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

20 July 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Nearburg Producing Company for an unorthodox gas well location and simultaneous dedication, Eddy County, New Mexico, and	CASE 9425
Application of Nearburg Producing Company for compulsory pooling and an unorthodox gas well location, Eddy County, New Mexico, and	9426
Application of Nearburg Producing Company for an unorthodox gas well location and simultaneous dedication, Eddy County, New Mexico.	9427

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Robert G. Stovall
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico

For the Applicant: William F. Carr
Attorney at Law
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I N D E X

E X H I B I T S

MR. STOGNER: We will call next Case Number 9425, which is the application of Nearburg Producing Company for an unorthodox gas well location and simultaneous dedication, Eddy County, New Mexico.

Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr with the law firm Campbell and Black, P. A., of Santa Fe. We represent Nearburg Producing Company.

Initially I would request that this case be consolidated with Cases 9426 and 9427, also on today's docket. They all involve wells offsetting one another in a Morrow stringer and the testimony will be very similar.

MR. STOGNER: Are there any objections?

There being none, I will call Case Number 9426, which is the application of Nearburg Producing Company for compulsory pooling and an unorthodox gas well location in the same area in Eddy County, and I'll also call Case Number 9427, is that correct, Mr. Carr?

MR. CARR: That's correct, Mr. Stogner.

MR. STOGNER: Which is the application of Nearburg Producing Company for an unorthodox

gas well location and simultaneous dedication in the same area in Eddy County, New Mexico.

Call for appearances in those cases, other than Mr. Carr.

There being none, will the witness please stand and be sworn at this time?

(Witnesses sworn.)

MR. CARR: Mr. Stogner, there is one other initial matter. In Case 9426 Nearburg Producing Company was seeking an order pooling a 320-acre gas spacing and proration unit. An agreement was been reached with ARCO, the interest owner who was subject to pooling, and therefore that portion of Case 9426 can be dismissed.

MR. STOGNER: Thank you, Mr. Carr.

MARK NEARBURG,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place

of residence?

A Mark Nearburg, Dallas, Texas.

Q Mr. Nearburg, by whom are you employed?

A Nearburg Producing Company.

Q And what is your position with Nearburg Producing Company?

A Land Manager.

Q Have you previously testified before this Division and had your credentials as a landman accepted and made a matter of record?

A Yes.

Q Are you familiar with each of the applications filed on behalf of Nearburg Producing Company in this consolidated case?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. STOGNER: They are.

Q Mr. Nearburg, would you briefly state what Nearburg seeks with these consolidated applications?

A Nearburg seeks approval of three non-standard Morrow locations drilled on 320-acre spacing units in the Boyd Morrow Pool.

Q You also are requesting simultaneous dedication of -- in two of those units?

A Yes, in Case 9425 and Case 9427 we're seeking simultaneous dedication.

Q What pool are we talking about?

A The Boyd Morrow Pool.

Q Let's go to what has been marked as your Exhibit Number One and let's review the development as depicted on this exhibit.

First, would you just note the South Boyd No. 1 and advise the Examiner as to the acreage that is dedicated to that well?

A The South Boyd No. 1 is a Morrow well drilled by Nearburg in about 1983. The well is on a north half proration unit in Section 27.

Q Is it currently producing?

A Yes.

Q Now, would you go down to the south half of 26 and just briefly identify the Boyd State 26 M No. 1 and review the status of that well.

A That's a well, an oil well that was completed two weeks ago. It was approved at a hearing about a month ago. It is a producing well, not yet -- it is completed, it's not yet tied into a pipeline; produces on a south half unit.

Q And what is the producing capability of that well, in your opinion?

A In terms of volume?

Q Yes.

A Into the pipeline we're not sure yet, but it looks like that it should produce approximately a million to a million and a half cubic feet a day.

Q All right, Mr. Nearburg, now let's go up to the spacing unit that is shaded in yellow, the east half of Section 22. Would you identify the existing well on that unit?

A This is Case 9425. It's the east half of Section 22. Shown with the green dot is the B & B No. 1, which is a currently producing oil well that is a marginal producer.

Q Now, in that spacing unit you've also placed the names Anadarko and Yates Petroleum. Would you explain why their names are included there?

A When this exhibit was prepared we had worked with Anadarko and Yates in this area. We simply wanted to show the operators that were -- being active in this area, they are -- they were consulted and have agreed to the development plans for these wells.

Q At this time --

A And Nearburg now has -- controls 100 percent of the interest in the east half of 22 in cooperation with Anadarko and Yates.

Q All right. Now, in the southeast corner of that unit is a red spot. That's the proposed well?

A Yes.

Q Toward whom are you moving?

A We're only moving toward ourselves. We own 100 percent of the acreage towards which we're moving.

Q And what is the proposed location for that well?

A 660 from the south line and 660 from the east line.

Q All right, now let's --

A I'd also like to point out that we're moving toward a currently producing unit.

Q Would you now go to the 9-Lives Well, which is the acreage shaded in yellow, Case 9 -- I'm sorry, shaded in orange, Case 9426, and review your plans for that spacing unit?

A Okay. This is the 0-Lives 26 B No. 1, also a Morrow test, to be produced -- to be drilled on a north half unit in Section 26.

Q And what is the proposed location?

A The proposed location is 990 feet from the north and west lines of the section.

Q And toward whom is this location being moved?

A This location is being moved toward Nearburg production and all of the units it is moving toward are currently producing.

Q Is there any existing production from the Morrow formation on that spacing unit?

A No.

Q Will you now go to the area shaded or outlined in green and review your development plans in that area?

A This is Case 9427 in which we are seeking to drill a new well at a nonstandard location to the Morrow formation and simultaneously dedicate the unit to the currently producing Perino No. 1 Well, indicated by the green dot, which is also a marginal producer.

We are only moving toward, again, producing units that Nearburg controls 100 percent.

Q Now, as to the existing wells in the south half of 23 and in the east half of 22, are you prepared to plug and abandon those wells at this time?

A No.

Q And why not?

A They are marginal producers. They are holding the units, in effect. We seek the simultaneous dedication to drill the new wells. We do not want to plug the existing wells due to the potential for marginal wells

with the new drilling.

If we incur -- if we find that the new wells are marginal, we will want to produce both wells from the unit.

Q What are your current plans for drilling the wells which are the subjects of these cases?

A I'll start with the B & B Well, Case 9425. That well will be drilled following completion of the Perino 23 Well, located in Section 23. The Perino Well is currently drilling. We were in touch with the Commission and had detailed conversations about extending this case from July 6th docket and we received approval from the Commission to go ahead and begin drilling.

Q And when will you drill the 9-Lives?

A The 9-Lives will be the third well drilled and it will be drilled following the B & B, the new well on the east half of Section 22.

Q Mr. Nearburg, do you plan to use the same rig for drilling each of these wells?

A Yes, we do.

Q And by using the same rig and moving directly from one well to the other, will savings result?

A Yes. We've obtained significant savings by signing a contract to drill all three of these wells in sequence.

Q What do the red arrows on this exhibit indicate?

A We had had some concern expressed to us by the Commission about the proximity of wells to each other. This is simply meant to indicate that we are far more than the standard distance required between wells in this pool.

Q And if you were to develop wells, say, the Perino tract in green and the -- a well in the 9-Lives tract outlined in orange, how close could those wells be drilled to one another under the existing statewide rules?

A They could be drilled 1320 feet from each other.

Q And what you're proposing is locating a well substantially in excess of that.

A Yes, at least twice the distance required by the Commission.

Q Mr. Nearburg, will locating the wells as you have proposed result in an effective drainage pattern for this Morrow channel?

A We believe so. We do not believe that there will be communication between these wells due to the character of the Morrow sand.

Q Mr. Nearburg, inasmuch as Nearburg owns 100 percent of all the affected spacing and proration units

was notice required to be given pursuant to the rules of the Division?

A No. We have been working closely with everyone in here. We control 100 percent of all the acreage. There has been no problem with obtaining joinder of everyone involved.

Q Was Exhibit One prepared by you?

A Yes.

MR. CARR: At this time, Mr. Stogner, I would move the admission of Nearburg Exhibit Number One.

MR. STOGNER: Exhibit Number One will be admitted into evidence at this time.

Q Will you call -- will we call a geological witness to present technical information on the formation?

A Yes.

MR. CARR: That concludes my direct examination of Mr. Nearburg.

MR. STOGNER: Thank you, Mr. Carr.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Nearburg, which well is presently

drilling at this time?

A The Perino 23, Case 9427, outlined in green on Exhibit One.

Q And what is the status today of it?

A I've been out of the office all week. I believe it's drilling below 4000 feet. I do not believe it's reached 5000 feet at this time.

Q And what is the proposed TD on that well?

A 9600 feet subsurface.

MR. STOGNER: I have no further questions of Mr. Nearburg.

A May I add one additional point for the record, sir?

MR. STOGNER: Okay.

A This plan of development and the way we have contracted the rig we believe especially protects everyone's correlative rights.

MR. STOGNER: Thank you, Mr. Nearburg.

Is there anything further of this witness?

He may be excused.

Mr. Carr?

MR. CARR: At this time we

call Louis Mazzullo.

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name for the record, please?

A My name is Louis Mazzullo.

Q Mr. Mazzullo, where do you reside?

A Midland, Texas.

Q By whom are you employed?

A I'm a geological consultant on retainer to Nearburg Producing Company.

Q Have you previously testified before this Division and had your credentials as a geologist accepted and made a matter of record?

A I have.

Q Are you familiar with the applications filed on behalf of Nearburg in each of these consolidated cases?

A I am.

Q Have you studied the subject area?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. STOGNER: They are.

Q Mr. Mazzullo, would you refer to the cross section which has been marked Exhibit Number Two, identify that and review it, please?

A Nearburg Exhibit Number Two is a cross section which is more or less perpendicular to the direction of flow of the various Morrow channel systems that comprise the Morrow reservoir section in this area.

The line of cross section is captioned in a structure map at the bottom of this exhibit and it's indicated in red.

The large circle on the index map indicates the circle within which the three locations referred to in Cases 9425, 26 and 27 are located. This section again is -- was put together to try to show the lateral discontinuity of the Morrow sandstones in this particular are of Eddy County.

The cross -- taking a look at the cross section, I've identified the top of the Middle Morrow, which is more or less the top of the highest stratigraphic reservoir zone in this particular area.

I've also indicated the top of the Barnett Shale, which is the base of the Morrow reservoir section in this area.

This is a structural cross section; it's hung on a subsea, reference subsea is given at 6000 feet on

the righthand side of the diagram.

What this cross section shows, that normal or perpendicular to the flow directions, which in this area are primarily north to south or northwest to southeast, that the middle to lower Morrow interval, that is the interval between the top of the middle Morrow and the top of the Barnett Shale, is characterized by a number of laterally moderate -- laterally discontinuous, moderately bedded sandstones, which oftentimes cannot be established -- you cannot establish stratigraphic equivalents from one well to the other.

For example, on this well the third log from the left -- on this cross section, rather, is the newly completed Nearburg No. 126 Boyd State. The producing zone, or the zone which has been perforated, is indicated by the perforation symbols below 9400 feet on this log. If you'll notice the RFT pressures indicated on the side of this log vary between 3864 and 4070 pounds. These are considered to be virgin formation pressures as they compare to some of the virgin pressures obtained on drill stem tests on surrounding wells. but were run several years prior to completion of this well. Virgin formation pressures in this area are around 3800 to 3900 pounds, including those in the Coquina well on the lefthand side of the cross section, which were -- which was completed in an upper part of

a Morrow reservoir section within two major sand bodies. That well has made over 2-1/2 BCF of gas since it was completed in 1973. It showed virgin formation pressures of 3840 pounds on drill stem tests. Compare that to the similar pressures we have obtained on the Boyd State 26-1, it's clear -- and the fact that the zone that we're producing out of in the 26-1 is stratigraphically lower, this in my mind concludes that the zones are not in communication and that there is lateral discontinuity among the various sands in the area.

Q Mr. Mazzullo, will additional development in this area provide an opportunity to perhaps intercept stringers that are not currently being produced?

A Yes. The proposed location that I have indicated on this cross section is one example of what we might come across in any one of the three wells that we're proposing to drill. Every well is going to come up with a different section. We're not necessarily going to get the same sands, even though the wells are spaced the way they are. We're not necessarily going to intersect the same sands because there are numerous different thin bedded, moderately bedded packages depending on where you are in this part of the township.

Q Would you now refer to what has been marked as Nearburg Exhibit Number Three, a type log, and

review that for the Examiner?

A Let me preface Exhibit Number Three with a statement regarding the type of work that I've done in this area.

I've been involved for several years in mapping the Morrow. I've had numerous publications on the Morrow and I've found through an extensive amount of experience trying to work it that it's a very tough formation to deal with in terms of correlations.

The best way that I have found to represent the formation and its producing capabilities is to take a gross isopach of net sand and what I consider to be productive porosity in the Morrow interval and try to -- and to generate a map based upon that.

In other words, the cross section doesn't tell the whole story. Just because you have a lot of sands doesn't -- doesn't imply that you're going to have a lot of reservoir rock. There are a lot of other factors that go into making a Morrow reservoir, not the least of which are secondary plugging of porosity, structure to a certain extent, things like that.

So what I've attempted to do with the type log is to show you how I've gone about mapping the area.

This is a type log from the 26-1 Boyd

State, which we just completed last week. It shows the same interval that I've captioned on the cross section from the top of the Middle Morrow to the top of the Barnett Shale.

It also shows in the lefthand column the gamma ray curve. It shows a 50 unit API gamma ray cutoff that I used to establish a -- what is a clean sand in this area, so anything below 50 units API is considered clean sand. These clean sands are indicated by the color yellow on the gamma ray log.

On the righthand side of this log is a compensated neutron formation density log and because of the affects of neutron crossover with the presence of gas in these sands, I take the density porosity as a measure of reservoir quality and I use a cutoff of 8 percent density porosity. It's arbitrary to a certain extent; the 8 percent cutoff seems to be what is the best producing -- anything above 8 percent seems to produce best in this area and anything over 8 percent porosity in those same clean sands is indicated by red on the density log. So you can see that although there are something on the order of 38 feet of clean sand, that there's only about 16 feet of what I consider to be potentially productive porosity in this well, and that 16 feet is confined more or less to the interval that we've actually perforated in this well from

9420 to 9435, approximately.

I've done a similar type of log analysis on every Morrow well in this area. As a matter of fact, I've done it in an area comprising approximately four townships around this area and have taken each well in turn and figured net clean sand, as shaded in yellow on this log, and net porosity over 8 percent, indicated by the red, and have mapped a data point for each well based on these cut-off criteria.

Q All right, would you now go to Exhibit Number Four and identify that, please?

A Exhibit Number Four is a portion of the net sandstone porosity quality map that I've generated as a result of this type of log analysis I've just described from the previous exhibit.

It shows the total net sand from each well, the value -- each value on each well is the total net sand in the Lower to Middle Morrow interval.

The dotted pattern on the map indicates those areas where there is greater or -- greater than 10 feet of 8 percent porosity in that same net sand package in each well.

The blue dot and blue arrow point to the proposed location for the No. 2 B & B Well, which I believe is Case 9425.

The red dot with the flaming orange arrow points to the 9-Lives 26-1 Well, which is believe is 9426, is that right, Mr. Carr?

MR. CARR: Yes.

A And the black arrow pointing to the open triangle signifies the currently drilling No. 2 Perino Well which Mr. Nearburg has said is drilling somewhere below 4000 feet at the current time.

The proration units assigned to each one of these proposed or drilling wells are indicated by the yellow outlines. The arrows, the blue arrows that you see, indicate the throw directions of the various -- the primary flow directions of the various sands that make up the middle to lower Morrow interval. These flow directions are based on dipmeter data that we've acquired at least two of the wells in this area, including the No. 26 (unclear).

What this shows is that in each case, each proposed location is assumed to be located within the potentially productive fairway, porosity, net sand fairway defined by the dotted pattern, and that movement of any one of these locations away from the location -- away from the proposed locations, may result in getting out of the fairway and into an adverse situation where we'd get into either thin sands or tight sands.

For example, in the case of the No. 20

-- the well in Section 22, the No. 2 B & B, if we were to move that well any -- to the west any distance at all, we'd risk the chance of being completely out of the porosity fairway.

If we moved the 9-Lives 26-1 to the east, we'd not only be out of the fairway but we'd be getting into a down dip position, regional dip being to the east, where we might chance -- risk the chance of getting into the water, as these reservoirs do contain water.

The same situation applies to the No. 2 Perino in Section 23.

Q Now, Mr. Mazzullo, if we look at those exhibits there are triangles in Section 22 and 23 for the existing Nearburg wells on those --

A Right.

Q -- spacing units, and both of those would be outside the Fairway, as you had interpreted.

A Yes. Those -- those two wells, the No. 1 B & B and the No. 1 Perino, bracket the fairway. The No. 26 Boyd State, which is in the southwest quarter of Section 26, just defines the edge, or close to the edge of the fairway. As I've already stated, it's only got about 14 or 16 feet of porosity in it.

Q Would you now refer to what has been marked Nearburg Exhibit Number Five, the structure map, and

review that, please?

A Exhibit Number Five is a structure map that was drawn using the top of the Middle Morrow, as I have captioned it in the previous Exhibits Number Two and Three, the top of the Middle Morrow. The wells that are shown by the triangular symbols are wells that are operated by Nearburg Producing Company. All the other wells in the area are wells that have penetrated the Morrow. There are certain shallow wells that are not shown on this map; wells that did not TD in the Morrow.

Again the blue dot refers to the well referenced in Case 20 -- 24 -- 9425, the No. 2 B & B.

The red dot and flaming orange arrow, the 9-Lives 26 Well; and the black arrow open triangle, the Perino No. 2.

Again, structure is -- these are primarily stratigraphic traps that we're involved in in the Morrow. Structure's role, the role of structure in this area is to define the gas/water contacts which appear to be significant, a significant factor in several of the sands.

Movement of -- particularly the No. 23, the well in Section 23, the No. 2 Perino, the No. 1 9-Lives in Section 26, movement of those wells anywhere to the east of where we're proposing them increases the risk of being in wet reservoir. As it is right now, we might -- we might

get some water production in either one of those locations but if you move it to the east any more you'd certainly increase your risk substantially.

So I'm -- part of the intent of locating these wells where they are is to stay as far up-dip as possible.

Q Will approval of the applications and the locations proposed by Nearburg in your opinion result in an effective drainage pattern?

A Yes, I believe it would.

Q Will it result in the production of hydrocarbons from this Morrow sand that might not otherwise be produced?

A Yes, it would increase the number of potential pay zones that we'd be able to tap.

Q And do you believe that granting these applications would be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes.

Q Were Exhibits Two through Five prepared by you?

A They were.

MR. CARR: At this time, Mr. Stogner, we would move the admission of Nearburg Exhibits

Two through Five.

MR. STOGNER: Exhibits Two through Five will be admitted into evidence at this time.

MR. CARR: That concludes my direct examination of Mr. Mazzullo.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Mazzullo, the call in Case 9426 states to the Pennsylvanian formation. Is it your intent to check or test any of the other formations in the Pennsylvanian zone in this area or are they known to be productive, such as the Cisco?

A Yeah, the Cisco Canyon in this area is productive off to the west/northwest and there may or may not be potential in that particular formation, which we probably wouldn't test on the way down because it's an extremely porous formation and probably it would be very hard to test, but we are going to have a mudlogging unit on the well at that time.

We don't foresee any other potential in the Pennsylvanian between the Cisco Canyon and the Morrow.

I might add that the nearest Cisco Canyon producer is in the northeast quarter of Section 21. It's operated by Anadarko and it's been a marginal producer

since it went on stream several years ago. That's the nearest production. I don't know whether or not that's going to help set up anything for us.

MR. STOGNER: I have no further questions for this witness.

Is there anything further in any of these three cases, Mr. Carr?

MR. CARR: Nothing further, Mr. Stogner.

MR. STOGNER: Mr. Mazzullo, you may step down.

If there is nothing further in these three cases, 9425, 9426, 9427, these cases will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case ~~Nos.~~ 9425, 9426, 9427 heard by me on [illegible] 1988.

[illegible] Examiner
Oil Conservation Division

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

6 July 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Nearburg Producing Company for compulsory pooling and an unorthodox gas well location, Eddy County, New Mexico. CASE 9426

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Robert G. Stovall
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico

For the Applicant:

MR. CATANACH: Call next Case Number 9426

MR. STOVALL: Application of Nearburg Producing Company for compulsory pooling and an unorthodox gas well location, Eddy County, New Mexico.

The applicant has requested that Case No. 9426 be continued.

MR. CATANACH: Case No. 9426 will be continued to the Examiner Hearing July 20, 1988.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6426, heard by me on July 6, 1980.

David R. Catanach, Examiner
Oil Conservation Division