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. 11,823
APPLICATION OF YATES PETROLEUM CORPORATION FOR NINE UNORTHODOX GAS WELL LOCATIONS, CHAVES COUNTY, NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

August 7th, 1997

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, August 7th, 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.

* * *

I N D E X

August 7th, 1997
Examiner Hearing
CASE NO. 11,823

* * *

E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	7	12
Exhibit 2	7	12
Exhibit 3	9	12
Exhibit 4	16	19

* * *

A P P E A R A N C E S

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:

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

* * *

WHEREUPON, the following proceedings were had at 9:16 a.m.:

EXAMINER CATANACH: At this time we'll call Case 11,823.

MR. CARROLL: Application of Yates Petroleum Corporation for nine unorthodox gas well locations, Chaves County, New Mexico.

EXAMINER CATANACH: Call for appearances in this case.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan. We represent Yates Petroleum Corporation, and I have two witnesses.

EXAMINER CATANACH: Call for additional appearances.

Will the two witnesses please stand to be sworn in?

(Thereupon, the witnesses were sworn.)

MR. CARR: At this time we call Tim Miller.

TIM MILLER,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. Tim Miller.

Q. And where do you reside?

A. Carlsbad, New Mexico.

Q. By whom are you employed?

A. Yates Petroleum Corporation.

Q. And Mr. Miller, what is your current position with Yates Petroleum Corporation?

A. I'm a geologist in the reservoir engineering department.

Q. Have you previously testified before this Division?

A. Yes, I have.

Q. At the time of that testimony, were your credentials as an expert in petroleum geology accepted and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the Application filed in this case on behalf of Yates?

A. Yes, I am.

Q. Have you made a geological study of the area surrounding the proposed wells?

A. Yes, I have.

Q. Are you prepared to share the results of that study with Mr. Catanach?

A. Yes, I am.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER CATANACH: Yes, they are.

Q. (By Mr. Carr) Mr. Miller, would you briefly summarize for the Examiner what it is that Yates Petroleum Corporation seeks in this case?

A. Yates Petroleum Corporation is seeking approval of nine unorthodox well locations for wells to be drilled to the Abo formation in portions of Townships 5 through 7 South and Ranges 24 through 26 East. Each of these wells is an infill well on an existing spacing unit, and all are located in the Pecos Slope-Abo Gas Pool.

Q. Are you familiar with the rules that govern development of the Pecos Slope-Abo Gas Pool?

A. Yes, I am.

Q. And there are special rules in effect for the pool?

A. Yes, there are, special Pool Rule Order Number R-9976-C, dated March 19, 1996.

Q. And what are the well-location requirements as set out in those rules?

A. 160-acre spacing, authorizes an infill well on each spacing unit, 660-foot setbacks from the outer boundary of a spacing unit, and exceptions to the well-location requirements shall be granted only after notice

and hearing.

Q. And that's why we're here today?

A. Yes, we are.

Q. Have you prepared exhibits for presentation here today?

A. Yes, I have.

Q. Let's go to what has been marked Yates Exhibit Number 1. Would you identify that and review the information thereon for Mr. Catanach?

A. This is a plat of our acreage in Townships 5, 6, 7 South and 24 through 26 East, showing the Yates acreage colored in yellow, the well locations by the red dots, the proration units outlined in red, and other developments in the area, and offset operators.

Q. When we look at this exhibit, you have shaded with solid -- the solid yellow tracts are 100-percent Yates, and then you've outlined tracts in which Yates owns additional interest; is that not correct?

A. Yes.

Q. Okay. Let's go to Exhibit Number 2. Will you identify that?

A. Exhibit Number 2 is a list of the nine unorthodox wells we are proposing to drill.

They are -- give the different footages of each of the three sands out there, the Abo A, B and C zones, and

these were gathered, the information, by using greater than a nine-percent porosity cutoff on a neutron density crossover curve.

They are listed: The Leeman OC Federal Number 5 in Section 18, 7 South, 26 East. Given the three sands: 17 feet in the A zone, 32 feet in the B zone and two feet in the C zone, and a total of these of 51 feet.

The Spool SU Com Number 7. As I said again, the sands are listed, total at the right, A, B and C zones, with the total at 63.

The same goes for the Monaghan QY Federal Number 13, the McClellan MB Federal Number 6, the McClellan MB Federal Number 7, Savage Federal Number 5, Jamie Com Number 2, Cottonwood Ranch MK State Number 5, and the Conejo RH State Number 5.

Q. Now, before we look at the isopachs on each of these wells, on whom is Yates encroaching with each of these unorthodox well locations?

A. We are only encroaching -- operated -- on ourselves, operated by Yates Petroleum Corporation.

Q. So every tract on which the well is gaining an advantage is a Yates-operated property?

A. Yes.

Q. Accordingly, there are no notice requirements for any offsetting operators; is that right?

A. Right.

Q. All right. Let's now, looking at Exhibit 2 and moving to Exhibit 3, look at the isopachs for each of these wells.

First, what is the primary producing interval in the area?

A. The primary producing interval out there is the Abo B sand.

Q. Okay. Let's look at each of these isopachs. If you could just briefly explain to the Examiner why this individual -- this particular location was decided on.

A. Okay, the Leeman -- The first one is the Leeman OC Federal Number 5.

We have plats of all three zones.

The green dot -- The green circle is the unorthodox location. And it would have in the A zone a total of 17 net porosity feet; in the B zone it would have 32 net porosity feet; and in the C zone, two net porosity feet. And we try to maximize the location by trying to intersect all three zones.

The next one is the Spool SU Com Number 7. Again, all three zones are identified. The A zone, where it is situated, would encounter no sand, giving it zero feet. The B zone, which would encounter 43 feet. And the C zone, which would encounter 20 feet.

Third one, the Monaghan QY Federal Number 13, the A zone would encounter 23 feet, the B zone 33 feet, and the C zone 13 feet.

On this plat we have showed two wells, since they are in the same section in the southern half of Section 31.

The first one to the lower left, the McClellan MB Federal Number 6, which is 330 feet from the south line and 1300 feet from the west, would encounter A zone of two feet, a B zone of 28 feet, and a C zone of 23 feet.

The second one, which is the McClellan MB Federal Number 7 in the southeast corner, 330 feet from the south and 1300 feet from the east line, would have 23 feet in the A zone, 10 feet in the B zone and 27 feet in the C zone.

The next well, the Savage Federal Number 5 in Section 4, 7 South, 25 East, in the A zone we would hope to encounter 15 feet, in the B zone 25 feet and in the C zone 10 feet.

The Jamie Com Number 2 in Section 33, 5 South, 25 East, the A zone would have five feet, the B zone 22 feet, and the C zone 19 feet.

The Cottonwood Ranch MK State Number 5 in Section 36, 6 South, 25 East, would have 23 feet in the A zone, 27 feet in the B zone, and no feet in the C zone.

The Conejo RH State Number 5 in Section 2, 7 South, 25 East, would have 20 feet in the A zone, five feet

in the B zone and 24 feet in the C zone.

Q. In selecting a location for each of the wells, what is the first thing Yates does?

A. We first try to maximize all the porosity feet.

Q. And that's what you have just reviewed?

A. Yes. Yes, I have.

Q. And then once you have maximized porosity feet, what is the next step you undertake?

A. Then the engineers try to accommodate the locations by a drainage in the pool.

Q. Could you briefly summarize for Mr. Catanach the geological conclusions you've reached from your review of the area?

A. The locations are necessary to effectively drain the remaining reserves under each of these Abo spacing units and should be commercial, producible reserves at each location.

Q. Do you believe that approval of this Application and drilling of the proposed wells is in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, I do.

Q. Were Exhibits 1 through 3 prepared by you?

A. Yes.

MR. CARR: At this time, Mr. Catanach, we move

the admission into evidence of Yates Exhibits 1 through 3.

EXAMINER CATANACH: Exhibits 1 through 3 will be admitted as evidence.

MR. CARR: That concludes my direct examination of this witness.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Miller, on Exhibit Number 1, the solid yellow is 100-percent Yates --

A. Yes, it is.

Q. -- owned?

And the acreage with the yellow outline is operated by Yates --

A. Yes.

Q. -- but it's not necessarily 100-percent Yates?

A. Right.

Q. Okay. Is it your understanding that no notice was provided to any other operator of this Application?

A. Yes. Yes, I do.

Q. It was determined that Yates was the affected offset operator in each of these proposed unorthodox locations?

A. Yes, it was.

Q. Is one of these zones the more prolific zone?

A. Yeah, the B zone is the best producing zone out

there of the three.

Q. Do you try and maximize sand thickness in the B zone or --

A. We try to do all three, to pick the best location. B zone normally has the best thickness, not all the time.

But when we pick our locations we hope to intersect all three zones.

Q. So that would be the primary -- that would be the thing that you would try to do, is intersect all three zones?

A. Right, right.

Q. I mean, if you had your choice between gaining another 10 feet in the B zone or not encountering any feet in any net sand in the A zone, I mean, would you rather have more sand in the B zone or --

A. We would rather have more sand in the B, since that's the best one out there.

Q. Did you actually plot what would be considered an orthodox location on these same maps and see what kind of sand thickness you would encounter in those wells?

A. Yes, we tried that, but then again, it also has to do with the engineering on the drainage circles. That decides.

We pick our geological locations first, then we

see what the drainage circles -- and then we move them according to the drainage circles.

Q. Would -- So a standard location may, in fact, have greater sand thickness?

A. It could, but if it's in another well's drainage area, then we would try to move it outside of that.

Q. So it's a combination of both things --

A. Right.

Q. -- that you use?

A. Right.

Q. Have you got a pretty good handle on the mapping out there, quite a lot of well control?

A. Yeah, there's a lot of well control that is making it easier to try to pick the locations.

Q. Has your infill drilling program been pretty successful?

A. Yes, it has. We've drilled to date, so far, 38 wells, and they've come in pretty well.

Q. Are they generally drilled at unorthodox locations or standard locations?

A. Probably right now it's more standard.

EXAMINER CATANACH: I have nothing further of this witness.

MR. CARR: At this time, Mr. Catanach, we call Pinson McWhorter.

PINSON McWHORTER,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. Pinson McWhorter.

Q. Where do you reside?

A. Artesia, New Mexico.

Q. By whom are you employed?

A. Yates Petroleum Corporation.

Q. And what is your position with Yates Petroleum Corporation?

A. Reservoir engineering supervisor.

Q. Have you previously testified before this Division and had your credentials as a reservoir engineer 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 Yates Petroleum Corporation?

A. Yes, I am.

Q. Have you made an engineering study of the area surrounding the proposed wells?

A. Yes, I have.

Q. Are you prepared to share the results of that

study with the Examiner?

A. Yes.

MR. CARR: Are Mr. McWhorter's qualifications acceptable?

EXAMINER CATANACH: They are.

Q. (By Mr. Carr) Mr. McWhorter, would you refer to what has been marked for identification as Yates Petroleum Corporation Exhibit Number 4 and review this for Mr. Catanach?

A. Yes, what I've prepared here is a series of maps that correlate to the maps of the isopachs for each of these unorthodox locations, and these maps indicate the drainage area of surrounding wells. The circles represent the drainage area calculated, based upon estimated ultimate recovery, for each one of those wells.

The numbers that you see posted inside of the drainage area is the actual calculated ultimate gas recovery in MMCF for that particular well. You'll see a green dot, green and red circle. Those are the unorthodox locations that we are proposing.

Q. Let's go through these just individually --

A. Okay.

Q. -- and just note the location and the proximity to offset drainage.

A. All right. The Leeman Number 5, which is the

first one I have here, it shows the offset drainage of the Beard and the Ingram and the Leeman and the Charlotte Number 2, and it indicates that not only do we have a good potential for encountering the sands that we want to encounter, but also to stay out of the estimated drainage area of any surrounding wells.

The Spool 7, which is the next location, Spool SU Com Number 7, I've indicated the same thing.

The idea, as Mr. Miller has testified to, is to try to optimize encountering of these three sands -- or three sand packages, I should say -- and staying out of the drainage area of surrounding wells.

We'll see that also on the Monaghan Number 13, the same concept that we're staying away from the drainage areas of other wells.

The McClellan 6 and 7, again, we're attempting to stay away from our projected drainage areas for the surrounding wells.

The next one is the Savage 5. Again, we see the surrounding drainage areas for these wells, and commensurate with that we see the picking of the location that is best to not be affected by surrounding drainage.

Same for the Jamie Com Number 2. Again, we've picked a location based upon the sand packages that -- our projection of the presence of those and the drainage areas.

Again, the Cottonwood Ranch Number 5, the same concept shows the surrounding drainage and the ultimate projected recovery and the location to be away from those drainage areas.

And for the Conejo State Number 5 also, it's the same concept for all of these locations.

Q. Can you basically summarize for Mr. Catanach the conclusions you've reached from your work in the area?

A. Well, what we have done is, we have determined that we need to attempt to encounter as many of the sand packages as we can and, in conjunction with that, attempt to locate the wells in undrained areas where -- a higher chance of encountering undrained reserves.

The reservoir itself, the package itself, is complex in the nature of how it was laid down in the distributary channels of sands and the profuse amount of anastomosing of these sandbodies, and we encounter several in each sand package. So it's a complex sand, and we have quite a bit of well control and production data around us to indicate the productivity of these sands.

But our overall goal, of course, is to maximize the recovery for that particular well. And in that is why, on occasion, we have to move to an unorthodox location. We prefer to drill them at an orthodox location. But occasionally, because of those two criteria, we have to

move them to an orthodox location.

Q. In your opinion, will the proposed wells result in the recovery of hydrocarbons that otherwise would be left in the ground?

A. Yes, I do.

Q. Will approval of this Application be in the best interest of waste prevention and the protection of correlative rights?

A. Yes, I do.

Q. Was Exhibit 4 prepared by you?

A. Yes, it was.

MR. CARR: At this time, Mr. Catanach, we move the admission into evidence of Yates Petroleum Corporation Exhibit Number 4.

EXAMINER CATANACH: Exhibit Number 4 will be admitted as evidence.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. McWhorter, in choosing infill locations in this project, you use the same methodology for all wells; is that correct?

A. For all the wells we've drilled -- As Mr. Miller has testified, we've drilled 38 wells, of which seven have

been unorthodox well locations. And we've used the same methodology throughout all of this project to pick locations, and we've been successful in doing that.

And what I mean by that, how I rate success, is economic success, and did it look like -- did it appear like we had developed some reserves that were probably new reserves?

And as I've done some -- As we've drilled these wells, and some of them have had some maturity now, we've looked at offsetting wells, the wells that we originally offsetted in that proration unit and surrounding proration units. We have to date seen no effects of any interference from the new wells that we've drilled.

And so the economics of the project are very good at this time. And we're developing reserves in the neighborhood, on average, of a half a BCF per well, which is economic for us.

And so we feel that it's a very successful project, and we want to continue developing these reserves that we believe that are true incremental reserves for those proration units that would not be drained by the current locations.

Q. How do you guys identify proration units to drill on, to drill infill wells in?

A. Well, basically, what we do is not so much a

process of identifying a proration unit; it's more of a process of taking the geological data of the maps, the isopachs, and looking for areas that we could drill a second well on a proration unit where it has a combination of the sandbodies, that package, and the undrained location.

So we take a bigger-view map and start to isolate and try to pick locations.

Q. On some of these well locations where you're encroaching towards the outer boundary of the spacing unit --

A. Yes, sir.

Q. -- do you feel like you're protecting the correlative rights of, say, the offsetting tract?

Take, for example, the well in Section 33, in the northeast. Now it's encroaching on the eastern boundary of that unit, and it looks to me like the affected offset acreage in Section 34 is also operated by Yates. But, you know, we don't know what the interest difference is between those two proration units. I mean, do you think the correlative rights of the interest owners in Section 34 are being adequately protected?

A. Well, yes, I do. Oftentimes on some of these -- You're right, we don't have the outline, the breakdown of the interests. Oftentimes the interests -- Sometimes the

interests are common across these things, sometimes they are not.

I believe that if -- that that issue was addressed in the original hearings to modify the pool rules, the special pool rules, to allow second wells in a 160 proration unit.

And so we're still of that same opinion, that the offsetting correlative rights are being protected in this situation.

Q. Yates being the operator of the affected offset acreage, I mean, you wouldn't have to notify other interest owners in that proration unit.

A. That is correct.

Q. Are they made aware in any form or fashion when you do something like this?

A. They are not made aware in the form of a fashion if you mean -- if by that you mean that we officially notify them. But they have the potential to be made aware through all of the documents that are issued once a location is platted and filed with the OCD and that location is spotted and filed with the BLM and is approved by the BLM.

It becomes a matter of public record, then, and many working interest owners and operators track that stuff quite closely and are quite aware of what is going on. So

the potential is there, is what I'm saying.

Q. As the operator of a particular spacing unit, do you feel it's your obligation to protect the interest owners that are under that proration unit?

A. Under the proration unit that we operate?

Q. Right.

A. I believe it's our obligation as operators to best operate those wells in a prudent manner under each proration unit that we operate and to protect the interests of all interest owners that are in all of the wells that we operate in any given area like this.

Q. Mr. McWhorter, why do these drainage areas sometimes vary so dramatically, even within a given proration unit?

A. Well, the reason for that, Mr. Catanach, is that oftentimes the actual recoveries for a given well will be different. That can be correlated oftentimes to the actual ϕh that is encountered in that well.

When I did the drainage calculations, we summed all of the ϕh in a given well. And of course, based upon the recovery, correlated with the amount of ϕh in the well will directly affect the size of the drainage areas.

And that's why you'll see some varying sizes in that, because, number one, the recoveries are not uniform between wells, and, number two, the amount of actual

porosity feet is not uniform between the wells. And so that directly affects the size of the drainage area, the drainage circle.

Q. How, in fact, do you calculate these drainage areas?

A. How, in fact, do we calculate them?

Q. Yeah.

A. Well, we use a standard, industry-accepted drainage area calculation based upon a volumetric formula. We use that volumetric formula in the data that we have. We use logs to add up their amount of ϕh. We use decline-curve analysis to project the ultimate reserves of surrounding wells, and then we calculate -- We rearrange the formulas, so to speak, to back-calculate the radius.

The formula that we use and the assumptions that we use were presented in Case 10,793 as Exhibit 14, and that's still good today. If you were to refer back to that, you can see the assumptions that we use in our drainage calculations.

Q. Okay, so these locations you're proposing today, you feel like these locations will maximize recovery of gas from these proration units?

A. That's correct.

Q. A standard location would probably -- you would probably end up with a lesser recovery?

A. Possibly at a standard location it could be a combination of that we would have lesser recovery due to the sand -- that we would not encounter the sand packages that we wanted to encounter, or we would encroach upon a projected drainage area of an existing well and therefore not cover as much gas.

EXAMINER CATANACH: Okay, I have nothing further of this witness.

MR. CARR: Mr. Catanach, that concludes Yates' presentation in this case.

EXAMINER CATANACH: All right, there being nothing further, Case 11,823 will be taken under advisement.

(Thereupon, these proceedings were concluded at 9:46 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11823 heard by me on August 7, 1997.

Oil Conservation Division, Examiner

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 August 8th, 1997.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998