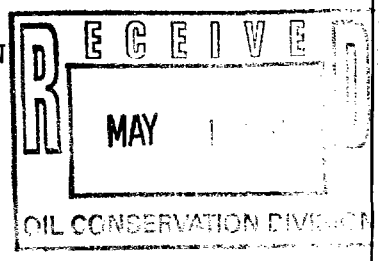
STATE OF NEW MEXICO

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:

APPLICATION OF MARATHON OIL COMPANY

CASE NO. 11,261

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MICHAEL E. STOGNER, Hearing Examiner

April 20th, 1995

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on Thursday, April 20th, 1995, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, before Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

April 20th, 1995
Examiner Hearing
CASE NO. 11,261

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A P P E A R A N C E S

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By: W. THOMAS KELLAHIN

* * *

WHEREUPON, the following proceedings were had at 8:35 a.m.:

EXAMINER STOGNER: At this time I'll call Case Number 11,261.

MR. CARROLL: Application of Marathon Oil Company for an additional high-angle/horizontal wellbore and to amend Division Order Number R-10,082-A, Lea County, New Mexico.

EXAMINER STOGNER: Call for appearances.

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

EXAMINER STOGNER: Any other appearances?

Will the witnesses please stand to be sworn?

(Thereupon, the witnesses were sworn.)

EXAMINER STOGNER: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

Marathon appears before you today to seek the approval of an additional well in a previously approved horizontal-drilled project area. This is a Devonian project.

The entire project area consists of common ownership under a common lease.

The two prior cases were presented to Examiner

Catanach, and for your information I've included copies of each of the two prior orders issued.

We are seeking the additional approval of the Number 5 well. You will see from the evidence that the Number 5 well is intended to apply a different drilling technology to the project.

The first horizontal well drilled in the project area, the Number 4 well, used a short-radius technology. The witnesses will tell you they want to use an intermediate-radius technology for the Number 5 well. So we're seeking approval for this new well.

In addition, we are asking that the allowable for this well be consistent with the allowable previously assigned, which is, should the lateral of the Number 5 well extend beyond its 40-acre tract and penetrate an adjoining 40-acre tract, then Marathon would have the authority to produce both wells in that 80-acre tract, up to a maximum allowable of 365 barrels of oil a day, times two.

The depth bracket oil allowable here is 365 per 40 acres, and so they're seeking the opportunity to produce up to 730 barrels of oil a day.

In addition, we would honor the previously approved prior setbacks, which is a project boundary buffer of 330 feet.

We've provided notice to all the offsets, and we

are aware of no objection.

My first witness, Mr. Examiner, is Mr. Val Ott. Mr. Ott is a petroleum geologist.

VALEN D. OTT,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. For the record, sir, would you please state your name and occupation?

A. My name is Valen D. Ott. I'm a petroleum geologist for Marathon Oil in Midland, Texas.

Q. In the prior hearing of this matter, back on November 10th of 1994, in Case 11,141, were you the geologic witness that presented the geologic portion of this presentation to Examiner Catanach?

A. Yes.

Q. And have you continued to be involved in this project as Marathon's geologist?

A. Yes.

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

EXAMINER STOGNER: Mr. Ott is so qualified.

Q. (By Mr. Kellahin) Let me ask you, sir, to turn to the display that's marked Exhibit 1. Does this

represent work product that you have generated?

A. Yes.

Q. Starting at the left side of the two-part display, describe for us this particular area.

A. Shown on the left side of Exhibit Number 1 is a green area that represents the productive area for the Denton-Devonian Pool for the Denton field, and shown with a dashed boundary on that left side of that display is an enlarged area showing the south half of the Denton Devonian Pool.

Q. As we look to the right side of the display, where you then have enlarged this nine-section area, describe what that shows.

A. Centered in that nine-section area is Section 11, and the south half of Section 11 is the Marathon-operated lease in the Denton-Devonian Pool, minus a 40-acre tract that's operated by Dinero.

Q. How is that area identified?

A. It's shown by the yellow coloring on that enlarged area.

Q. Is that the project boundary area that was originally approved by the Division back in March of 1994 when it entered the original Order, 10,082?

A. That's correct.

Q. And that boundary for the project area remains

the same today?

A. That's correct.

Q. Let's look at the geology, Mr. Ott. If you'll turn to Exhibit Number 2, would you identify that display for us?

A. Exhibit Number 2 is a structure map drawn on top of the Denton Devonian. It's a compilation of both subsurface data and 3-D seismic data.

Q. Have you independently verified the information that results in the generation of this display?

A. Yes, I have.

Q. And have you satisfied in your own opinion as a petroleum geologist that it is true and accurate?

A. Yes, I have.

Q. Before we talk about the details, describe generally for the Examiner the characteristics and the composition of this Devonian pool.

A. The Devonian here at Denton field is a large anticlinal feature that's highly fractured. The reservoir is competent Devonian carbonates.

The fracturing is spread throughout the entire Devonian horizon here at Denton field. The anticline is segmented by a number of faults. Shown on the structure map you see three north-south-oriented faults -- pardon me, four north-south-oriented faults and one east-west-oriented

fault.

On the structure map is a dashed outline, again identifying the Marathon-operated lease. And within that dashed outline there are at least two fault compartments.

The well that we're seeking approval to drill a horizontal from is labeled Number 5. And as you can see from the structure map, that well is also located in the same fault compartment as the previously drilled horizontal well, the Number 4 well.

Q. Let's start with the Number 4 well. It's located just north of the 5. The Number 4 well was originally what type of well?

A. The Number 4 was a vertical well.

Q. In the Devonian?

A. In the Devonian.

Q. And at the time of its abandonment, do you know the approximate total volume of oil produced by that well?

A. At the time of its abandonment, the Number 4 had produced about 1.6 million barrels of oil.

Q. What was Marathon's plan for utilizing the Number 4 well and re-entering it, then, and attempting to deviate it and recomplete it as a horizontal well? What were you trying to achieve?

A. The objective there was to stay as high in the Devonian section as possible.

And in order to accomplish this, we determined that the best technique would be to use a short-radius horizontal well, drill the minimum curve that we could possibly drill using this short-radius technology, and then once we had drilled a curve and gotten out horizontal, then to drill approximately 900 feet laterally into the top of this Devonian reservoir.

Q. What was your purpose in doing that? What did you attempt to obtain that you couldn't achieve with a vertical well?

A. As I mentioned previously, the Devonian reservoir here is highly fractured, and with a vertical well, you may encounter one or possibly two fracture sets in a vertical well.

With a horizontal well, you increase the odds of encountering not only one or two fracture sets, but several fracture sets, the idea being that the more fracture sets you encounter with a well, the greater the productivity of that well will be.

Q. What level of success did you achieve with the horizontal portion of the Number 4 well?

A. We were only moderately successful with this horizontal portion. Our intended goal was to drill a lateral of approximately 900 feet. We were only successful in drilling a lateral of approximately 350 feet.

Q. What do you propose to do with this new Number 5 well that you were not able to achieve with the Number 4 well?

A. The Number 5 well will utilize a slightly different technology. Rather than a short-radius horizontal well, we propose to use an intermediate-radius horizontal well.

The problem with the Number 4 was that as we were drilling this lateral portion, we encountered a large cavern, approximately five feet in width.

The drilling assembly used for a short-radius well has an articulated system just above the bit, and because of this, it allowed the bit to drop severely when we encountered this large fracture. When this occurred, the drill string above the bit was not able to make the sharp bend, and therefore we were not able to continue drilling the well.

What we propose in the Number 5 with the intermediate technology is to allow us to drill a larger curve, thereby -- Once we get the curve drilled and are drilling horizontally, we should be able to rotate within that horizontal borehole. And thereby, if we encounter another large fracture -- which we anticipate is a high probability in this Devonian reservoir -- if we encounter such a fracture, then we'll be able to drill through it

without putting a severe bend in the wellbore.

Thereby, we'll be able to reach our intended target of a thousand feet laterally from the vertical wellbore.

Q. What is the approximate azimuth or direction from the Number 5 well that you intend for the horizontal portion of that well?

A. The intended azimuth is north 15 degrees east.

Q. Do you have a display that gives us a vertical profile, geologically, of what you're trying to achieve?

A. Yes, I do. That would be Exhibit Number 3.

Q. All right, sir, let's turn to that.

If you'll look at the locator index to the bottom left portion of the display, show us the line of cross-section you're using.

A. In the location index, again, the Marathon-operated lease is shown with a yellow outline.

The line of cross-section, labeled C-C', is shown on that index map as a green line.

The proposed wellbore from the Number 5 is shown by the red line, oriented north 15 degrees east.

The approximate position of the previously drilled horizontal wellbore from the Number 4 well is shown by the curved line originating at the dot labeled "Number 4" and continuing south and eastward.

Q. Did the lateral portion of the Number 4 well that was drilled -- did it ever extend outside of its 40-acre tract?

A. No, it did not.

Q. Show us the plan for the Number 5 well in relationship to this schematic shown on Exhibit 3.

A. What is shown on this exhibit is diagrammatically a cross-section of the Devonian reservoir.

The upper part of the Devonian reservoir is a tight section with very little porosity and permeability, and that's shown on the cross-section by the orange band.

Located on the left side is a main bounding fault for the Devonian reservoir, and on the right side is another fault that separates the main compartment from a separate fault compartment.

Shown is the vertical wellbores for both the Number 5 and the Number 4. Right next to the Number 4 vertical wellbore is a black dot labeled "horizontal borehole". That represents where the line of cross-section cuts the previously drilled horizontal borehole. And for orientation purposes, that horizontal borehole would be coming out of the plane of this projection towards the viewer.

Q. In your opinion, will the horizontal portion of the Number 5 well, if you're successful in applying this

technology to this wellbore, allow you to intersect a fracture or fracture systems that are not currently intersected by the Number 4 well?

A. That's correct. As I mentioned previously, we were only moderately successful in penetrating several fracture sets in this Devonian reservoir.

With the Number 5, hopefully, we would be able to encounter many more of the fractures that we know exist in this reservoir, and hence increase the overall cumulative production from the reservoir and return a well which is currently shut in to productivity.

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

We move the introduction of his Exhibits 1, 2 and 3.

EXAMINER STOGNER: Exhibits 1, 2 and 3 will be admitted into evidence.

EXAMINATION

BY EXAMINER STOGNER:

Q. This cavern, vug, whatever you want to call it, that you encountered with the Number 4 horizontal, was that encountered at one of the fractured intervals or within the matrix?

A. It's a little uncertain at this time just exactly whether it was a fracture that was in communication with

other fracture sets or if it was simply an isolated open vug or cavity.

Previous to encountering this vug, we had encountered a couple of fracture sets that gave us very strong gas and oil shows. However, with this one there was no particular strong oil and gas show. There was a little oil that came over the pits while drilling, but it was not clearcut as to whether or not it was in communication with other fractures.

Q. Was this unexpected for this interval?

A. No, it is not. Other operators in the field have encountered similar open cavities and fractures.

Q. Now, Order Number R-10,082 also allowed horizontal drilling for the Number 6 well. I guess this was not done after you encountered it with -- the problem with the Number 4; is that correct?

A. That's correct. We have not drilled a horizontal out of the Number 6 well.

Q. Any particular reason, geologically, why the horizontal Number A -- I'm sorry, the Number 4 well -- went in a more easterly direction -- a little bit south, but mostly east -- and now your azimuth on the Number 5 well is going to be more northern than eastern?

A. One of the objectives for the Number 4 well was to get as high as possible on the structure.

With the Number 5 well, we are limited by the 330 setback on our lease boundary as to which direction we can go and still try and get updip from the vertical wellbore. Therefore, we're pretty much limited to a northeast direction for the Number 5, in order to stay within our 330 setback.

EXAMINER STOGNER: I have no other questions of this witness. He may be excused.

Mr. Kellahin?

MR. KELLAHIN: Call at this time Steve Pohler. Mr. Pohler spells his name P-o-h-l-e-r.

STEVEN A. POHLER,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. All right, sir, would you please state your name and occupation?

A. Steven A Pohler, senior drilling engineer with Marathon Oil Company.

Q. Mr. Pohler, did you testify before the Division back in November 10th of 1994 concerning the horizontal wells in this particular project area?

A. Yes, sir, I did.

Q. And you continue with responsibilities as a

drilling engineer for this project?

A. Yes, sir.

Q. Have you examined the results and been involved in the drilling of the Denton 4 well as a horizontal well?

A. Yes, sir.

Q. And do you now have recommendations, opinions and conclusions for the Examiner concerning the drilling aspects for the Number 5 well?

A. Yes, sir.

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

EXAMINER STOGNER: Mr. Pohler is so qualified.

Q. (By Mr. Kellahin) Let me ask you to turn, sir, to the first of your displays, which is marked as Exhibit 4.

Let's identify for the examiner how you've laid out the information, and then let's talk about what happened when you drilled the Denton 4 as a horizontal well.

A. This exhibit shows the planned attack on the well, that we had planned.

The brown dotted line was the planned lateral and -- extension that we wanted to attempt, and the green line shows exactly what occurred.

And we kicked off at the 11,250 --

Q. What's the dotted red line?

A. I'm sorry, the dotted red line is the Devonian porosity.

Q. In terms of your planned lateral, then, where did you want to be in relation to the Devonian porosity line shown on this display?

A. We wanted to go below the -- cross the Devonian porosity approximately where we did and then stay up and then angle back at a hundred degrees along the porosity at the point where we show turning on the green line.

Everything was basically on plan until we hit that cavernous fracture where we lost the ability to keep our bit up.

Q. Let's describe for the Examiner the type of equipment or method applied to the Denton 4 well.

Do you have a display or an illustration that will show him that?

A. Right, that would be Exhibit Number 5, which would be the short-radius tools that were used.

The tool is designed to drill a 40-foot radiuses -- or -- I mean up to 100-foot radiuses.

And in this particular well we drilled a 60-foot-radius curve, which causes this motor to have three articulation points and -- to allow itself to go through the curve at that stiff of an angle.

In doing that -- So we'll drill the curve, and then the motor is pulled out and then another articulated motor which has the ability to hold at a 10- to 15-degree angle, which has articulation built into it also to go through the curve, was used in the lateral section.

As we were drilling the lateral, we encountered that vug or cavern, we lost the bit face. The bit runs approximately 18 inches to two foot behind that one articulation, and it dropped off and we were never able to get the bit back up, and that ended our lateral section.

Q. How do you propose to overcome that difficulty with your drilling procedure for the Number 5 well?

A. We plan on going to an intermediate radius, which is shown by Exhibit Number 6, and it's an intermediate-radius motor which has a fixed build in it. There's no articulation. It has a fixed -- It looks like the bottom half of a banana. It's just -- has a fixed angle in it. And it will drill a 150-foot curve or radius, go 90 degrees in 150 foot.

And we will continue on, that motor will be used through the curve, and then we'll pull out.

And then the hole motor will also be 10 to 15 degrees, but it will be a stiff assembly. There will be no articulation, since the curve is of a bigger radius and allow that motor to go through. And if a fracture is

encountered, we'll have less chance of losing tool face and be able to go ahead and cross that fracture and continue to build at 100 degrees.

Q. Do you have a display that shows the Examiner the approximate direction and distance that you have planned for the Number 5 well?

A. Yes, sir, that would be Exhibit Number 7. The plan is to go in a north-15-degree-east direction and a 1000-foot lateral.

Q. In order to have operation flexibility in the field, are you proposing that while this is your initial plan, that you have approval to deviate from the plan so long as you're no closer than 330 to the outer boundary of the project area with any producing portion of the lateral?

A. Yes, sir.

Q. All right. Let's turn to a vertical plan, if you will, and show me Exhibit Number 8.

A. This is a planned view of how we'll attempt to drill the well.

We plan to kick the well off out of the vertical section at 11,400 feet, drill the 150-foot-radius curve to an end-of-curve-depth, TVD, of 11,550 feet. And at that point we'll drill a 1000-foot lateral in a 100-degree inclination.

Q. If you're successful with the application of this

intermediate-radius technology, which is your anticipated maximum length for the lateral?

A. A thousand feet.

Q. And if that is achieved, then it would in fact cross over into the spacing unit where the Number 4 currently produces?

A. Yes, sir.

Q. Okay. Other than a change in the equipment from a short-radius procedure to an intermediate-radius procedure, do you anticipate any other changes in equipment, technology or method from the 5 that you applied in the 4?

A. No, sir.

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

We move the introduction of his Exhibits 4 through 8.

EXAMINER STOGNER: Exhibits 4 through 8 will be admitted into evidence.

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Pohler, in looking at Exhibit Number 8, what's the angle you're trying to achieve here?

A. It will be 90 degrees at the end of the curve, after that 150 foot, and then the lateral will build up at

100 degrees, a 10-degree inclination in the lateral.

Q. That's 10 degrees per 100 foot?

A. Yes, sir.

Q. And you're going to hold it at what angle?

A. The maximum we'll get to would be 100 degrees. That's the plan as of now.

Q. Still running parallel to that tight cap; is that correct?

A. Yes, sir.

Q. Were you out there when that first horizontal hit the vug or the hole or the cavern?

A. No, sir, I was in the office.

Q. I was curious. What did it do?

A. We just lost the tool face. The bit dropped off -- on the final one.

The first fracture, we were able to continue through when they hit that vug, the bit, the tool face -- at 18 foot, the bit fell straight down and we were never able to rotate it back and what we call get it back on the high side, get the bit looking up. It would just continue to go down.

And at that point, with that bad deviation, we had -- we were not able to continue to even give way to the bit because of the final dogleg in there.

Q. Had it run into any other vugs prior to that one?

A. Yes, sir, we had drilled through some fractures -- we don't know if they were large vugs -- but through some fractures. And we were able to maintain tool face until that last one.

Q. The short radius that you used, was that also a Baker-Hughes tool --

A. Yes, sir.

Q. -- design?

And you're also going with the Baker Hughes again?

A. Yes, sir.

Q. I just noticed in your exhibit there that they took meticulous pride in showing on the assembly the "Baker Hughes", but they didn't on the Number 5. I was just curious if that was an advertisement ploy or something.

As far as the drilling fluid, same drilling fluid?

A. Yes, sir.

Q. No difference?

A. It would be the same drilling-type fluids.

Q. Same weight, same material?

A. Yes, sir.

Q. Are you using water base or oil base?

A. It's water base.

Q. I'm curious. Was there any slickening agency

or --

A. There was a xanthan polymer that was used, and we used what they call an Easy Mud, when we got into tight -- you know, to help bring up the viscosity and slick it up. It's called Easy Mud. It helps reduce friction in the wellbore.

Q. Was that -- Is that normal usage, or did you use it after you encountered the vugs?

A. It's normal use. It's what we've been doing in all our horizontal wells.

EXAMINER STOGNER: You have a third witness, Mr. Kellahin. What's he going to --

MR. KELLAHIN: I have a reservoir engineer to tell you about the results in terms of productivity of the Number 4 well.

EXAMINER STOGNER: Okay. I'm through with this witness. You may be excused.

MR. KELLAHIN: Call at this time Richard Pollard. Mr. Pollard spells his last name P-o-l-l-a-r-d.

RICHARD E. POLLARD,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Pollard, for the record, sir, would you

please state your name and occupation?

A. Richard E. Pollard. I'm advanced senior engineer with Marathon Oil Company.

Q. And where do you reside, sir?

A. Midland, Texas.

Q. On prior occasions have you testified before this Division as a petroleum engineer?

A. No, I have not.

Q. Would you summarize for us your education and employment experience within that field?

A. I graduated in 1969 from Marietta College with a BS degree in petroleum engineering.

Following three years in the United States Army as a petroleum lab specialist, I started work in West Texas with Getty Oil Company.

My last 20 years have been with Marathon Oil Company in various positions, including production superintendent and reservoir engineer supervisor.

Q. Have you made a study of the production and performance of the vertical and the horizontal well within this Devonian project area?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Pollard as an expert petroleum engineer.

EXAMINER STOGNER: Mr. Pollard, when did you work

for Getty?

THE WITNESS: 1972.

EXAMINER STOGNER: Just that year?

THE WITNESS: I worked three years for Getty Oil Company.

EXAMINER STOGNER: And what office were you in?

THE WITNESS: Andrews, Texas, and Lafayette, Louisiana.

EXAMINER STOGNER: And you were a petroleum engineering specialist with the Army?

THE WITNESS: Yes --

EXAMINER STOGNER: I knew the Navy had it but I didn't know the Army --

THE WITNESS: -- lab specialist.

EXAMINER STOGNER: Lab specialist. That's interesting.

Okay. Yes, Mr. Pollard is so qualified.

Q. (By Mr. Kellahin) All right, sir. Let's turn to Exhibit 9 for illustration purposes, Mr. Pollard.

When you examine the performance of the vertical wells, give us a sense of the ultimate recoveries that were achieved for the Number 4 well.

A. The Number 4 well, when it was vertical, recovered 1.6 million barrels of oil.

Q. As a re-entry for a horizontal well, despite the

fact it had already produced 1.6 million barrels of oil as a vertical well, what initial rate did you achieve?

A. Initially, after the pump was resized and the well unloaded, we hit an initial rate of almost 500 barrels a day, 499 to be exact.

Q. What is its approximate current daily rate at this point?

A. Daily rate now is currently at approximately 165 barrels of oil per day.

Q. Does the Number 3 well, which is still a vertical well in the adjoining tract to the east of 4 -- does that continue to produce?

A. Yes, it does.

Q. And at what current rate or approximate daily rate does that well produce?

A. That well is currently producing approximately 120 barrels of oil per day.

Q. At the time the Number 5 well, which is our proposed additional well -- at the time it was -- ceased to produce as a vertical Devonian producer, what was its cumulative oil production?

A. The Number 5 well had cum'd at 1.2 million barrels of oil before being shut in due to high water cut.

Q. What general conclusions as a petroleum engineer do you reach about the application of horizontal technology

to the recovery of additional hydrocarbons in the project area?

A. Based on the early-life performance of the Number 4, it appears that horizontal technology can recover substantially larger amounts of oil from wells that are currently noncommercial.

Q. Part of Marathon's request is to, if we're successful with the Number 5 well and can drill its lateral so that it crosses over into the 40-acre tract with the Number 4 well, we desire to combine the two 40-acre tract oil allowables; is that not correct?

A. That is correct.

Q. And that would give you a maximum daily oil rate of 730 barrels of oil a day?

A. That's correct.

Q. And how would you propose to produce that?

A. Out of both or either well.

Q. In any combination?

A. In any combination.

Q. All right, sir. Is that consistent, then, with the prior practice in this project area where the Division had approved that same procedure?

A. That is correct, that is the same concept that was proposed in prior hearings.

Q. If this next well is successful as a horizontal

well, are there other additional vertical wells that are probable candidates for the application of this horizontal technology?

A. Yes, there are. The Number 6 well would be probably our next candidate. It currently is shut in.

The Number 3 well, although it is commercial right now, down the road it would be a candidate when its production dropped below its economic limit.

Q. In your opinion, would the approval of this Application be in the best interests of conservation, the prevention of waste and the protection of correlative rights?

A. That is my opinion.

MR. KELLAHIN: That concludes my questions of Mr. Pollard.

We move the introduction of his Exhibit Number 9.

EXAMINER STOGNER: Mr. Pollard is so qualified [*sic*].

EXAMINATION

BY EXAMINER STOGNER:

Q. What did you say the current rate on that Number 4 is?

A. 165 barrels a day.

Q. When was it producing 499 barrels of oil per day?

A. Approximately the middle of March.

Q. And that was after the initial horizontal was drilled; is that correct?

A. Yes, sir, we initially had a small pump in there. The well came on at approximately 20 barrels a day, and after about 15, 20 days, we re-sized the pump upward.

The production steadily increased over a period of approximately 15 days and hit its peak at approximately 500 barrels a day.

Q. Was there any other stimulation done on that Number 4 well after the horizontal portion of the wellbore was drilled?

A. No, the well has not been stimulated.

Q. Is there any plans on doing that?

A. It's under consideration.

Q. If the Number 5 well is drilled to its furthest extent and it connects up with that other 40-acre tract, then you're looking at a 700-barrel-of-oil-per-day allowable for that 80-acre proration unit, taking in the Number 4 and 5 well?

A. That is correct.

Q. Let's elaborate on that a little bit.

Are you anticipating -- I know it's hopeful, but are you anticipating, in that Number 5 well, to come in that well?

A. We have never reached the 1000-foot radius that

we anticipate on 5.

Number 4 was slightly over 300, 350 foot, and it had a rate for a short period of time of 500 barrels per day. For a short period of time it possibly could. Prolonged, I would highly doubt it.

Q. There again, these wells are trying to intersect fractures; is that correct?

A. Yes.

Q. On that Number 4 well, how about the water production? Has it increased, or what are you seeing as far as water intake?

A. We're producing approximately 1600 barrels of water a day.

Q. How about whenever --

A. And that's --

Q. I'm sorry.

A. That's pretty steady.

Q. Was that steady -- Was that about what you were getting when you were getting your maximum of 500 barrels of oil per day?

A. Yes, it was.

Q. So that's been pretty steady.

What was it whenever the Number 4 was a vertical well? What kind of sustained water production?

A. All I know, it was a high water producer, but I'm

not sure exactly the rate it was producing at.

Q. So you don't know if you've seen a -- what, a --

A. Historically, all those wells produce in the 1000- to 1500-barrel-a-day rate in this field. The majority of them are submersible pumps, sized to -- in that approximate size range.

Q. But you hadn't seen an incremental increase with the horizontal well, with the water intake?

A. I'm sorry, it is a vertical well that was producing eight barrels a day when it shut in.

Q. I guess over historically, I'm trying to see if you've seen an intake or a -- when the well was producing at its maximum, when it was vertical, what kind of production rate did it have with oil and water?

And then when you went with the horizontal portion of it, did you see an incremental increase in the water along with the oil? Or did they both stay -- Did the water production stay steady?

A. The water -- the -- Could you rephrase that, sir?

Q. I was just seeing if you've seen a noticeable increase in the water production with the horizontal drilling. Even though you haven't had that much in here with the horizontal drilling, have you seen a substantial increase in the water?

A. No, sir. And the fact is, the production from

the wells are usually limited by the pump capacity.

So if you're sized at 1800 barrels a day, what happens is, your oil cut changes, but your total fluid stays approximately the same throughout the life, whether it's vertical or horizontal.

Q. So you've just seen an increase in the oil-water cut?

A. Cut.

EXAMINER STOGNER: Okay. I have no other questions of this witness.

MR. KELLAHIN: Thank you, Mr. Examiner.

While it's not in our Application, as a practical matter this is the third presentation in this particular project area, and we would be most receptive to the application of some type of administrative procedure that would allow other vertical wells in the project area to be handled in a different manner, other than a formal hearing process.

I recognize the Commission has under consideration some administrative horizontal rules. But we certainly would be agreeable to having this case continued and readvertised, if you thought necessary, to now ask for some administrative procedures applicable to this project area, so that for the future conversions to horizontal technology we might do so administratively rather than

coming back to further hearings.

EXAMINER STOGNER: I concur, Mr. Kellahin. In fact, in looking at the previous orders, I really don't know why the other one was denied.

This is one of those cases where a lease concept was requested and the window of opportunity, if you will, was designated around this lease boundary, giving it that much of a credibility in which the project could be -- lend itself to administrative authorization within the area.

And as far as that, even allowables. If each well had a horizontal, they had horizontal wells just going all over the place in that particular little lease area, naturally the allowables would be a confusing matter.

And things like this -- We haven't seen it yet but the whole concept was, then assign a project allowable to the horizontal, a lot like what we do with pressure-maintenance projects.

MR. KELLAHIN: That was our original request in the first hearing. And Examiner Catanach, I think, was concerned that we did not have enough data then to answer the questions about a project allowable, and I think he was concerned that it could be an oil rate that was too high in terms of offset competition.

The experience has been that, after an initial flash production it drops off dramatically, and we're

dealing with producing rates that are well below a producing rate for a vertical well.

And so we think the time is appropriate to incorporate administrative procedures in this project area for further horizontal wells.

EXAMINER STOGNER: With -- What is it? Next week we're having the Commission case?

MR. KELLAHIN: Yes, sir.

EXAMINER STOGNER: I think this one would be a good one for -- to initiate -- or how would I say? -- to take administrative notice for the Commission in what is actually going on, on the small oil scale.

It just seems to me that the Application that's being turned in to the Commission is more gas-oriented. This is a good example of what's going on in the 40-acre oil areas.

MR. KELLAHIN: Marathon intends to make a presentation before the Commission next week on that topic, Mr. Examiner.

EXAMINER STOGNER: In that case, this would be a good one to take administrative notice of, for New Mexico. I know you guys have been active over in Texas, and I'm sure you've got some good examples there. But this one would hit more at home and has all the ingredients of administrative proceedings.

With that in mind, Mr. Kellahin -- I'll take this case under advisement at this time, with that in mind, rather than to reopen it and readvertise it, and incorporate the previous records to request the administrative process or to -- in light of the Commission case coming up, perhaps incorporate it in there somehow.

What kind of a time frame after the Number 5 well would you anticipate, or do you know what your client's position is, before the Number 6 well could be drilled? I'm taking it that that's the next one that they would drill horizontally.

MR. KELLAHIN: Let me ask Mr. Ott. He's the person that may know.

MR. OTT: It would be about two to three months after we complete the Number 5 that we would initiate the Number 6.

MR. KELLAHIN: And you're ready to start the Number 5 as soon as you have the approval?

MR. OTT: That's correct.

MR. KELLAHIN: Their anxious to start the Number 5, Mr. Examiner, and then it would be two or three months before they got to the Number 6.

EXAMINER STOGNER: I'll get with you, Mr. Kellahin --

MR. KELLAHIN: All right, sir.

EXAMINER STOGNER: -- see what's the best procedure in which we can go with that, without taking Marathon's time in coming up to hearings more and more on these things, or at the same time tying up their request for the Number 5. I'm sure they're anxious to get started on that, and I don't want to tie the request up on that with some administrative bureaucratic realisms to tie the Number 5 up while trying to get the Number 6 ready to go. But I'll get with you on that.

MR. KELLAHIN: All right, sir.

EXAMINER STOGNER: So at this time why don't I take this case under advisement, and we'll proceed with that?

MR. KELLAHIN: All right, sir. Thank you.

EXAMINER STOGNER: Thank you

(Thereupon, these proceedings were concluded at 9:23 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11261, heard by me on 20 April 1995.

, Examiner
Oil Conservation Division

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 April 28th, 1995.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998