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

23 August 1989

EXAMINER HEARING

IN THE MATTER OF:

Application of Nearburg Producing for an unorthodox oil well location. Lea County, New Mexico. CASE 9724

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 Building
Santa Fe, New Mexico

For Nearburg Producing: William F. Carr
Attorney at Law
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P. O. Box 2208
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I N D E X

E X H I B I T S

MR. CATANACH: Call next Case 9724.

MR. STOVALL: Application of Nearburg Producing Company for an unorthodox oil well location, Lea County, New Mexico.

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

MR. CATANACH: Any other appearances in this case?

Will the witnesses please stand to be sworn in?

(Witnesses sworn.)

BILL OWEN,

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 Bill Owen, Roswell, New Mexico.

Q Mr. Owen, by whom are you employed?

A LDM Associates.

Q And in what capacity?

A As a landman for this company.

Q What is the relationship of LDM to Nearburg Producing Company?

A We're working interest partners in this area of Lea County.

Q Have you previously testified before the Oil Conservation Division and had your credentials accepted and made a matter of record?

A Yes.

Q And were you qualified as a petroleum landman at that time?

A Yes.

Q Are you familiar with the application filed in this case?

A Yes.

Q And are you also familiar with the subject area?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. CATANACH: They are.

Q Mr. Owen, would you briefly state what

Nearburg seeks with this application?

A We seek an unorthodox well location in Section 13 of Township 17 South, Range 37 East.

Q Would you refer to what has been marked for identification as Nearburg Exhibit Number One, identify this, and review it for Mr. Catanach?

A This is just a location map indicating this area of Lea County, primarily being Township 17 South, Range 37 East, identifying the east half of the northeast quarter of Section 13.

Q On this map is also indicated the location of the proposed well?

A That's correct.

Q What is the primary objective in this well? What formation?

A Strawn formation.

Q And are there any special rules in effect for the area or is this under statewide rules?

A Yes, there are special rules, the South Humble City Strawn.

Q And what are the well location requirements and spacing requirements as set forth in these rules?

A They require an 80-acre spacing and that a well be located no further than 150 feet from the center of a quarter quarter section.

Q Would you now refer to what has been marked as Nearburg Exhibit Number Two, first identify this for Mr. Catanach and then review the information on this exhibit?

A Exhibit Number Two is an enlarged blowup of the ownership in the northeast quarter of Section 13, identifying the east half of the northeast quarter as our proposed proration unit and the exact well location, being 1100 feet from the north line, 880 feet from the east line.

Q Now this is a standard proration unit?

A Yes.

Q On what acreage are you gaining an advantage by virtue of this unorthodox location?

A Just the west half of the northeast quarter.

Q Does the exhibit indicate the ownership in the west half of the northeast quarter?

A Yes, it does.

Q And how does that compare to the ownership in the east half?

A The ownership is the same in both quarter sections, both 80 acres.

Q On the west half you've also indicated Bonneville and Amerada Hess. What is their interest or what has happened to their interest in the proration unit

that comprises the east half of this quarter section?

A Bonneville and Amerada have elected to farm out their interest in the east half, excuse me, in the -- yes, in the east half of the northeast quarter to Nearburg Petroleum.

Q Was notice given to any offsetting owners?

A Yes, to the Bonneville and Amerada Hess.

Q But no notice of the hearing was given because they have -- are participating in the project?

A That is correct.

Q All right. Were Exhibits One and Two prepared by you or compiled under your direction?

A Yes.

MR. CARR: At this time we'd move the admission of Nearburg Exhibits One and Two.

MR. CATANACH: Exhibits Number One and Two will be admitted as evidence.

Q Mr. Owen, will Nearburg also call a geological witness to present the technical testimony concerning the reason for this location?

A Yes.

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

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Owen, who was notice given to, again?

A Bonneville and Amerada Hess are aware of our well location. They are people that own substantial interest in that same area of Lea County, as indicated here in the northeast quarter, and upon us discussing it with them and them reviewing the geological data, they have elected to farm out.

Q They have no problem with the location then?

A No.

MR. CATANACH: That's all I have.

The witness may be excused.

MR. CARR: At this time we call Mr. Mazzullo.

LOUIS J. MAZZULLO,

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 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 and in what capacity?

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 Yes, I have.

Q Are you familiar with the application filed in this case on behalf of Nearburg Producing Company and are you also familiar with the subject area?

A Yes, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. CATANACH: They are.

Q Mr. Mazzullo, would you refer to what has been marked for identification as Nearburg Exhibit Number Three, identify this for Mr. Catanach, and review

the information contained on the exhibit?

A Exhibit Number Three is a structure map of the Strawn limestone in the area of the South Humble City Field, Strawn Field.

The wells that are denoted by the triangles are wells that are actually producing out of the Strawn formation. Among those are several wells that I have indicated, the Mary Anne No. 1, the Wright No. 1 and the Wright No. 2 in Section 12 north of the proposed location. These are wells that are operated by Nearburg Producing Company. There are additional dry holes that Nearburg has also drilled in and around this section.

This map was compiled on the basis of subsurface data from well logs and also from many miles of seismic data, tens of miles of seismic data, that Nearburg and their partners either shot themselves or bought commercially.

The purpose of this map is to show that in exploring for the Strawn reservoir here the primary tool that we use is seismic data and the way we use the seismic data is twofold: First of all, we look for structural anomalies that may indicate the presence of the reefs, the patch reefs that make up the reservoirs in this area, and the second thing we look for on the seismic sections are anomalies within the signals that we receive. In other

words, so-called wavelet anomalies that are indicative of possible porosity development within the Strawn section.

This map shows several structural anomalies, closures, small closures, which are associated with some of the production in the area. If you take note of the area around the Wright No. 1 and the Wright No. 2 Wells north of the location in Section 12, you'll notice that the Wright No. 1 sits on a small structural closure at the Strawn level and the Wright No. 2 is on the edge of the same closure or structural nose.

Similarly, if you go over to the west of the proposed location, along the border between Section 14 and 13, you'll notice a couple of Strawn wells that are associated with more subtle structural nosing; no pronounced closure but some structural nosing.

The proposed location itself is situated on a structural closure as defined by two critical seismic lines that I have indicated by the the dashed lines on this map that pass in the vicinity of the location. The location is indicated by the orange dot and arrow.

The anomaly, this anomaly at the proposed location seems to be separated from that that is associated with the Wright wells by a small structural saddle, which may or may not have bearing in terms of whether or not we think the location is going to be a common reser-

voir to the Wright No. 2 and I'll get into that in a minute.

The fact of the matter is that the anomaly is present here. Not all of this structural anomaly is associated with reefal build-up. Some of it is tectonic in nature. Some of it is more deeper seated in nature, so I'm not going to imply that that entire anomaly is an area of perspective Strawn, and I'll show you on the next exhibit why I think so.

Q Are you ready to the --

A Yeah.

Q -- isopach? Would you review Exhibit Number Four for the Examiner, please?

A Exhibit Number Four is a map showing the thickness -- the thickness of the Strawn limestone section in the area. Again, this is built primarily on the basis of downhole data that we've gotten from all this well control in the area, but it's also aided by the seismic isochron maps that geophysicists have generated in this area.

You'll notice that production from the Strawn, again the wells that are triangles -- that have the triangles around them, production in the Strawn is generally and loosely associated with isopach closure. In other words, where the Strawn thickens is where you get the better chance of finding productive Strawn facies in this

area.

The -- again, the two seismic lines, the two critical seismic lines are shown by the dashed lines that go in the vicinity of the proposed location. One thing to note there is that porosity development in the Strawn is not -- is not entirely predictable, so that even though you may have a nice isopach closure, the whole closure is not necessarily filled with porosity. Porosity development is a complicated -- is a function of a lot of complicated post-depositional factors here that -- that make it very difficult to predict how much of an anomaly is going to be filled with porosity.

So what we try to do in picking a location here is to find the optimum location based on what we see on the seismic signal. We look for anomalies on the seismic signal that are indicative of possible porosity development and we pick the best area on the seismic line where we see this anomaly. So ideally we would like to pick a location where two lines intersect and we could see the anomaly on both lines but a lot of times that doesn't work out. In this case we don't see the anomaly best developed at the intersection of these two key seismic lines but rather the best anomaly is just south of the intersection where we have the proposed location.

So that's where we want to put it. We,

if we move it anywhere, if we go off of this anomaly in any direction, we run a very high risk of drilling a dry hole because these are commonly one or two well features that we're looking for. So we picked the best location, the most optimum location, and we assume for the present time that it's going to be a one-well feature.

Q Let's go to the cross section, Exhibit Number Five, and I'd ask you to review that for Mr. Catanach.

A Okay. Exhibit Number Five is a stratigraphic cross section from north to south. There's an index map on the cross section that shows where it goes. It's the same structure map that we had on Exhibit Number Three.

But basically it goes from north to south, from the Howenstein No. 1 dry hole, north of the Nearburg Wright No. 1, through the Wright No. 1 and Wright No. 2 and the proposed location, and down to the Norris No. 3 dry hole southwest of the proposed location and then to the Norris No. 2, the Inexco Norris No. 2, which is another productive Strawn well to the southwest.

Referring real quickly again to Exhibit Number Four, the areas that I've shaded in green on Exhibit Number Four are the areas that are the maximum -- where the maximum porosity development is either seen in the subsur-

face on logs or on the seismic section. The same green patches on Exhibit Number Four correspond to the dotted, green, porous reef facies I've indicated on the cross section.

You'll note that these porous reef facies come and go at various levels in the Strawn; they're not always at the top. Some of it, as in the case of the Wright No. 1, is developed at the bottom of the section, some in the middle of the section, as in the case of the Norris No. 2 on the east end -- on the south end of the cross section, and in the case of the Wright No. 2, which is immediately north of the proposed location, porosity development is near the top of the Strawn.

What we anticipate at the proposed location, that porosity development is going to be near the top of the section. We don't know that for sure. We could only imply that by the magnitude of the structural and isopach closure that we've mapped. But in any case, because the isopach and structural closures are separated by -- by saddles from the offset production, we anticipate that the development that we see at our proposed location may be separate from what we see at the Wright No. 2 or the Norris No. 2, for that matter.

But this just serves -- goes to show -- this purpose of this exhibit is just to show the lateral

and vertical separation of the porosity units and it's -- this is one of the factors that makes it very difficult to map these things, because they do change horizons very drastically and very abruptly. As I said, these are generally one to two wells features in size at most.

Q Is this unorthodox location necessary to maximize Nearburg's opportunity of making a successful Strawn well in the northeast -- in the east half of the northeast quarter of Section 13?

A Yes, that's exactly how it was proposed, why it was proposed.

Q Were Exhibits Three through Five prepared by you?

A Yes.

MR. CARR: At this time, Mr. Catanach, we'd move the admission of Exhibits Three through Five.

MR. CATANACH: Exhibits Three through Five will be admitted as evidence.

Q In your opinion will granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, it will.

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

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Mazzullo, you take your seismic to map out your structure, is that correct?

A Right.

Q Does your seismic differentiate between the porous section within the structure?

A That's -- that's what they intend to do. The mapping of the structure is straightforward, you know. You pick the top of the -- you pick the mapping horizon and you do your fancy numbers and calculations, but in terms of where the porosity is, that's done more qualitatively by looking for peculiarities in the signal and the actual wavelet response that you get on the seismic section itself, when you see it change in character, and where the maximum change in character, that's generally where we like to locate. Where you see the most anomalous character on the wavelet form, that's where we like to locate our wells.

Q Has Nearburg used seismic in this area successfully?

A Yes, we have. We've used it successfully and we've had our difficulties with it, as well.

One of the biggest risks in using this technique is our distorted signals that you receive because of complications in the structure that's immediately below

the Strawn.

For example, we drilled the No. 1 Stillings (sic) Federal in Section 7, northeast of our No. 1 Wright Well, which we anticipate -- anticipate to come in high on the Strawn and it had what appeared to be an anomaly, a seismic wavelet anomaly.

Well, it came in on the wrong side of a fault which cut the Strawn, and there was obviously no anomaly there, because it was a tight section of Strawn, the problem there being interference from the fault that we didn't recognize prior to drilling the well.

So we do run a very high risk in utilizing the technique and it shows. I mean we've had our share of dry holes in the area but we've had our share of successes on account of the -- being as precise as possible about locating these wells.

I might say our success rate is probably on par, if not a little bit better, than normal in this area, even considering the dry holes.

Q What's normal?

A Normal in this area, I think, would be anywhere from 30 to 50 percent success rate, which is pretty good, you know, under any circumstances.

MR. CATANACH: That's all the questions I have of the witness. He may be excused.

Is there anything further in this case?

MR. CARR: Nothing further.

MR. CATANACH: If not, Case 9724 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 No. 9734, heard by me on August 23 1983.

David R. Catanach, Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date AUGUST 23, 1989 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
BILL OWEN	LDM Associates	Roswell
Mark Degenhart	Kelt	Roswell, NM
Hugh INGRAM	Conoco	Hobbs
HANS SHELINE	CONOCO	Hobbs
Tim McGhee	"	Hobbs
Jerry Hoover	conoco	Hobbs
W. Kellahin	Kellahin & Kellahin	Santa Fe
Susan Courtright	Phillips Petroleum	Odessa, TX
Bill Christy Jr	Kelt	Roswell
J. Bruce	Hinkle Law Firm	Albq
Bob Baker	Byram	Santa Fe
Louis J. MAZZULLO	Nearburg Producing Co.	Midland
William F. Carr	Campbell & Black, P.A.	Santa Fe
Stan Pl	MOGA	Midland
Robert Allen	Unocal	Midland, TX
Tom Olle	Meridian Oil	Midland, TX

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date AUGUST 23, 1989 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
Paul Shukis	Meridian Oil	Midland Tx.
Gary Green	Santa Fe Energy Co	Midland, TX
Tim Parker	Santa Fe Energy Co	Midland, TX
Larry Murphy	Union Oil Co. California	Midland, Tx
Lawrence D. Stamets	New Mexico Oil Co	Hobbs Nm