examiner Stogner	21
REPORTER'S CERTIFICATE	24

## EXHIBITS

Applicant's		Identified	Admitted
Exhibit	1	6	14
Exhibit	2	8	14
Exhibit	3	10	14
Exhibit	4	19	21
Exhibit	5	19	21
Exhibit	6	20	21

\* \* \*

### APPEARANCES

### FOR THE DIVISION:

RAND L. CARROLL
Attorney at Law
Legal Counsel to the Division
2040 South Pacheco
Santa Fe, New Mexico 87505

### FOR THE APPLICANT:

KELLAHIN & KELLAHIN
117 N. Guadalupe
P.O. Box 2265
Santa Fe, New Mexico 87504-2265
By: W. THOMAS KELLAHIN

\* \* \*

WHEREUPON, the following proceedings were had at 1 8:19 a.m.: 2 3 4 5 EXAMINER STOGNER: This hearing will come to order for Docket Number 1-97, first hearing for 1997. 6 7 Please note today's date, January 9th, 1997. I'm Michael Stogner, appointed Hearing Examiner 8 for today's cases. 9 The first case I'll call will be Case Number 10 11 11,683. MR. CARROLL: Application of Nearburg Producing 12 Company for an unorthodox gas well location, Eddy County, 13 New Mexico. 14 15 **EXAMINER STOGNER:** Call for appearances. MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of 16 the Santa Fe law firm of Kellahin and Kellahin, appearing 17 on behalf of the Applicant, and I have two witnesses to be 18 19 sworn. EXAMINER STOGNER: Any other appearances? 20 21 Will the witnesses please stand to be sworn at this time? 22 23 (Thereupon, the witnesses were sworn.) 24 EXAMINER STOGNER: Mr. Kellahin? 25 MR. KELLAHIN: Thank you, Mr. Examiner.

### 1 JERRY B. ELGER, the witness herein, after having been first duly sworn upon 2 his oath, was examined and testified as follows: 3 DIRECT EXAMINATION 4 5 BY MR. KELLAHIN: Mr. Elger, for the record, sir, would you please 6 Q. 7 state your name and occupation? Jerry Elger, exploration geologist. 8 9 Q. On prior occasions, Mr. Elger, have you testified 10 before the Division as an expert petroleum geologist and 11 had your credentials accepted and made a matter of record? Yes, I have. 12 A. And where do you reside, sir? 13 Q. I reside in Midland, Texas. 14 Α. As part of your duties as exploration geologist 15 for Nearburg, have you made a study of the geologic facts 16 17 concerning this Application? 18 A. Yes, I have. And based upon that study, do you now have 19 Q. geologic conclusions concerning the proposed well location? 20 21 Α. Yes, I do. 22 MR. KELLAHIN: We tender Mr. Elger as an expert petroleum geologist. 23 EXAMINER STOGNER: Mr. Elger is so qualified. 24 25 (By Mr. Kellahin) Mr. Elger, what is the primary Q.

reservoir that you're seeking to access if the Division approves your unorthodox well location?

- A. The lower sands of the Pennsylvanian Morrow formation.
- Q. All right. Have you prepared for us a crosssection that illustrates for the Examiner the relationship of that reservoir as you interpret it through a portion of the section that will be the spacing unit?
  - A. Yes.

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- Q. Let's turn to that. If you'll unfold the cross-section, Exhibit 1, does this exhibit represent your work product, Mr. Elger?
  - A. Yes, it does.
- Q. The proposed spacing unit for the deep gas is the north half of Section 32?
- A. That's correct.
  - Q. To the best of your knowledge, are there any special pool rules applicable to the deep gas well locations in this area?
    - A. No, just the standard Morrow spacing unit --
- Q. All right.
  - A. -- setbacks.
- Q. So you're proposing to locate this well at an unorthodox location. The docket reflects that you're seeking to be 1090 feet from the north line, 990 feet from

the east line; is that correct?

A. Yes.

- Q. What is the principal reason that you're seeking to drill at that location, as opposed to the closest standard location?
- A. That's based on the reservoir characteristics of the target sand within the Morrow, the geometry of that particular sandbody across the spacing unit.
- Q. When you look at that geometry, is the criteria you're using as a geologist one consisting of packaging the reservoir in terms of multiple thicknesses of these various Morrow stringers, plus is there a structural component to your analysis?
  - A. Yes, both.
- Q. Let's look at the cross-section, if you'll show us the wells on the index map, and then let's talk about what it shows.
- A. This is a stratigraphic cross-section, hung on the top of the lower Morrow. The two wells on the right side of the proposed location were both drilled by Nearburg Producing Company. The one on the left side was drilled in the mid-1950s by Humble Oil.

The proposed location is situated in the middle of a triangle that is comprised by these three wells on this cross-section. The main target sand is the sand

that -- By the way, perforations on these log sections are indicated by red in the depth column.

Q. Okay.

- A. The target --
- Q. Yeah, go ahead.
- A. The target sand is the sand that was drill stem tested in Nearburg's Exxon 33 Federal well. That drill stem test flowed 5.3 million feet a day and was recently completed from that sand, and we're selling about a million cubic feet of gas per day, sales. That's the target sand.
- Q. Let's set the cross-section aside for a moment and look at the next display, which is your structure map. It's marked as Nearburg Exhibit 2.

Let's add the structural component to the analysis now and have you identify and describe Exhibit Number 2.

A. Okay, Exhibit Number 2 is a structure map on the top of what's the datum for the cross-section, the top of the lower Morrow.

Again, the proposed location is situated in the yellow north half of the 32 spacing unit, and the three wells in the cross-section A-A' have been identified with the red lines.

Q. Let's take a moment, now, and identify the color code for the well symbols so the Examiner can see which

wells are being utilized for the interpretation of the middle Morrow.

A. Okay, this particular map also serves as a production map. It has the total cumulative production of whatever particular reservoir it's been producing from.

The legend at the bottom of the page indicates what formations. It's been color-coded to this legend as to what the producing horizons that have been encountered are.

The most important is the Morrow, obviously, and those are the blue-colored hexagons. Atoka, Cisco and Wolfcamp also has been productive locally, but really not in commercial quantities. The Morrow is the main objective.

- Q. Let's start with Exhibit 2 and start with what you've described as the new gas well in the northwest quarter of 33, and tell us something about that well.
- A. That is the cross-section that's the A' on Exhibit Number 1. That's the Nearburg Exxon 33 Federal well.

And that particular well, you'll note, is situated structurally on a nose that extends from the northwest to the southeast across this particular well and also across the proposed location, the unorthodox location that's being applied for by Nearburg.

- Q. Then you go to the well in the southeast quarter of 29.
  - A. That's correct.

- Q. Tell us something about that well.
- A. That well also was drilled by Nearburg, and it appears to define the northern limits of the good pay sand that was encountered by the well in Section 33. It's also situated on the northern side of this structural nose, the axis of which appears to be just south of that particular well.
- Q. Then we go through the well location proposed, and then finally to the last well in the cross-section.

  Tell us about that one.
- A. Well, the well in Section 32, in the south half of Section 32, is the old Humble well, where the sand is very thin, and that well is also situated in a structural low that extends, with the same axis as the anticline, as the corresponding anticline, across the proposed location. So that well is in a low, and the sand is very thin and poorly developed.
- Q. We've looked at the cross-section and the structure map. Let's turn to Exhibit 3 and look at the isopach map.
- A. Exhibit 3 is an isopach map, and it's both a gross sand isopach and a net sand isopach of what is the

main pay in the well in Section 33.

What I've done is identified in the legend what all of the numbers by each particular well refer to. In this instance, the net sand values are in the numerator, and the gross sand values are in the denominator.

So for instance, take the Exxon well in Section

33. That well has 22 feet of porosity over 24 feet of
total thickness. I've used as a porosity cutoff crossplot
porosity equal to or greater than 8 percent.

- Q. Let's ignore for a moment the orange shading which is the net sand, exclude that for a moment, and let's concentrate on the yellow portion. That is the gross sand thickness?
  - A. That's correct.
- Q. And when you look at the gross-sand thickness, let's look in Section 28 at that well there. It had 37 feet of gross thickness?
- 18 A. That's correct.
- 19 Q. What about the net number?
- 20 A. It was zero.
  - Q. All right.
  - A. It had no sand that was greater than or equal to 8-percent porosity. And you see a number of thick wells on the whole eastern side of this area where you have thick sands, you see values of 51 feet, 37 feet, 50 and 40 feet.

But again, you'll see a zero in the numerator, so each one of these wells has no sand that we would consider to be reservoir-quality sand greater than or equal to 8 percent.

- Q. When we look at the yellow distribution of the gross sand, what is the depositional system that's occurring here, Mr. Elger?
- A. It appears to us to be a delta -- perhaps a delta mouth bar complex where you had a feeder system that was directed into this area from the northwest to the southeast and perhaps deposited a coarser-grain sand or a better sorted sand across the structural nose, that you see back on Exhibit Number 2. And therefore the sand quality improved across that structure and was responsible for the good reservoir that was encountered in Nearburg's Exxon well.
- Q. For illustration purposes, look again at Section 28. That well had zero net sand using your cutoff criteria. How productive was that well, or is that well?
- A. That well produced from this particular sand along with other sands within the Morrow, produced slightly less than a half a BCF, which is really not commercial.
- Q. You get down into the Nearburg Exxon well in the northwest quarter of 33, and now for the first time you're picking up substantial net sand, and you've got 22 feet?
  - A. That's correct.

Q. And how well is that well doing?

- A. It appears to be a commercial well.
- Q. The objective, then, in the north half of 32, with your proposed location, is what, Mr. Elger?
- A. Is to encounter this particular upper "C" sand, where it's exhibiting reservoir-quality parameters, porosity and permeability. And again, the area in brown on the isopach map represents where that sand is equal to or greater than 20 feet net value.
- Q. Why can't you drill the well at the closest standard location?
- A. Geologically, the risk would be that we would be moving towards the old Humble well that's already situated in the southwest quarter of Section 32 where that sand is not reservoir quality and, in fact, is very thin. We would be moving towards that well. The risk would increase substantially.
- Q. Do you have sufficient geologic data at this point to specifically define the limits of the net sand as you have interpreted it on this display?
  - A. Not exactly.
- Q. There's a substantial amount of subjective interpretation, then, as to where that limit is within Section 32?
- A. That's correct.

1	Q. In order to have an opportunity to produce the
2	recoverable gas underlying the proposed spacing unit within
3	this target area, is the unorthodox location necessary?
4	A. Yes, it is.
5	Q. Without the location being approved, then, would
6	you drill the spacing unit?
7	A. Probably not.
8	Q. It becomes too risky, doesn't it?
9	A. That's correct.
10	MR. KELLAHIN: That concludes my examination of
11	Mr. Elger.
12	We move the introduction of his Exhibits 1, 2 and
13	3.
14	EXAMINER STOGNER: Exhibits 1 and 2 will be
15	admitted into evidence.
16	Do you wish to
17	MR. KELLAHIN: Yes, sir, Exhibit 3.
18	EXAMINER STOGNER: Exhibit 3 will also be
19	admitted into evidence at this time.
20	EXAMINATION
21	BY EXAMINER STOGNER:
22	Q. Mr. Elger, referring back to your Exhibit Number
23	2, now, your main target sand is the Morrow, but also
24	you're requesting Canyon also be included, and Wolfcamp and
25	any other Pennsylvanian age or production on 320-acre

spacing from the top of the Wolfcamp to the base of the Pennsylvanian.

Can you speculate somewhat, since you do have some production shown on Exhibit Number 2 from the Cisco and the Wolfcamp, potential to this well?

A. There are three producers that are -- well, actually four that are producing from the Cisco.

The Cisco reservoir in this particular area is a very tight siltstone. In order to accommodate production, those wells have had to have significant fracture treatments, and all four wells that show up on this production map have been situated on basically 320 spacings.

These wells are in the Logan Draw-Cisco field, the wells being the well in the south half of Section 20, the north half of 29, the west half of 28, and then the west half of 31.

To date, the best well is the well in the north half of 29, and it's made slightly over three-quarters of a BCF of gas.

- Q. And how about the Wolfcamp?
- A. The Wolfcamp is very poorly developed out in this area. As you'll see, the only well that shows up as a Wolfcamp producer on this map is in the south half of Section 20. That well has made a cumulative of like 60

million feet, and I believe that well is abandoned.

- Q. The other well in Section 32, the old Humble well, did that have any production in the Wolfcamp or Pennsylvanian age --
- A. No, no. That well was drilled by Humble. They elected to run casing and perforate several intervals within the Morrow, production-test those intervals, I believe they even fracture-treated some of those sands in the Morrow, and the well was subsequently completed as a dry hole. They were unable to establish any commercial production from that well.
- Q. In looking at the -- I'm referring to Exhibit
  Number 1, the cross-section, the second well over to the
  left that is, the -- I believe your Trig Federal --
  - A. Correct
- 16 Q. -- Com 29 Well Number 1.
- 17 A. Uh-huh.

- Q. You show some -- a very deep test. Or -- I'm sorry, on the cross-section here there was a perforated interval, and also it was marked in red, but it was below the plug-back interval. Is that also in the Morrow?
- A. Yes, it is.
- Q. Was that just a fluke or --
- A. Let me make sure I'm -- which one you're referring to.

- Q. Okay, the lowestmost yellow-marked section?
- A. Yes, that was a sand that we production tested prior to plugging back. There is a bridge plug in that well. Very hard to read the depths on here, but it looks like 9400, just above 9400.

We perforated and production tested that particular sand in the lower part of the lower Morrow, and it was not commercial. So we set a bridge plug and came up to the sand intervals that are colored in red.

- Q. And the question marks? Is that also in the Pennsylvanian?
- A. No, that's the top of the Mississippian Barnett shale. The upper squiggly line with the question mark represents the pick for the top of the Barnett shale, and the lower one represents the top of the pick for the Mississippian Chester limestone.
- Q. Is your proposed Chevron well going to the top of that Mississippian or --
  - A. Yes, it will.

- Q. Now, the two wells in Section 33, are they both Nearburg wells?
  - A. Just the well in the west half of 33.
- Q. Okay, and I'm assuming that's a west-half dedication?
- 25 A. That's correct.

Has that well started producing yet? 1 Q. The well in 33? 2 Α. 3 Yes, on the west half of 33. Q. Yes, that well was drilled in July of 1996, and I 4 5 believe it was completed about -- within the past 30 days, and we are -- built our production facilities, and we are 6 7 selling gas at the rate of about a million cubic feet per day. 8 EXAMINER STOGNER: I have no other questions of 9 this witness. Any other questions? 10 Mr. Elger, you may be excused at this time. 11 Mr. Kellahin? 12 13 MR. KELLAHIN: Yes, sir, I have one more witness. 14 MICHAEL M. GRAY, the witness herein, after having been first duly sworn upon 15 his oath, was examined and testified as follows: 16 DIRECT EXAMINATION 17 BY MR. KELLAHIN: 18 Mr. Gray, for the record, sir, would you please 19 state your name and occupation? 20 21 A. Michael M. Gray, I'm a landman for Nearburg 22 Producing Company and Nearburg Exploration Company. And where do you reside, sir? 23 Q. Midland, Texas. 24 A. On prior occasions have you qualified before the 25 Q.

Division as an expert in petroleum land management?

- A. Yes, I have.
- Q. Pursuant to your employment, have you made yourself knowledgeable about the offsetting operators and working interest owners in the uncommitted spacing units towards whom this well encroaches?
  - A. Yes.

MR. KELLAHIN: We tender Mr. Gray as an expert witness.

EXAMINER STOGNER: Mr. Gray is so qualified.

- Q. (By Mr. Kellahin) Mr. Gray, let me have you turn to Nearburg Exhibit 4. Identify and show us the section that's the subject of the hearing.
- A. Exhibit 4 is a locator map identifying the north half of Section 32, Township 17 South, Range 27 East, as the proposed unit, with the location 1090 feet from the north line and 990 feet from the east line of that section.
- Q. All right, let's turn to Exhibit 5 and have you describe for the Examiner whether or not you have determined the orientation of the offsetting spacing units and the corresponding working interest ownership or the operators for those spacing units?
- A. Yes, the units among which this well is encroaching are the south half of Section 29, which is a 320-acre unit operated by Nearburg Producing Company; the

20 1 west half of Section 33, which is a 320-acre unit in the 2 Morrow operated by Nearburg Producing Company; and the west 3 half of Section 28, which is a -- the well in that section is a Cisco producer, and that we've notified all of the working interest owners in that unit. 5 All right. The east half of 28 is committed to a 6 Q. 7 standup spacing unit for a Morrow gas well? For a Morrow test, yes, sir. I mean, excuse me, 8 that's a Morrow producing well, the Willis Federal. 9 In the east half? 10 0. Yes, sir. 11 Α. So the west half doesn't have a Morrow well on it 12 Q. yet, but it is the remaining spacing unit from the Morrow? 13 That's correct. 14 Α. If you'll turn to Exhibit 6, Exhibit 6 is my 15 certificate of notification, but does it contain copies of 16 17 notices to all the appropriate interest owners to whom you believe notice is entitled? 18 19 Yes, sir, it does. A. 20 Have you received any objection from any of the Q. interest owners towards whom the well encroaches? 21 22 Α. No, we haven't. 23 MR. KELLAHIN: That concludes my examination of

We move the introduction of Exhibits 4, 5 and 6.

Mr. Gray.

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1 EXAMINER STOGNER: Exhibit 4, 5 and 6 will be 2 admitted into evidence. 3 **EXAMINATION** 4 BY EXAMINER STOGNER: 5 Mr. Gray, in Section 32 --Q. Yes, sir. 6 Α. 7 -- is that one common state lease or --Q. 8 A. No. -- are those two state leases? 9 Q. 10 A. It's -- Actually, there's at least three. There's -- Nearburg --11 12 MR. KELLAHIN: Go back to Section 4 there, Mike. 13 I mean Exhibit 4, look at the --14 THE WITNESS: Nearburg Exploration Company owns the lease marked in the west half of the northwest quarter 15 and an additional 80 acres southeast of there. 16 17 We have obtained farmouts or term assignments 18 from all of the other working interest owners in this 19 section, which include Exxon and Chevron, other than 20 Nearburg. (By Examiner Stogner) While we're on Exhibit 21 0. 22 Number 4, there appears to be a unit outlined in there, 23 whenever I look at the hachmark around Section 28, 33 or 24 cutting through there from the north and south. Is this a shallow unit? 25

1 I think at one time that was included in this Abo A. 2 Chalk Bluff unit --3 Q. Okay. 4 -- which I don't believe exists any longer. 5 Q. Okay. But regardless, it wouldn't affect --6 It does not affect the deep rights, in other Α. 7 words, the Pennsylvanian formation, sir. So whenever I refer to Exhibit Number 5, that 8 0. represents the deep rights? 9 10 A. Yes, that's correct. And when we say "deep", Wolfcamp on down? 11 0. Yes, sir. 12 A. 13 Q. How about the royalty interests in 28, 29 and 33? When I say, "how about them", is that federal, state, fee? 14 Oh, the west half of Section 33 is a federal 15 The south half of 29 is a combined fee and 16 federal -- No, excuse me, I'm sorry, it's all federal. And 17 the west half of 28 is federal. The Section 32 is -- The 18 19 north half of Section 32 is all state. Okay. And the operator of the well in the west 20 half of 28 -- ? 21 Α. -- is Murchison Oil and Gas Company. 22 EXAMINER STOGNER: I have no other questions of 23 24 Mr. Gray.

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Anybody else have any other questions of this

1	witness?
2	Thank you, Mr. Gray, you may be excused.
3	THE WITNESS: Thank you.
4	EXAMINER STOGNER: Mr. Kellahin, do you have
5	anything further?
6	MR. KELLAHIN: No, sir.
7	EXAMINER STOGNER: Does anybody else have
8	anything further in Case Number 11,683?
9	Then this case will be taken under advisement.
10	Thank you, gentlemen.
11	(Thereupon, these proceedings were concluded at
12	8:45 a.m.)
13	* * *
14	
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21	be hereby certify that the foregoing is a complete resorts of the proceedings in
22	the Francher hearing of Case No. 1/683.
23	711/100
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 January 13th, 1997.

STEVEN T. BRENNER CCR No. 7

My commission expires: October 14, 1998