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 TEXACO EXPLORATION AND PRODUCTION, INC.

CASE NO. 10,984

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

May 26, 1994

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on Thursday, May 26, 1994, at Morgan Hall, State Land Office Building, 310 Old Santa Fe Trail, 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

May 26, 1994
Examiner Hearing
CASE NO. 10,984

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E X H I B I T S

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A P P E A R A N C E S

FOR THE DIVISION:

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By: WILLIAM F. CARR

* * *

WHEREUPON, the following proceedings were had at 12:06 p.m.:

EXAMINER CATANACH: At this time we'll call Case 10,984.

MR. CARROLL: Application of Texaco Exploration and Production, Inc., for amendment of special pool rules and regulations for the Monument-Tubb Pool, Lea County, New Mexico.

EXAMINER CATANACH: Are there 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.

I represent Texaco Exploration and Production, Inc., in this case, and I have one witness.

EXAMINER CATANACH: Any additional appearances?

Will the witness please stand to be sworn in?

DOROTHY BRELIH,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name and place of residence?

A. Dorothy Brelih, and I live in Hobbs, New Mexico.

Q. By whom are you employed?

A. Texaco.

Q. And what is your current position with Texaco?

A. I'm a production engineer.

Q. Have you previously testified before this Division?

A. Yes, sir.

Q. At the time of that testimony, were your credentials as a production engineer, petroleum engineer, 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 Texaco?

A. Yes, I am.

Q. And are you familiar with the Tubb formation in the area that is the subject of this case?

A. Yes, I am.

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

EXAMINER CATANACH: They are.

Q. (By Mr. Carr) Ms. Brelih, could you briefly state what Texaco seeks in this case?

A. We seek special pool rules for the Monument-Tubb Pool establishing a gas-oil ratio of 10,000 to 1.

Q. When was this pool originally created?

A. In November, 1959.

Q. That was by Order R-1533?

A. Yes, it was.

Q. What is the current gas-oil ratio for this pool?

A. Currently it is 4000 to 1, which was established with the operating rules back in 1964.

Originally Conoco, who were the filers of the Application, sought a GOR of 6000 to 1. This was denied at the time.

Q. So what is the current allowable for this pool?

A. The current allowable is 222 barrels of oil per day, and that's based on 80-acre proration units, which makes the gas allowable 888 MCF per day.

Q. Have you prepared exhibits for presentation at this hearing?

A. Yes, I have.

Q. Let's go to what's been marked as Texaco Exhibit Number 1. Could you just identify this for Mr. Catanach?

A. Okay, this is a map of the current pool boundary of the Monument-Tubb Pool. It's been extended from time to time since the establishment of the pool to where it is now, which includes these 5600 acres that are shown on there.

Q. Okay, let's go to Exhibit Number 2. What is this?

A. This is a map, the same area now, showing the 35

wells that are currently operating in the pool, and the ownership is expressed in these bold colors. Conoco is in gray, Texaco acreage is in yellow, and other operators are in green.

Q. What percent of this pool is actually operated by Texaco and Conoco?

A. Texaco and Conoco combine to operate more than 90 percent of the wells in the pool. And I've been in contact with Conoco on two occasions regarding this Application, and they've expressed no opposition to the idea of raising the GOR.

Q. At any one time in the life of this pool, approximately how many wells have been producing therefrom?

A. Thirty to 35 consistently.

Q. And on this exhibit you have shown all wells that have ever produced, or just the current producers?

A. A little of both, but they -- It's just current producers now.

Q. And this exhibit also identifies the location of Tubb wells within a mile of the pool but not included within the defined pool boundary?

A. Yes, I'm sorry, there are five wells that are within a mile of the pool boundary. The one on Section 14 is Texaco's and the four in Section 15 are Conoco's.

Q. All right. Let's go to Exhibit Number 3. Will

you identify and review this.

A. This is a structure map drawn on the top of the Tubb structure. Each of the contour lines is a 10-foot increment.

The wells are identified. It's the same wells as on the previous map, but now they're identified by their producing GOR, which is color coordinated, and the legend there is across the top.

What I want to show with this is that there's no correlation between the structure and the GOR.

A few examples of that would be the well in the southeast quarter of Section 10, is in what would be a trough, yet it has a higher GOR than the blue well that's on the west half of Section 10, who is structurally higher.

Another example of where structure doesn't pay any -- does not dictate the performance of the wells would be the two blue wells down in Section 23 on the northwest quarter. Again, those are on a structural high, yet their GOR is relatively low compared to the other wells around. This is consistent with a solution gas drive reservoir, which is what we believe this to be.

Q. Is there any evidence that you've been able to find of a gas cap or any independent gas-bearing interval in this reservoir?

A. No, sir.

Q. What we have, in fact, here is just a pool that produces at a very high gas-oil ratio?

A. Exactly.

Q. And this has been typical of the reservoir since it first produced?

A. Yes, it has.

Q. That was the basis for Conoco's original 6000-to-1 application; is that not correct?

A. I believe so, but they didn't have near as much information as we do today.

Q. All right. Let's go to Exhibit Number 4. Would you identify this, please?

A. Okay, this is a production map of the entire Tubb Pool from 1970 through the end of 1993. It only goes to 1970 because that's how far my database goes.

The blue line is water, the green line is oil, the red line is gas, and the teal line is the GOR.

And as you can see, the pool consistently produces at high GORs, from 20,000 to 30,000 for the last 25 years.

The cumulative GOR for the pool is 22,000.

Q. And at curtailed rates, what is the result?

A. I believe we would produce less oil, and I can speak to that a little bit later if that's okay.

Q. Okay, let's go to Exhibit Number 5, and let's

review that for Mr. Catanach.

A. This is a chart showing the distribution of GORs for all the 35 wells currently in the Monument-Tubb Pool.

As you can see, 95 percent of the wells have GORs above the current 4000 allowable. Sixty-six percent of the wells even have GORs above the 10,000 that we're seeking.

Q. Okay. Now, what happens when we curtail the rates in terms of the oil production?

A. As a result of some recent successful workovers I've done, we've had to pinch back some high-GOR wells.

And the nodal analysis that I do on these shows me I'm on the verge of producing them at gas rates which are too low to bring the fluid up to surface with the gas, and that's the problem we're encountering.

Q. At a 4000-to-1 GOR, in your opinion, will oil ultimately be left in the ground?

A. Yes.

Q. And that production will in fact then be wasted?

A. Yes, I believe so.

Q. Do you see any adverse impact on this reservoir from approval of a 10,000-to-1 gas-oil ratio?

A. Not at all. Again, mother nature has given us a 20,000- to 30,000-to-1 GOR pool. I don't think 10,000 will affect it at all.

Q. Could you go to what has been marked Texaco

Exhibit Number 6 and identify and review this for Mr. Catanach?

A. This is an equation out of the *Petroleum Engineer Handbook* to calculate recovery from a solution gas drive reservoir which is below the bubble point, which again the Monument-Tubb is.

Basically what it shows is that your total recovery is a function of fluid properties and your produced GOR.

We cannot affect the fluid properties at all, and in a solution gas drive reservoir where there's no gravity segregation, we can't affect the producing GORs either.

Again, the producing GOR has been 20,000 to 30,000 over the life of the reservoir, and it will remain high. Raising the allowable to 10,000 will only matter to the operators, not to the pools' behavior or to the ultimate recovery.

Q. So in effect what you're asking is a gas-oil ratio that is below what the actual producing gas-oil ratio has been throughout the life of the pool?

A. That's right.

Q. And in this situation there couldn't be a negative impact on the reservoir?

A. No, sir, I don't see one.

Q. Are you seeking permanent rules?

A. Yes, we are.

Q. In your opinion, would additional data be developed if these were established on a temporary basis that would at any time change or conflict with the information you've presented here today?

A. No, sir, the pool is so old and well established there's no additional data that could really change that.

Q. In your opinion, will approval of this Application result in the recovery of hydrocarbons that otherwise will be wasted?

A. Yes, sir.

Q. Is it otherwise in the best interest of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, it is.

Q. We pay Mr. Trimmer to sneeze whenever we get into a rough spot.

A. Bless you.

Q. Has notice of this Application been provided as required by Oil Conservation Division rules?

A. Yes, it has, to the operators in the pool, the operators within one mile of the pool and all the royalty interest owners also.

Q. And have you in response to this received any objection?

A. No, sir, I have not. As I said, Conoco expressed no objection verbally, and we heard nothing else from anyone.

Q. Has Cross Timbers Oil company expressed support?

A. You told me that they have, yes. You got the letter, I didn't.

EXAMINER CATANACH: Coaching your witness again, Mr. Carr?

MR. CARR: Yes, I am, Mr. Catanach, and I have received the letter from Cross Timbers in support that I would like to also just tender to be included in the record.

Q. (By Mr. Carr) Ms. Brelih, were Exhibits 1 through 7 prepared by you?

A. Yes, sir.

MR. CARR: At this time, Mr. Catanach, we would move the admission of Texaco Exhibits 1 through 7.

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

MR. CARR: And that concludes my direct examination of this witness.

EXAMINATION

BY EXAMINER CATANACH:

Q. Ms. Brelih, looking at Exhibit Number 3 am I correct in understanding that some of those wells are not

in the Monument-Tubb Pool?

A. No, sir, all of those wells are Monument-Tubb Pool wells.

Q. Okay. The wells you mentioned, the one in the northeast of 14, and -- hang on a second --

A. And the west half of 15.

Q. Right. What did you say about those wells?

A. They are Monument-Tubb Pool wells also; they're just outside the official boundaries. And the one in Section 14 is Texaco's and the four in Section 15 are Conoco's.

Q. Outside the official boundaries?

A. Yes.

Q. They're not in the Monument Tubb Pool?

A. Not officially, no. For some reason, there's that little window left in Section 15. I'm not familiar with the history of which pieces were added when, but they're within a mile, so they fall under the same rules.

Q. Are those recent completions?

A. No, sir, nothing in this pool is a very recent completion. Most of them were done in the late Sixties, early Seventies.

Q. That is weird. Do you know why Conoco's initial Application for 6000 to 1 was denied?

A. Yes, sir. At the time it was thought to be

excessive. I think those were the words of the Commission.

But again, that was five years after they had just found the pool, so they didn't really know.

Q. Do you have any estimates on what the remaining life of the pool or reserves remaining in the pool are?

A. No, sir. I would say that we're extending them. We've embarked on a successful workover program in this pool and are putting more contemporary completions on these wells and getting some very good results, but I've not estimated the life.

Q. What evidence do you -- Or what data have you looked at to show you there's not a gas cap in this pool?

A. Well, again, if you look at both the structure map and the production plot, again on the structure map you don't see the orange dots for those wells with GORs over 20,000, consistently at the high points of the structure. Nor do you see the green or blue dots for the lower GORs consistently in the troughs.

If it were, for instance, a gas cap, you would consistently see the orange coming down to the green on the edges there.

Also, with the GOR being so consistent, a solution gas drive reservoir that is below the bubble point will behave that way where your GOR will build very rapidly to a critical gas saturation and stay there, and I believe

that's what we're seeing, and log analysis shows that too.

Q. Okay. You mentioned that your -- Is it some of your newer wells, you're not getting -- Are these wells flowing?

A. Yes, they are.

Q. And you're not being able to produce enough gas to lift the fluid?

A. We're right on the borderline, pinched back to 888 MCF.

Q. About how many wells is this affecting currently?

A. Right now three.

Q. Three wells. Are all the wells in the pool -- Or how many wells are flowing in the pool, approximately?

A. Just a minute.

Q. Just one?

A. No, no, I'm sorry, wait just a minute, I can answer that question.

Q. Just approximately.

A. Eight -- Ten.

Q. Okay. Are they recompletions or new drills or --

A. Some of them are. Some of them are old -- I have three recompletions that are flowing, and there are five or six old ones that are flowing.

Q. Will the increase in GOR just delay having to put a pump on these wells?

A. I don't know.

Q. You don't feel like the oil recovery from this pool is going to be adversely affected by increasing the GOR?

A. No, sir, I don't think it will affect it at all. This pool seems to want to produce at a 20,000 to 30,000 GOR.

EXAMINER CATANACH: I don't have any further questions.

MR. CARR: Mr. Catanach, I have all of the letters and return receipts we've sent that I'd be happy to leave with you, if you want them. I do have an affidavit that identifies that these have --

EXAMINER CATANACH: Do we need those, return receipts? I guess we can keep them in the file, Mr. Carr.

MR. CARR: So I'll tender these to you.

And that concludes our presentation in this case.

EXAMINER CATANACH: Okay. There being nothing further in Case 10,968, [*sic*] it will be taken under advisement.

MR. CARR: Thank you, Mr. Catanach.

(Thereupon, these proceedings were concluded at 12:25 p.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10968, heard by me on May 26 1994.

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 June 16, 1994.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1994