NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10729

IN THE MATTER OF:

The Application of Meridian Oil, Inc., for a High Angle/Horizontal Directional Drilling Pilot Project, Special Operating Rules Therefor, a Special Project Gas Allowable, and a Nonstandard Spacing and Proration Unit, Rio Arriba County, New Mexico.

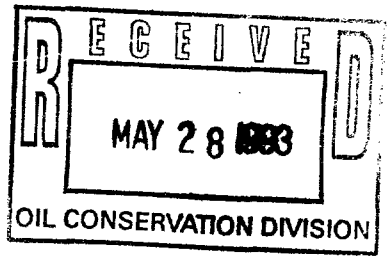
BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

May 20, 1993



REPORTED BY:

CARLA DIANE RODRIGUEZ
Certified Court Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE NEW MEXICO OIL CONSERVATION DIVISION:

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BY: **W. THOMAS KELLAHIN, ESQ.**

I N D E X

E X H I B I T S

EXAMINER CATANACH: At this time we'll call Case 10729.

MR. STOVALL: Application of Meridian Oil, Inc., for a high angle/horizontal directional drilling pilot project, special operating rules therefor, a special project gas allowable, and a nonstandard spacing and proration unit, Rio Arriba County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

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

EXAMINER CATANACH: Additional appearances?

Will the witnesses please stand to be sworn in.

[The witnesses were duly sworn.]

ALAN ALEXANDER

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Alexander, for the record, would

you please state your name and occupation?

A. Yes. My name is Alan Alexander. I am currenty employed as a senior land advisor with Meridian Oil, Inc., in their Farmington, New Mexico, office.

Q. On prior occasions, have you testified as a petroleum landman and had your qualifications accepted and made a matter of record?

A. Yes, I have.

Q. Pursuant to your employment by Meridian as a landman, have you studied the land title information surrounding this application?

A. Yes, I have.

Q. Are you familiar with the Canyon Largo Unit?

A. Yes, I am.

Q. Are you also familiar with what your company seeks to accomplish with this application?

A. Yes, I am.

MR. KELLAHIN: We tender Mr. Alexander as an expert petroleum landman.

EXAMINER CATANACH: He is so qualified.

Q. To orient the Examiner on how you've

organized the exhibit book, Mr. Alexander, would you identify for us what's contained behind Exhibit tab No. 1?

A. Behind Exhibit tab No. 1 we have a copy of the application whereby we're requesting that the Canyon Largo #388 well, the special operating rules for the directional drilling of this.

Attached to that application are Exhibits A and B. Exhibit A is a nine-section land plat, and Exhibit B is a vertical cross-section and a plan view cross-section of the wellbore that we're asking to be drilled horizontally. Exhibit C is an offset operator plat showing the owners and operators offsetting Section 3 of of 25 North, 6 West, which is the proposed location for this well.

Q. Let's turn now to the information behind Exhibit tab No. 2, and tell me what you've done to determine who are the offsetting operators that are entitled to notification of this case?

A. Behind Exhibit tab No. 2 we are showing the offset owner operator plat, and you'll notice that the offset owners or operators have been tabulated numerically. At the bottom of the page

we have also given the names and addresses of those owners and operators.

Meridian Oil offsets the property in all directions but the southwest quadrant, where Merrion Oil & Gas Corporation owns an interest along with Robert Bayless in that particular tract.

Q. If you'll turn now to the last display, which is Exhibit 8, a certificate of mailing of notification to Bayless and to Merrion Oil & Gas Corporation, did you cause that notification to be sent?

A. That's correct.

Q. Have you received any objection from either Merrion Oil & Gas Corporation, or Robert Bayless, to the application?

A. We have not.

Q. Let me have you turn now to the display behind Exhibit No. 3, and let's discuss what you're proposing to accomplish. First of all, when you look at Section 3, is this a standard size 640-acre section?

A. No, sir. As you'll notice, there are lots across the north half of the section and they're a little larger than the normal 40-acre

quarter-quarter tract, so the section is slightly larger than 640 acres.

Q. Where are we with Section 3 in relation to the Canyon Largo Unit itself?

A. The Canyon Largo Unit, if you'll look on the plat, you'll see a heavier line, a green line. Just to the north of Section 3, that is the unit boundary for the Canyon Largo Unit. You'll notice over in Section 4 where we've listed Merrion and Bayless as owners, that upside down L-shaped tract in 4 and part of Section 9, that acreage is not committed to the Canyon Largo Unit. That's the reason we noticed those particular individuals.

Q. What do you propose to do within Section 3 for this project?

A. We would like to drill the Canyon Largo #388 well horizontally, starting in the southwest quarter and proceeding on a northeast lateral. It crosses over into the eastern part, the eastern half of Section 3, and ends in the southeast quarter of that section.

Q. In what pool are you drilling this well?

A. The pool that we believe this well

properly belongs in would be the Blanco Mesaverde pool.

Q. What is the spacing requirement for wells drilled in that pool?

A. It is 320 acres.

Q. Do you propose to dedicate the entire section, then, as a nonstandard gas proration spacing unit for this pool?

A. That is correct.

Q. What do the pool rules require for a well location set back from the boundaries of the spacing unit?

A. They require 790-feet setbacks from the outer boundaries of the spacing unit.

Q. When we look at Exhibit No. 3, identify for us the other types of wells that have been drilled in this section.

A. I do have a legend attached to the map at the bottom of the map. The gas well symbols are Pictured Cliffs wells. The gas well symbol with a half-circle on the top are Chacra formation wells. The gas well symbol for the Mesaverde is a full circle around the gas well, and the well symbol for a Dakota formation is a rectangle around the gas well symbol.

Q. Are there existing 320 gas spacing units in this section and, if so, what is their orientation?

A. There are the two Dakota wells that are located in this section, one in the northeast quarter and one in the southwest quarter. They're currently dedicated on 320 acres, and they consist of the east half of the section and the west half of the section.

Q. Are there any requirements or limitations on the Canyon Largo unit as to the orientation of the spacing unit in Section 3 for production from the Blanco Mesaverde pool?

A. Yes, sir. All of the formations, the Canyon Largo Unit requires us to orient all of the drill blocks on an east half and west half basis.

Q. What is Meridian's request for a gas allowable for the nonstandard proration unit, if you're successful in obtaining production out of this pool.

A. We're requesting two times the allowable that we would normally get for a verticle well drilled in the Blanco Mesaverde gas pool.

Q. Blanco Mesaverde gas pool is one of the prorated gas pools in Northwestern New Mexico?

A. Yes, sir, that's correct.

Q. And it has a two-part formula, one in which there is a component based upon the deliverability of the well and another factor based upon acreage?

A. That is correct.

Q. How would you recommend the Examiner make the necessary adjustment to provide an appropriate allowable for the nonstandard proration unit?

A. We are requesting the deliverability, of course, to be factored in of this well, and then two times the acreage dedication.

Q. Okay. Let me have you turn now to the topographic map that's shown behind Exhibit tab No. 7. In attempting to find the starting point of the surface location for the horizontal well, were there any topographic or surface limitations or restrictions in the section?

A. Yes, sir, there is. If you'll look at the topographic plat behind Exhibit tab #7, you'll notice there's a canyon located in the western half of the southwest quarter of this

section; that is Canyon Largo. It's a very steep and deep canyon, and we did not want to locate too close to the rim of that canyon.

There are considerable archaeological findings and sites right on the rim of that canyon, so, we have moved back away from that canyon rim just far enough but, like I said, we did not want to locate too close to that rim.

Q. When you look at the ownership within Section 3 and those parties entitled to share in production from this well, is that ownership common?

A. Yes, it is. It consists of one federal lease.

Q. In addition, it is dedicated to the Canyon Largo Unit?

A. That is correct.

MR. KELLAHIN: That concludes my examination of Mr. Alexander. We move the introduction of Exhibits 1, 2, 3, 7 and 8.

EXAMINER CATANACH: Exhibits 1, 2, 3, 7 and 8 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Alexander, what is the ownership

within Section 3?

A. Meridian owns 100 percent of the working interest, and the net revenue interest is 82 percent. There's a two-and-a-half-percent override along with the 12-and-a-half percent federal royalty.

EXAMINATION

BY MR. STOVALL:

Q. Is the ownership in the Canyon Largo a participation on a drill block basis?

A. Initially that's correct, and subsequently we form participating areas, if the well is commercial.

Q. Are there any participating areas in the Mesaverde in this area?

A. Yes, there is. In the south half of the unit, there is a single drill block that consists of 320 acres, and that is the only participating area for Mesaverde that's established today. It's removed by some, oh, eight or 10 miles.

Q. If this well were successful, would you anticipate expanding the participating area or just leaving it as the section?

A. Absent a finding that this formation is

not in communication, it is not the same formation that's in the present participating area, we would expand the present participating area to include this drill block.

Since the other well that's located down in the south part of the unit produces mainly from--it's classified as a Devil's Fork-Mesaverde completion, we may investigate that further, depending on what we find in the results of this well, and determine that it should be a separate participating area. But, absent that finding, we will enlarge the existing participating area.

FURTHER EXAMINATION

BY MR. CATANACH:

Q. Does your unit agreement provide for formation of nonstandard units?

A. No, sir. The unit agreement doesn't specifically address the formation of nonstandard units.

Q. So to form this nonstandard unit, Meridian being the only working interest owner, you didn't have to notify or contact anybody else within the unit?

A. Oh, yes, sir, we did. We did contact

the other working interest owners. We have to file a plan of development with the Bureau of Land Management, and the State of New Mexico agencies. The working interest owners were all notified and that plan of development was filed and approved.

Q. And this was included in that plan of development?

A. Yes, sir, that's correct.

EXAMINER CATANACH: I believe that's all I have.

MR. KELLAHIN: Mr. Examiner, I would call, at this time, Mike Dawson.

MIKE DAWSON

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. CARR:

Q. Would you please state your name and occupation?

A. Mike Dawson. I'm a petroleum geologist for Meridian Oil in Farmington.

Q. On prior occasions, Mr. Dawson, have you qualified and testified as a petroleum geologist before the Division?

A. Yes, I have.

Q. Pursuant to your employment in that capacity, have you made a geologic study of the facts surrounding this application?

A. Yes, sir.

MR. KELLAHIN: We tender Mr. Dawson as an expert petroleum geologist.

EXAMINER CATANACH: Mr. Dawson is so qualified.

Q. Before we look at the specifics of the well plan as you propose to initiate it in this section, let me ask you to turn to the isopach map that's shown behind Exhibit tab No. 5. Let's use that as a reference point, and have you give us a general overview of what has been the development activity in the Mesaverde and where Section 3 fits into that development.

A. If you look at the isopach map, you'll notice orange gas well symbols. These represent the southwest edge of the Blanco Mesaverde field. You'll notice on the south tier of sections, Section 3 is separated from the edge of the Blanco Mesaverde field by about a mile and a half, so this venture represents an extension of considerable length from the existing

production.

Our concept here is to test the edge of the Blanco Mesaverde field with horizontal technology. I should add that in this part of the field area, the Cliff House and Menafee are not prospective that the sands are water productive, so we have a rather limited interval for reservoir target.

In the specific section for this study, the Point Lookout B sandstone, as I've termed it, is the only sandstone with significant reservoir potential. So, that's outlined in yellow. The heart of the net sandstone trend, I've defined that sandstone here using RT, density porosity, shaleyness, in an attempt to identify the part of the trend that has some significant matrix permeability.

What we find in studying similar trends and, to a limited extent along this trend where there is production farther to the northwest, is that in terms of deposition on the landward side of the trend, we have a little greater matrix permeability. We can see this expressed by greater resistivity and more SP deflection, slightly higher porosity.

All these things are the result, ultimately, of a little higher energy part of the depositional environment. You might regard this as a beached sandstone and, to the southwest part of this trend, you're up near the high energy part of the beach system.

Q. How far do you have to go south and west before you again establish production out of any of the Mesaverde formations?

A. The closest production to the southwest is what Alan Alexander referred to, a well down in the south part of the Canyon Largo Unit. It's about eight miles. That sandstone reservoir is not in the Point Lookout. It's a nonmarine sandstone and it's, in fact, a Menafee fluvial channel sandstone. The map that I've presented to you here is a marine sandstone. It's truly a Point Lookout sandstone, and it's quite a different reservoir type.

Q. What do you hope to achieve with a horizontal pilot project that you can't obtain with, say, two vertical wells in this portion of the Mesaverde in Section 3?

A. One thing that we hope to do with the horizontal lateral is to maximize our opportunity

to produce from natural fracturing, which we feel is ubiquitous in the San Juan Basin. We're confident that we'll encounter at least some natural fracturing along this lateral.

We've designed the azimuth of the lateral to maximize the number of those encounters, otherwise, basically, you're drilling in an orthogonal direction to what we know to be the north/northeast trend of that natural fracturing. That natural fracturing is seen on the exhibit on the wall, expressed by a Rose diagram.

That Rose diagram is the trend of open, natural fractures. We got that from a well about a mile-and-three-quarters north of the #388 location, the Vaughn #13E. It's one of the Mesaverde wells shown in the southeast of Section 27 on the isopach map.

Not only do we have that data from an FMS log, but we have a regional map that we're trying to develop of open, natural fracture trends, using a variety of data, and that north/northeast interpretation fits in very well with our regional view of fracturing.

Q. You made a reference to a display on

the hearing room wall. That display is also found in the exhibit book behind Exhibit tab No. 4. And on a smaller scale it shows that natural fractures strike histogram, does it not?

A. Yes, sir.

Q. Before we leave Exhibit No. 5, let me ask you to use that display and tell us why you're proposing to locate the well at this particular surface location.

A. One immediate concern, of course, is the canyon edge. We had to work around that. A second concern is, we want to minimize the risk involved with locating our target reservoir; finding the zone, in other words, and penetrating it at a higher angle and saying in zone. By drilling close to the #287, which has a Mesaverde wire line log, we have excellent initial control and we can greatly minimize that risk.

The other consideration is that we would like our lateral to run through the part of the net sandstone trend in which we feel we have our best chance of decent matrix permeability. We expect this to be fairly low permeability, as is typical in the Mesaverde, but we want to give it our best shot. We want to explore for the

best possible permeability in the trend, in terms of matrix permeability.

Q. Let me have you turn now to Exhibit tab No. 6 and look at the structure map behind that tab. Is this a structure map you prepared, Mr. Dawson?

A. Yes, sir.

Q. What does this show you?

A. This is the structure on top of the B sandstone, which is our reservoir target. In general, we have a very gentle, homoclinal, northeast dip. We're looking at no more than 65 to 70 feet of total dip along the track of our lateral.

Q. Illustrate for us the relationship between the lateral and the structural orientation through Section 3.

A. We'll be starting at an updip position and we'll be proceeding to the east/northeast in a downdip direction. This is exaggerated by the vertical exaggeration that you see on the exhibit on the wall. That's about a 10 times exaggeration, so you get a better sense of the well track proceeding downdip through the reservoir from the wall exhibit, and also Exhibit

No. 4.

Q. Let's turn now to Exhibit No. 4. Using this display as an illustration, describe again for us what you hope to achieve.

A. We'll start at our surface location and drill to a kickoff point, build angle through the Menafee, the Menafee formation of the Mesaverde group, and arrive at a high-angle before the top of our target reservoir, and proceed to drill through the reservoir in a horizontal fashion.

Q. The entire project, from the location of the well in the surface to the endpoint of the lateral, is to be contained within a drilling/producing window as shown on this display, that you see just to the left of the circle?

A. Yes, sir.

Q. And that would be a limitation of 790 feet from the outer boundaries of the section?

A. Right.

Q. Would that provide you sufficient flexibility, as the operator, in order to adjust the surface location, if required for the well, to change directions on your azimuth, and to attempt to execute this well in the most

efficient way?

A. Yes, indeed.

MR. KELLAHIN: That concludes my examination of Mr. Dawson. Mr. Examiner, we would move the introduction of his Exhibits 4, 5 and 6.

EXAMINER CATANACH: Exhibits 4, 5 and 6 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Dawson, how were the fracture orientations determined?

A. We used a formation microscanner log, and the well that I referred to just to the northeast, this is a log that measures micro resistivity, much like a micro log, and it has--I think this was a six-arm tool.

It can orient very small, natural fractures as long as they're open, by measuring differences in conductivity. The drilling fluid penetrates those fractures and gives you a conductivity high.

So, we interpret the natural fractures from that. That's done with a computer assist. We figure out statistically what the dominant

direction is, and that's what's exhibited there in the Rose diagram. You can see some subsets of a direction, but it's predominantly north/northeast.

We have similar data from elsewhere in the Basin, and throughout this area of the Basin we get a very consistent north/northeast trend of the open, natural fractures. This corresponds to other data available in the literature from interpretations from oriented cores, where they've noted the direction of the natural fracturing in other cretaceous rock, so we're fairly confident that this is, indeed, the natural fracture direction that we'll encounter in our wellbore.

Q. How thick is the B interval?

A. At our surface location it's about 15 feet, and I believe by the time we get to the bottom hole location it will be 19 to 20 feet thick.

Q. Mr. Dawson, do you know why the well was placed where it was, and why, maybe, it wasn't placed in the north half of that section?

A. Yes. In fact, I had quite a bit of input into that decision. One of the prime

considerations for the surface location is that we wanted to stay close to one of the two Dakota tests.

In order to minimize that initial risk of finding the zone, getting in it, getting horizontal and staying in zone, there's much less risk if you have some wire line control. So that gave us either the northwest or the southwest to choose from.

The second consideration is, we wanted to set up an azimuth that would intersect the maximum number of natural fractures, so we basically went ahead in an east/west direction.

And the third consideration is that we want to be on the landward side of this trend. Although this map, by using these log cutoffs, we could see slightly greater thickness to the north of our well tract, I don't believe that we'll have as great a permeability. The sand is thicker, but it's not--it's a little bit more shaley. The grain size will be just slightly smaller. The sorting won't be quite as good and, in short, those things will result in a little less reservoir permeability.

So, according to that depositional

model, we're actually better off being on the southwest 15-foot contour than we would be in the axial part of this trend, because we expect greater matrix permeability there. So that led us to the present azimuth, as planned.

Q. Would you expect all of the acreage in Section 3 to contribute gas reserves to this well?

A. I expect most of the acreage to. I'm not confident that the acreage all the way in the southwest quarter, for instance, would contribute much or very much. But I would certainly expect everything, from the 10-foot contour in the southwest quarter or maybe even slightly to the southwest of that, to contribute.

We really do expect enhanced drainage, and we really do expect to at least simulate the drainage that would be provided by two vertical wells. What our hope is is that we will drain, perhaps more efficiently than those two vertical wells, and perhaps have a greater recovery factor, given this same drill block acreage.

Q. In your opinion, then, you believe that this well will drain most of the section?

A. Yes, sir, I do.

EXAMINER CATANACH: I don't have anything else, Mr. Kellahin.

MR. KELLAHIN: Call, at this time, Mr. Paul Allen.

PAUL ALLEN

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Allen, would you please state your name and occupation?

A. My name is Paul Allen. I'm a drilling engineer with Meridian Oil in Farmington, New Mexico.

Q. On prior occasions, Mr. Allen, have you testified and been qualified as a drilling engineer for your company?

A. Yes, I have.

Q. And you've testified on numerous occasions before the Division on the high-angle/horizontal wells, have you not?

A. Yes, I have.

Q. Pursuant to your employment with Meridian, have you performed drilling functions for this particular well?

A. Yes, I have.

MR. KELLAHIN: We would tender Mr. Allen as an expert drilling engineer.

EXAMINER CATANACH: Mr. Allen is so qualified.

Q. Before we talk about the specifics of the drilling and completion plan that are illustrated on Exhibit No. 4, give me your perspective, as an engineer, of what the concept is that you're trying to test with this pilot project in this section?

A. There's more than one thing we're trying to test. Obviously the rock, horizontal drilling in this rock, whether that's a feasible to do. The other thing, it's one horizontal well versus two vertical wells, and there is a definite cost advantage in doing it that way.

Q. Can you give us a general range of what the potential difference is in cost, between one horizontal well and then the two vertical wells?

A. A vertical well in this area would need to be frac'd and completed with fracture stimulation, and you're looking at $500 to $600, upwards of even $700, and in some cases $1,000, for a vertical well. So, let's say, 1.2 million

for two vertical wells.

We believe that we can drill and complete the horizontal well, complete it open hole, no fracture stimulations, for less than $700,000.

Q. In addition to testing the potential to save substantial dollars in the drilling and completion phase of this project, will it also afford the opportunity to Meridian to test the drainage potential of horizontal wells in the Mesaverde formation in this particular portion of the pool?

A. Yes, it will.

Q. Let's turn to Exhibit No. 4 and have you use that as an illustration. Show us what your drilling procedure and plan is, and then lead us into your completion plan.

A. Okay. We'll spud the well, and drill a 12-1/4 hole to 200 feet. We'll then run 9-5/8" pipe to 200 feet. We'll drill 8-3/4" hole to the kickoff point at 4707, and begin directional drilling operations.

We'll then build angle to approximately 84 to 86 degrees, with mud drilling. We'll then run casing to this point. That's seven-inch

casing to this point. We'll unload the hole with a gas system, an air-mist-gas system, primarily nitrogen gas, and drill out using this gas into the lateral, building angle at approximately six degrees to the 88-1/2 degree approximate inclination there. And drill to TD, as shown on Exhibit 4, of 5166 TVD and 7927 measured depth.

We'll be using a couple of different methods to stay in the zone. One is a gamma directional tool, which provides real time gamma ray information. The other is a standard survey instrument which will tell us where we are in relation to our starting point.

We'll then go into the hole 4-1/2" perforated and plugged liner, and run this perforated and plugged liner to TD, spacing the perforations over the shows as we've seen them, or over the entire interval, if we see that the entire interval is perspective.

We'll then go back in and mill off the plugs, and begin producing the well.

Q. Is there any stimulation aspect to the completion of the well?

A. No, there isn't.

Q. What determines the ultimate length of

the lateral or the endpoint of the lateral?

A. Well, there's a couple of different factors there. In this case the stands, as Mike referred to earlier, had a lot to do with maximizing or optimizing the lateral length on the well. Economics play a big role in that as well.

Q. The approximate horizontal distance of the lateral, to stay within the drilling window, the 790 setback is about 3,000 feet, I think?

A. Yes, it is.

Q. And you have the technology and the capability to drill a lateral of that distance?

A. Yes, we do.

Q. If the Examiner approves the application and provides a drilling producing window, any point within the section, so long as you stay no closer than 790 to the outer boundary of the section, will that provide you the necessary operating and drilling flexibility to execute the project?

A. Yes, it will.

MR. KELLAHIN: That concludes my examination of Mr. Allen.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Allen, is Meridian getting pretty good at drilling these things?

A. We would like to believe so.

Q. How many have you drilled so far?

A. I, myself, have drilled five; the company has drilled eight in this area; I believe eight. Those were different formations. Those include both Gallup and Mesaverde wells.

Q. What's the longest distance you've taken it out?

A. As a company, we've drilled one upwards of 3200 feet vertical section outwards of that. I have plans right now, in fact, for two wells that we'll be beginning within the month, for 3500-foot laterals.

MR. STOVALL: You said "vertical section." You mean "horizontal," right?

THE WITNESS: The industry term tends to call that "vertical section." It's the distance a straight point down from the wellbore and out from that point. "Departure" is another word that they use.

MR. STOVALL: Lateral. Gotcha.

EXAMINER CATANACH: All right. Anybody else? The witness may be excused.

MR. KELLAHIN: That concludes our presentation in this case, Mr. Examiner.

EXAMINER CATANACH: All right. There being nothing further in this case, Case 10729 will be taken under advisement.

(And the proceedings concluded.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10729, heard by me on May 20 1993.

David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, 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 caused my notes to be transcribed under my personal supervision; 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 24, 1993.

Carla Diane Rodriguez

CARLA DIANE RODRIGUEZ, RPR
CCR No. 4