NEW MEXICO OIL CONSERVATION DIVISION

STATE OF NEW MEXICO

CASE NO. 10533

IN THE MATTER OF:

The Application of BTA Oil Producers for directional drilling and an unorthodox bottomhole gas well location, Eddy County, New Mexico.

BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

August 20, 1992

REPORTED BY:

DEBBIE VESTAL
Certified Shorthand Reporter
for the State of New Mexico

A P P E A R A N C E S

FOR THE APPLICANT:

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EXAMINER CATANACH: Call the hearing back to order. At this time we'll call Case 10533, application of BTA Oil Producers for directional drilling and an unorthodox bottomhole gas well location, Eddy County, New Mexico.

Are there appearances in this case?

MR. CARR: May it please the Examiner, my name is William F. Carr with the law firm, Campbell, Carr, Berge & Sheridan. We represent BTA Oil Producers. And I have one witness.

EXAMINER CATANACH: Other appearances?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin, of the Santa Fe law firm of Kellahin & Kellahin, appearing on behalf of Marathon Oil Company. And I do not have any witnesses today.

EXAMINER CATANACH: Any other appearances?

Will the witness, please, stand and be sworn in.

KEITH LOGAN

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

EXAMINATION

BY MR. CARR:

Q. Will you state your full name and place

of residence?

A. Keith Logan. I live in Midland, Texas.

Q. By whom are you employed?

A. BTA Oil Producers.

Q. And in what capacity?

A. As a reservoir engineer.

Q. Mr. Logan, have you previously testified before this Division?

A. Yes, I have.

Q. At the time of that prior testimony, were your credentials as a petroleum engineer accepted and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the application filed today on behalf of BTA Oil Producers?

A. Yes, I am.

Q. Are you familiar with the subject well and BTA's plans to directionally drill this well?

A. Yes, I am.

MR. CARR: Are the witness' qualifications acceptable?

EXAMINER CATANACH: They are.

Q. (BY MR. CARR) Mr. Logan, would you briefly state what BTA seeks with this application?

A. We are seeking approval to directionally drill our existing 9201 JV-P Indian No. 1 well, which is located 1650-1650 from the north and east line of Section 20 of 22 South and 23 East in Eddy County, New Mexico, and kick it off at approximately 5400 feet and deviate to the northeast or bottomhole location of 1300 feet from the north and east line.

Q. What is the current status of this well?

A. We are currently just -- we are pumping right now water off of it.

Q. When was it drilled?

A. Well, it was actually drilled in -- started drilling in March. We got to TD, but the original TD was in the Morrow in May of this year.

Q. And the well is currently producing water?

A. Correct.

Q. Has there been a gas show?

A. Yes.

Q. Is this a commercial well?

A. No, it is not.

Q. And in what pool is the well completed?

A. It would be completed within the Indian Basin-Upper Penn.

Q. What are the spacing requirements in that pool?

A. Okay. It's on 640-acre spacing.

Q. What would be a standard well location setback from the outer boundary?

A. No closer than 1650 from any boundary -- well, from two boundaries.

Q. Let's go to what has been marked as BTA Exhibit No. 1. Would you identify that, please?

A. Okay. Exhibit No. 1 is really a combination of both a structure map and it also includes production from wells on the map within the Indian Basin-Upper Penn Pool. And, as you can see the field, this is a southern extension of the field.

You do have wells to the east of the location also that did produce quite a bit of gas from the Upper Penn. The well in 21, of course, made 12 Bcf and the one in 22 made 10. But, of course, the wells to the north are by far the better wells in the field.

What I'm showing here, structurally we came in at a minus 3054, which put us

significantly high to the well in Section 21, which is still making gas but is making some water. And, you know, we are quite a bit up-dip to that, and when we drilled the well, we found from RFT pressures that we were in communication with the main reservoir at 1400 pounds.

Q. Now, on what interval have you contoured?

A. Well, this is the top of the Upper Penn.

Q. All right. And the subject well is shown in the north half of 20?

A. Correct.

Q. The surface location is indicated and the proposed bottomhole location has a red circle around it?

A. Red circle, correct.

Q. Who owns the acreage or operates the acreage north, northeast, and east of this property?

A. Okay. North and northeast Chevron operates, but Marathon Oil has a large interest in both wells. The well to the east is operated by Amax.

Q. How did BTA actually acquire its

interest in Section 20?

A. The north half of Section 20 was by farmout from Chevron. The south half was by farmout from Mobil.

Q. If you're able to make a successful completion in the Indian Basin-Upper Penn, would you communitize the entire Section 20 --

A. Right.

Q. -- for a standard unit?

A. Right.

Q. You indicated that, although the well was producing water structurally, you are high to wells to the east?

A. Correct -- well, right, to the east and northeast.

Q. Let's go now to what has been marked as BTA Exhibit No. 2, your cross-section, and I would ask you to review this for Mr. Catanach.

A. Okay. The map for the cross-sections on the far right side that -- what this is is a structural cross-section north-south, okay, going north-south including the two wells in Section 16 and 17, which are two really good producing wells extending south to our location and then going to the dry hole in Section 21 and also the producer

in Section 21 and then the dry hole down in 28.

And on the left side, of course, that is the well in the Section 17, which has made well over 30 Bcf. And as you come down, of course, you are going down-structure, and you come to the well in Section 16. I just extrapolated these in from a structural standpoint. And you come down to our location, a third well.

What encouraged us about what we found here was we found clean dolomite. It had good porosity for this area. And the fact that we ran RFT pressures on it and got several that confirmed that we were tied in with the main reservoir and we were high to wells that, you know, still produced gas, we felt like we had a very good shot at making a gas well there.

As you continue down here, the well to the east, which is the dry hole, was structurally flat to us. But, as you can see, what I've got colored in green, the pay quality or the clean dolomite was just not in existence. It was very ratty looking to me. You had shales intermixed in there. And they did have shows of gas on that well, but we're not able to produce it.

Q. In drilling the well did you use freshwater?

A. We used freshwater.

Q. And what kind of volumes did you use?

A. Well, we had a water well when we were drilling it. In fact, since we were taking it to the Morrow, we drilled this section and logged it and continued to drill and then ran pipes. So we figured the zone itself was open for about five days with having just freshwater on it, freshwater sitting on top of 1400 pounds.

There was very good indications that you would lose fluid because it was going to go into that 1400 pounds. And we think we could have lost as much as 20,000 barrels.

Q. Now, by directionally drilling to the proposed unorthodox location, what is it that BTA hopes to achieve?

A. We want to get away from this wellbore, and we also want to gain some structure. We --

Q. Let's move to BTA Exhibit No. 3. Could you identify that and review it for the Examiner?

A. Okay. Exhibit No. 3 is a map showing the "A" on Exhibit No. 3 -- "A" on Exhibit No. 3

is the subsea elevation of the top perf and the bottom perf.

Q. Now, you have that for each well in the immediate area except the subject well?

A. Correct.

Q. And then what does the "B" indicate?

A. The "B" indicates the current gas producing rate, current water producing rate.

Q. And, Mr. Logan, the figures for the subject well were just inadvertently omitted from the exhibit; is that correct?

A. Correct.

Q. What is the perforated interval in the BTA well in the north half of Section 20?

A. Okay. The top perforation is at a minus 3054, and the bottom perforation is at minus 3145.

Q. And how does this interval compare with the offsetting wells?

A. Well, if you look to the wells to the east and, say, like, the well in 15 and the well in 21, it's telling me that our bottom perforation, you know, was still above their bottom perforation. And the one in 21 is completely below our bottom perforation. And

they are still making some gas. They are making water also.

The well in 15, though, the bottom perforation is at minus 3303, which is more than 150 feet below our bottom perforation. And they are making gas almost water-free.

Q. Mr. Logan, what are the producing rates in the BTA well in the north half of 20?

A. Well, essentially what we're making, we're making very little gas, but we are making -- we've got a pumping unit on it, a gas-operated pumping unit. And we are making enough gas to run it, but we're making over 400 barrels of water a day. So we know we've got permeability.

Q. But you're not producing gas?

A. Not in commercial quantities, no.

Q. Do you recommend that a penalty be imposed on the proposed unorthodox well location?

A. Well, we have discussed this with Chevron and have agreed or had agreed to a 21 -- roughly a 21 percent penalty.

Q. Have subsequently you been in negotiations with Marathon to try and stipulate a penalty to be imposed on this well due to its unorthodox location?

A. Yes, we have.
Q. And what penalty is that?
A. It's 32-1/2 percent.
Q. Does BTA recommend that that penalty be imposed on the well at this proposed bottomhole location?
A. Yes, we do.
Q. And against what should this penalty actually be applied?
A. Against the allowable.
Q. Now, the 21 percent penalty was based just on distance encroachment toward the offset property?
A. Right. The 1300 over the 1650.
Q. And the 32.5 percent penalty was what?
A. Was based on negotiations.
Q. Will BTA conduct a directional survey to determine the exact location of the bottomhole of this well as required by Division Rule 111?
A. Yes, we will.
Q. Is Exhibit No. 5 a copy of an affidavit confirming that notice of today's hearing has been provided to offsetting operators as required by OCD rule?
A. Yes, it is.

Q. And the operators are identified, and the notice letters are attached?

A. Correct.

Q. In your opinion will approval of this application and completion of the well at the proposed unorthodox bottomhole location enable BTA, if the well is successful, to recover reserves that otherwise would not be recovered?

A. Yes.

Q. And that would prevent waste?

A. Correct.

Q. In your opinion will approval of the location and imposition of a penalty of 32-1/2 percent enable BTA to produce the well without impairing the correlative rights of other interest owners in the pool?

A. Yes, it will.

Q. Were Exhibits 1, 2, 3, and 5 either prepared by you or compiled under your direction?

A. Yes, they were.

MR. CARR: At this time, Mr. Catanach, we move the admission of BTA Exhibits 1, 2, 3, and 5.

EXAMINER CATANACH: Exhibits 1, 2, 3 and 5 will be admitted as evidence.

MR. CARR: That concludes my examination of Mr. Logan.

EXAMINER CATANACH: Mr. Kellahin.

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Logan, a couple of questions for clarification. On the cross-section that we have in front of us, when we look at well No. 4, which is the Hanagan well in the northwest of 21, Exhibit 3 shows that to be a dry hole?

A. Yes.

Q. In looking at the test information on that well, it appears that that well did not recover formation water in any of the tests. Did I read that right?

A. Not that has been reported.

Q. Okay.

A. I don't know of any.

Q. When we look at your well, No. 3, did you selectively perforate that well from the highest perforations down to the deepest perforations, or were all these perforations done at the same time?

A. They were done at the same time. They were not, you know, each tested separately. No.

Q. Do you have any opinion about where the gas-water contact might be in terms of Exhibit No. 3, the structure map?

A. Well, the well I'm really keying off of for that respect is the well in the northeast of 21, being that the top fits at a minus of 3197. Its top perf is at minus 3204 and bottom perf at minus 3348. I think it's going to be somewhere in the 32 -- minus 3200 range is what we're looking at, or I don't think we ever would have drilled the well in the first place.

Q. The well in the northeast of 21, it is water-free gas production?

A. It is not water-free, no.

Q. Where do you think the -- what's the highest known point of water production in that well?

A. Well, I'd say the highest known point would have to be the top perforation.

Q. Okay.

A. I mean, that would be the, I think, the worst-case scenario, is to put it at the very top, which would still put it right around the 3200, minus 3200 point.

Q. And your explanation for the water

production in your well is that this may be load water that was in the well that affected the ability of that well to produce gas?

A. Well, we felt it was load water for a long time. I can't explain what -- I think we've given it every shot and to this point have made a lot of water beyond the load point. And we just feel like this is the only alternative we have at this point.

Q. Why are you proposing to move to the unorthodox location as opposed to a location that would be more standard?

A. Well, I think if we're going to risk -- I mean, this location has been sitting out here for 20 years. If we're going to risk the money to deviate in any direction, I think we ought to be moving up-structure.

Q. And so the redrilling of the well to a new bottomhole location is intended to gain structural position?

A. Yes. I definitely think we're looking to do that also.

Q. Will you have the ability to control the wellbore to hit a bottomhole target?

A. Yes, we will.

Q. What is your proposed bottomhole radius target that you want to stay within?

A. Well, the rules state within 50 feet.

Q. And is that a standard that you believe you can satisfy in executing the redrill of the well?

A. Definitely.

MR. KELLAHIN: No further questions, Mr. Examiner.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Logan, how much water have you produced to date?

A. Roughly 40,000 barrels.

Q. And a load was 20,000 barrels?

A. That is our estimate.

Q. Has there been any attempt made to try and isolate perforations to see where the water was coming from?

A. Well, we did run a production log just to get an idea. And, you know, we're getting the main flow through the -- or main entry through the higher porosity intervals. That's, I mean, which if you were to, you know, put water in, of course, it's going to go where it's easiest to go

into. And we got our best RFT pressures where we had our highest porosity there towards the base. But we have not done anything to isolate each perforation.

Q. How much structural position will you gain with the new bottomhole location?

A. I don't think we're going to gain more than 25 feet personally.

Q. You mentioned that one of the primary reasons you wanted to directionally drill was to get away from the wellbore. Why is that?

A. Well, you put so much water in it and you've taken so much out, and we've done our best guess how far the water might have gone. But, of course, it's not going to be a perfect circle either so --

Q. So you feel like that distance away from the wellbore will get you clear of the water?

A. Well, we're not even sure of that at this point. I wish we were. There's no magic in 500 feet at this point. But we want to get far enough away, and, you know, we also felt like a penalty might be a possibility and wanted to keep that to a minimum.

Q. How long has the well been pumping?
A. Well, we swabbed on it for about two months. And we've been pumping on it for at least a month.
Q. You don't consider staying on the present wellbore and continued pumping an alternative at all?
A. Well, I think we've done everything we can at this point. I mean, I would have thought we would have shut down a long time back, you know, when we had recovered what we thought was all we could have lost into it. But there comes a point in time you've got to do something different.
Q. You don't think it's going to do any good to stay on the well?
A. No, I don't.
Q. Okay. The proposed production penalty, as far as you understand, has been agreed to by BTA and by Marathon and by Chevron?
A. Yes.
Q. That's not a question here; that's been agreed to?
A. That has been agreed to.
Q. You said that that was negotiated.

What are the factors that were used in those negotiations?

A. Well, I'll have to say that I was not really involved in those negotiations. I mean, I had something to do with the 21 percent with Chevron, and I understood that from a distant standpoint. But I was not involved in the negotiations with Marathon.

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

MR. CARR: Mr. Catanach, that's all we have. Mr. Kellahin, I think, may want to make a statement in regard to the negotiation on the penalty and I can respond to that as well.

EXAMINER CATANACH: Okay.

MR. KELLAHIN: Mr. Examiner, Marathon thought it important to have two components to the penalized allowable for the well, not only one based upon the physical encroachment of the well towards the offsetting properties, but to take into account what Marathon believed was nonproductive acreage within the spacing unit.

We calculated a penalty for the proposed well that approached 70 percent and, as a result of negotiations and compromise with the

parties, have settled for an arbitrary 32.5 percent. But the change in percentages was to address our concern about having nonproductive acreage dedicated to the well.

The end result of the negotiations was an agreement on the level of 32.5 percent for the production penalty and does not necessarily reflect what the parties may believe to be the actual productive acreage.

MR. CARR: Just by way of response, Marathon had some very definite figures that they were proposing as to the number of productive acres, and we couldn't agree on that figure. But when the penalty number was proposed, without agreeing to the underlying calculation, we agreed that it would permit us to go forward with the development of the property by directional drilling. And so we did agree to recommend to you that figure, and that's what we've done.

CONTINUED EXAMINATION

BY EXAMINER CATANACH:

Q. Let me ask Mr. Logan if BTA has an opinion on productive acreage within the section.

A. Based on the well in Section 21, the

fact that it appears that we're -- you know, we're above what I think could be the gas-water contact at minus 3200 feet. We have continually gotten gas shows on our well.

Q. So you contend that all of Section 20 is productive?

A. In my opinion, yes, it could be. That's all I can say at this point, because we've got a wellbore there that we really don't know what's happened to it. I'm just saying it is a possibility, yes, that the whole section is productive.

Q. Mr. Logan, do you know what the allowable is running in the Indian Basin-Upper Penn Pool?

A. I'm guessing around 5 million a day, something like that.

Q. Do you think the production penalty is going to have an effect on the well, I mean, as far as reducing its production?

A. Well, I do. And the reason I say that is because I think we're taking a big risk to even do what we're doing right now. And I think we've got to have some reason to go in there and do it.

If we were, you know, had a severe production penalty, I don't know that we -- we've spent a lot of money pumping water, and I think we've done everything we can to make a well out of it. And I think the penalty, as set right now, is fair as proposed.

Q. What I'm saying, though, the penalty is not based on the well's ability to produce.

A. Yes, I know that.

Q. And if you come in at a rate less than the allowable, the penalty may not have an effect at all on your producing rate. You may still be able to produce the well at full capacity.

A. Well, I do understand that.

Q. I guess Marathon and Chevron understand that as well.

MR. KELLAHIN: Mr. Examiner, sometimes that is a hotly contested item. In this instance the parties that negotiated this penalty understand the allowable against which that penalty will be paid.

EXAMINER CATANACH: Okay. I have nothing further.

MR. CARR: I have nothing further.

EXAMINER CATANACH: There being nothing

further, Case 10533 will be taken under advisement.

[And the proceedings were concluded.]

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10533 heard by me on August 30 1995.

David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Debbie Vestal, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL AUGUST 24, 1992.

Debbie Vestal

DEBBIE VESTAL, RPR
NEW MEXICO CSR NO. 3