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. 11,219
APPLICATION OF CONOCO, INC.	)	

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

April 6th, 1995

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on Thursday, April 6th, 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 6th, 1995
Examiner Hearing
CASE NO. 11,219

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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
State Land Office Building
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

KELLAHIN & KELLAHIN
117 N. Guadalupe
P.O. Box 2265
Santa Fe, New Mexico 87504-2265
By: W. THOMAS KELLAHIN

* * *

WHEREUPON, the following proceedings were had at 1:44 p.m.:

EXAMINER CATANACH: At this time we'll call Case 11,219, which is the Application of Conoco, Inc., for an unorthodox gas well location, Eddy County, New Mexico.

Are there appearances in this case?

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 one witness to be sworn.

EXAMINER CATANACH: Any additional appearances?

MR. KELLAHIN: In fact, Mr. Hardie is already under oath.

EXAMINER CATANACH: Okay, the record shall reflect Mr. Hardie has been sworn in and qualified already, so we can get right to it.

MR. KELLAHIN: Mr. Examiner, I'm handing you the certificate of notice of this hearing that we have sent to the offset operators.

BILL HARDIE,

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. Hardie, if you'll turn to what we've marked

as Exhibit Number 1, identify that display for us.

A. Exhibit Number 1 is again a base map -- this time we're looking at South Dagger Draw -- and on it I've shown Conoco a hundred percent acreage in solid yellow, partial-interest acreage in cross-hatched yellow.

Most of the black circles that you see represent oil wells completed in the Cisco/Canyon formation.

You'll notice that as you move from north to south along the series of wells, that you get more and more gas wells. That's because the Cisco/Canyon reservoir gains elevation and passes into the gas cap, so some of them are oil and some of them are gas. This is more of a transition zone.

On it I've also shown -- outlined the proposed 320-acre proration unit to be dedicated to the Preston 15 well that is located at an unorthodox Morrow location. The footage is 860 feet from the north line, 710 feet from the west line.

Q. We're now in an area that is within the boundaries of the South Dagger Draw Associated Pool?

A. That is correct.

Q. And the rules are slightly different for this pool than they were for North Dagger Draw, are they not?

A. Yes, they are different.

Q. We're in an associated pool where the

Cisco/Canyon production is 320 spacing?

A. Yes.

Q. And you propose to have this additional Preston 15 well dedicated to the north half of 35?

A. That is correct.

Q. Which is an existing spacing unit for the South Dagger Draw Pool?

A. That is correct. It is also -- Currently there's a producing Morrow well in that spacing unit. That would be the Preston Federal Number 6.

Q. Is that the well Mr. Beamer just referred to as a prior example of where Conoco had taken a Cisco well and had directionally drilled the bottom portion of that to access the Morrow?

A. Actually, this one is -- it is deviated; it's deviated a little differently than that.

It was -- You know, we began the deviation at approximately 4000 feet, deviated to a bottomhole location, and then straightened the wellbore out to vertical again. A little bit more complicated than what we were proposing in the previous case.

Q. Okay.

A. That north half of Section 35 is currently dedicated to the Preston Federal Number 6 --

Q. All right.

A. -- it's producing out of the Morrow formation.

Q. If you're successful with the Preston 15, what will you do with the Number 6 well?

A. It will be recompleted to the Cisco/Canyon. It is near depletion now in the Morrow.

Q. So the Preston 15 would be a replacement well, and you would not have two Morrow gas wells producing at the same time in the same spacing unit?

A. That is correct.

Q. If you're successful, what Morrow gas pool are we in?

A. We are in the Cemetery-Morrow Gas Pool. It's a rather large gas pool that -- Most of the wells in that pool lie to the east of this proration unit, so we're kind of pushing the boundaries to the west.

Q. We're in that portion of southern South Dagger Draw that begins to make a transition into Indian Basin Gas Pool?

A. That is correct.

Q. The Division -- I think this Examiner has dealt with other hearings within this particular area, has he not?

A. Yes, he has.

Q. If you look over in Section 34, there was a former dispute between Conoco and Yates with regards to the

Diamond Well 1, was there not?

A. Yes, there was.

Q. And where is that location?

A. I'm not exactly sure about the footage of that Diamond 1 well, but it is located in the southwest quarter of Section 34. It was a proposed Cisco/Canyon gas well location.

Q. Okay, that well has not been drilled, has it?

A. It has not. It was an unorthodox Cisco location. Conoco argued for a penalty to be placed on that, and there was one. Yates has not yet drilled that location.

Q. That would have been a gas well in the Cisco of southern -- of South Dagger Draw?

A. That is correct.

Q. Are there gas wells in South Dagger Draw shown on this map?

A. Yes, there are. There are actually several.

I can point out the Preston Number 1, which is in the south half of Section 35, is a Cisco Gas well.

Moving south of that, in the short sections, in the short section, 35, the Mojave is a Cisco gas well.

To the west of that, the Preston 4 is a Cisco gas well.

And then there are several others as well in that area.

Q. Will you have a separate display that will let the Examiner see only Morrow gas wells and how you have interpreted the geology for those wells?

A. Yes, I will.

Q. Describe for us the concept. What are you trying to do with this well?

A. The objective of this well is again to drill the most favorable Cisco/Canyon location available in the north half of Section 35.

Our constraints on the Cisco are a little bit different here in that the objective is to avoid interference between existing wells. We are at --

Q. Within what formation?

A. Within the Cisco formation. We are at the -- kind of the updip end of the oil rim for the oil pool, and these will -- What we would like to do is initially complete the Cisco in the oil leg, deplete the oil, and then recomplete to the gas cap above it.

And we don't want to develop this on 40-acre spacing, primarily because there's just not enough oil to justify that. When you do produce out of the gas cap, there would undoubtedly be interference on 40-acre spacing in the Cisco.

So the objective here was to split the difference between the existing Preston Federal Number 1 well in the

south half of Section 35 and the Preston Federal Number 9 well, which is in the northeast corner of Section 35.

Q. You've discussed the objective in the Cisco. What is the purpose of this well location for the Morrow?

A. At the Morrow we believe there's a channel that trends east-west across the top of that section, and our objective would be to encounter that channel with this well.

Q. All right, sir, let's turn to the surface issues. If you'll look at Exhibit 2.

A. Exhibit 2 is a surface topographic map, copied from the USGS 7-1/2-minute quadrangle series. It shows Section 35 in it.

I've outlined in a dashed line the proposed proration unit that would be dedicated to the Preston Federal Number 15. I've shown the Preston Federal Number 15 with a red circle and the arrow beside it.

Also shown in green shading are the orthodox Morrow windows. There are no real surface topographic constraints on either the Morrow location windows or on the proposed Preston Federal Number 15 well.

Q. You described in your earlier testimony that you've spent in excess of five years as a Conoco geologist, devoting a significant portion of your time to the Cisco formation. Would that work effort also include this

particular area?

A. Yes, it would.

Q. As part of your knowledge and information for this area, have you been on the surface in this particular portion of the pool, as you were in North Dagger Draw?

A. Yes, I have.

Q. Have you found that the USGS quadrangle maps for this portion of South Dagger Draw are reliable and accurate when you examine the surface and compare the surface back to the map?

A. They are accurate.

Q. Are there -- Based upon your examination of this area, do you have a surface location that is approvable?

A. Yes.

Q. Let's turn now to the subsurface. If you'll start with the Cisco/Canyon, let's look at your isopach, which is Exhibit 3.

A. Exhibit 3 is an isopach map on the Cisco/Canyon dolomite. Again, it's an isopach of the reservoir itself, and it indicates that at the proposed Preston 15 location we would expect to encounter about 120 feet of dolomite within the hydrocarbon column. The vast majority of that 120 feet would be in the gas cap. There would be a small portion, perhaps 10 to 20 feet, we anticipate, in the oil column.

Q. Describe for us what's occurring as you see it when we approach the zero line on this isopach, moving towards the western edge.

A. As you move to the west, you very abruptly thin the dolomite. It goes from a total thickness near the center of the reservoir of about 300 to 350 feet, to a zero line, running along the west edge. And it also zeros out as you move to the east from the center.

Q. Do you have a structure map for the Cisco that lets us see what --

A. Yes, sir.

Q. -- your interpretation is for that information?

A. That would be Exhibit Number 4.

This map is a structure on top of the dolomite reservoir. The zero contour lines for the isopach are shown with the heavy red line, so that's the actual limit of the reservoir itself.

This map indicates that our proposed Preston Federal Number 15 well would encounter the top of the reservoir at an elevation of about minus 3800 feet.

And as you can see, looking around on that map, there are some wells that are gas wells completed at that elevation, or similar elevations, and others are oil wells. It all depends upon whether or not they were able to produce enough oil to be considered an oil well. Some of

them are right at that borderline where they're either -- they're very close to being a gas well.

Q. Conoco sponsored a rule change -- I forgot when, a year or more ago -- where the associated rules were changed for this pool, so you could have concurrently a gas and oil well in the same spacing unit?

A. That is correct, and that was due primarily to the transitional nature where we're going from an oilfield updip into a massive gas field, that comprises the Indian Basin gas field.

Q. All right, you've looked at the Cisco. Now let's take a look at the cross-section and have you put this in context for us.

A. That would be Exhibit Number 5. The location is of the cross-section is shown on both Exhibit Number 4 and on Exhibit Number 3.

This is an east-west cross-section through the Cisco/Canyon dolomite, running from -- at the western end, the Preston Federal Number 2, shown on the left-hand side of the cross-section, and it runs into the Indian Hills Number 6 in Section 36 of 20 South, 24 East.

Q. The producing portion of the Cisco is color-coded what?

A. On the cross-section it's color-coded as purple. That indicates that the lithology is a dolomite. To date,

the vast majority of the production comes out of the dolomite. There are very few examples of production out of limestone.

As you can see, we have represented the limestone with a blue color and shales with a brown color.

As you move from the Preston Federal Number 2 at the left side of the cross-section, the Cisco is a tight lime. And then as you move toward our proposed location, it begins a transition into a dolomite. And then that thickens as you move to the east.

As you can -- One of the aspects on this cross-section I've shown is a dashed black line that is at the datum of minus 4000 feet subsea, runs across the middle of the cross-section. That line approximates what we believe to be the gas-oil contact. And you can see that the perforations shown in black on the Preston Federal Number 9 well lie, for the most part, below that line. That is still an oil well currently.

Then as you move from the Preston 9, back toward the proposed Preston Federal Number 15, you can see that the dolomite reservoir climbs in elevation so that the vast majority of it would lie within the gas cap.

That is the reason that we would like to maximize the distance between the Preston 9 and the Preston Number 15. We don't want those two wells to interfere.

Q. Do you have a water component to the reservoir in this portion of it, as you had in North Dagger Draw?

A. There is a water component. However, we don't encounter that until we get all the way over to the far right-hand side of this cross-section.

The Marathon well, the Number 6 Indian Hills, encountered significant water production, and I believe they've since plugged that well off.

We do not find an oil-water contact in any of Conoco's wells in this cross-section. We don't think that's going to be a component of the Preston Federal Number 15 at all.

Q. All right, let's fit the Morrow potential into the puzzle. If you'll look at Exhibit 6, describe for us how that fits into your strategy.

A. Exhibit Number 6 is, again, a combination of two different maps. The dark purple contours are a structural contour on the top, or a reflector near the top of the Morrow sand, and that shows the Morrow sand to be dipping down to the east.

The second component of this map is the color-filled contour. That is an isopach of the Morrow sand, and it ranges from color fills between 20 and 30 feet, being fairly light yellow; and then as we get thicker and thicker, up to a maximum of about 70 feet, it gets more and

more red.

This map indicates that there is a sand thick or a Morrow channel sand that trends across the north half of Section 35. That's what we are completed in with our Preston Federal Number 6, the deviated well we mentioned earlier, and we believe that channel continues on to the Preston 15 location.

The penetrations shown -- Or the wells shown on this map are Morrow penetrations. So you can notice the difference between the wells on this map versus the one on the Cisco/Canyon map. Not a whole lot of Morrow penetrations out here.

Q. The closest standard Morrow gas well location would be 1980 from the west, 660 from the north, and is the blue square just above the Number 40 on this isopach for the Morrow?

A. Yes, that is the closest standard location.

Q. That, geologically at least, if you looked only at this display, might give you a reservoir thickness in the Morrow greater than your proposed location?

A. That is correct.

Q. And when you go back and look at the Cisco, that location also, geologically, gives you a thicker potential dolomite section than your unorthodox well location that you're proposing?

A. Not only thicker but also higher in elevation.

Q. When you look at those geologic components, how, then, do you explain your proposed location?

A. It's based primarily on the desire to avoid interference in the Cisco formation between the Preston 9 and the Preston 15, should we drill it at a standard Morrow location. That would be 40-acre separation between those two wells. We know that both those wells in a short period of time will be gas wells, ultimately, and with that kind of separation they would undoubtedly interfere with each other.

Q. Why wouldn't you move to a location that's standard in the southern portion of the spacing unit? You could go 1980 from the west and 660 from the south line of the spacing unit.

A. Again, that would put us only 40-acre spacing away from existing Cisco wells that are ultimately going to be completed in the gas cap.

The oil around here is very thin, and you simply cannot justify 40-acre spacing for the oil portion of the reservoir. There's not enough oil there to justify that kind of development.

Q. Can you access the Morrow in this area without doing it as a tag to a Cisco well?

A. As in other areas around Dagger Draw, the Morrow

is extremely risky. In fact, you can tell of all the penetrations on this, most of them are actually Cisco oil wells.

An example of the riskiness, we drilled our Preston Federal Number 6, were fortunate enough to encounter the Morrow sand. There were four wells drilled after that, in attempting to find that same channel. Of those four, one of them found it, but it was only a marginal producer, and that was the Indian Hills Number 5 in the south half of Section 36.

So out of I guess five attempts, only one of them was economic. And we knew where the channel sand was, or at least relatively.

Q. Your proposed unorthodox location crowds the western corner of the spacing unit. Who are the offset operators towards whom this well encroaches?

A. Again, that's shown on Exhibit Number 1. Red text on Exhibit Number 1 is the offset operators that are affected by this unorthodox location.

The most affected operator would be that in the east half of Section 34, and that's Conoco. We own that a hundred percent.

The next most affected operator would be Yates Petroleum, in the south half of Section 27.

Q. Was Yates notified of this Application?

A. Yes, they were.

Q. And did you receive any objection from Yates concerning the approval of this Application?

A. We did not.

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

We move the introduction of his Exhibits 1 through 6.

In addition, Exhibit 7 will be the certificate of mailing, so it's Exhibits 1 through 7, Mr. Examiner.

EXAMINER CATANACH: Exhibits 1 through 7 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Hardie, you're testifying that you want to avoid interference between the 9 and the proposed 15 well. What is the net effect of the interference or the ultimate effect of that interference?

A. It would most likely just be waste, in that you certainly don't need 40-acre spacing in the Cisco/Canyon to deplete the gas cap itself.

So that -- We didn't realize exactly how much oil would be present as we moved and the development moved to the south. But based on what we now know from the wells that have been drilled, there's no question that 40-acre

spacing is inappropriate for development of this part of the reservoir.

Q. Would that result in some oil and gas not being recovered from the north half of 35?

A. Undoubtedly.

Q. Okay. The Number 9 well is currently perf'd in the oil column, right?

A. That is correct.

Q. Does that -- Does Conoco have plans to perf the gas zone in the near future?

A. We do have plans to do that, once the oil zone has been depleted.

There's kind of an unspoken agreement between operators here to deplete the oil first, before going to the gas cap. And most of the wells that you see are still in the oil column, producing at fairly low rates.

There's no doubt that we could recomplete now and probably make more money, but we would leave some oil behind if we were to do that.

Q. So you anticipate in the near future perf'ing the gas?

A. That is correct.

Q. Are your chances in this portion of the reservoir any better at making a Morrow gas well?

A. That -- I don't know that they're any better.

The risk is so extreme it's almost hard to quantify.

Q. Are we still talking about a one-in-ten situation?

A. Yes, easily.

Q. Has Yates had any -- Have you spoken with Yates about this location, or do you know if they have any kind of objection?

A. We -- I've spoken with their geologist and their reservoir engineer about this location. They have no real objection, primarily because they have an interest in the well.

EXAMINER CATANACH: I see.

I don't have anything further, Mr. Kellahin.

MR. KELLAHIN: That concludes our presentation.

EXAMINER CATANACH: There being nothing further, Case 11,219 will be taken under advisement.

(Thereupon, these proceedings were concluded at 2:08 p.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11219, heard by me on April 6 1995.

David R. Catanach, 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 17th, 1995.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998