NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10419

IN THE MATTER OF:

The Application of BTA Oil Producers for an unorthodox gas well location and a non-standard gas proration unit, Eddy County, New Mexico.

BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

December 5, 1991

REPORTED BY:

DEBBIE VESTAL
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE NEW MEXICO OIL CONSERVATION DIVISION:

ROBERT G. STOVALL, ESQ.
General Counsel
State Land Office Building
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

CAMPBELL, CARR, BERGE & SHERIDAN, P.A.
Post Office Box 2208
Santa Fe, New Mexico 87504-2208
BY: **WILLIAM F. CARR, ESQ.**

I N D E X

E X H I B I T S

EXAMINER CATANACH: At this time we'll call Case 10419.

MR. STOVALL: Application of BTA Oil Producers for an unorthodox gas well location in a nonstandard gas proration unit, Eddy County, New Mexico.

EXAMINER CATANACH: Appearances in the case.

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

EXAMINER CATANACH: Any other appearances in this case?

RICKY COX

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

EXAMINATION

BY MR. CARR:

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

A. Ricky Cox.

Q. Where do you reside?

A. I live in Midland, Texas.

Q. By whom are you employed and in what capacity?

A. I'm a geologist for BTA Oil Producers.

Q. Have you previously testified before for the New Mexico Oil Conservation Division?

A. No, I haven't.

Q. Would you briefly review for Mr. Catanach your educational background and then summarize your work experience.

A. I graduated from Texas Tech in 1982 with a master's in geology. I went to work for Marathon Oil, and I stayed there until May of 1990, about seven-and-a-half years. I went to BTA, and I've been there about a year-and-a-half.

Q. Does your geographic area of responsibility with BTA include the portion of southeastern New Mexico which is involved in this case?

A. Yes, it does.

Q. Are you familiar with the application filed on behalf of BTA in this case?

A. Yes, I am.

Q. Have you prepared a geological study of the area?

A. Yes.

MR. CARR: At this time we tender Mr. Cox as an expert witness in petroleum geology.

EXAMINER CATANACH: He is so qualified.

Q. What does BTA seek with this application?

A. We seek to drill our 9105 JV-P Crystal No. 1 as the Morrow test in the White City Penn field as an unorthodox location.

Q. What is the proposed location for that well?

A. Eleven hundred and fifty feet from the south line, 1650 from the east line of Section 4, Township 24 South, Range 26 East, Eddy County, New Mexico.

Q. What are the field rules for the White City Penn field?

A. The White City Penn field rules stipulate that 640-acre spacing units, no more than two producible wells on any one unit at a time, and each well is to be located no nearer than 1650 from the boundary of the unit.

Q. Now, what acreage are you proposing to dedicate to this well?

A. The south half of Section 4.

Q. All of Section 4?

A. Yes.

Q. And why are you seeking an unorthodox nonstandard proration unit?

A. We were unable to get a standard proration unit because of BLM stipulations. And we also seek to enhance our geologic position.

Q. And the nonstandard proration unit is a result of a survey violation?

A. Yes, it is.

Q. Or survey error?

MR. STOVALL: Mr. Carr, maybe we better back up and know which one you're -- he answered the location question.

MR. CARR: He did answer the location question. What we're seeking is an unorthodox well location. There's a survey variation. The Section 4 contains 637 acres, and consequently when it was docketed, we had to also seek approval of a nonstandard proration unit.

That's the only reason for it, and there's no technical case or no presentation on that. It's just the acreage that is the federal.

MR. STOVALL: You're not going to call the original surveyor?

MR. CARR: We didn't intend to do that unless you wanted.

Q. (BY MR. CARR) Now, Mr. Cox, when we were talking about seeking a nonstandard location, could you perhaps refer to what has been marked as BTA Exhibit No. 1. And by referring to that, review for Mr. Catanach the history of the well and why you are proposing it at the current location.

A. The original location was standard at 1650 from the south and the east. When a survey was made for the well, it occurred in a topographic low. The BLM would not allow us to drill there because of drainage concerns.

They proposed that we move to 1350 from the south, 1650 from the east -- the BLM proposed. And then BTA moved us an additional 200 feet south for geologic reasons.

Q. Let's go to what has been marked for identification as BTA Exhibit No. 2, and I'd ask you to identify that and then review that for the Examiner.

A. Exhibit No. 2 is a production map of the area in question. You'll see in the bottom left corner well symbols for all the wells on the

map. It's a 1-to-2,000 scale map. It shows Township 24 South, Range 26 East. Section 4 is the section in question.

The BTA location is shown as a red circle there. The green wells, wells colored green, are wells that are assigned to the Carlsbad south field. And the wells colored orange are the wells assigned to the White City Penn field.

Q. When the application was originally filed, you had identified the well as being in the south Carlsbad field; is that correct?

A. Yes.

Q. And Mr. Stogner advised you that in his opinion it was in fact in the White City Penn?

A. Yes.

Q. And suggested at that time that this case come on for hearing?

A. That's correct.

Q. Is there anything else you'd like to testify to from Exhibit No. 2?

A. I would draw to your attention to the data beneath each well are labeled A, B, D, and E. That information is the total depth, completion date, cumulative gas from the Morrow,

and the daily production as of September of 91.

You'll notice from that the best wells are in the White City Penn field. That's all I want to show from this map.

Q. All right. Let's move to BTA Exhibit No. 3. Would you identify that for Mr. Catanach and then review it, please.

A. Exhibit 3 is a structure map on the marker in the Morrow clastic's interval. I'll identify that marker in the subsequent exhibit.

Again, the well symbols in the lower left-hand corner of the title block are consistent with all the maps. They're all the same. It's, again, a 1-to-2,000 scale map of Township 24, Range 26.

Our Section 4, BTA's lease, you again see our location is the red circle. You'll also see on this map three cross-sections indicated, highlighted red lines. They're letter identifications aside those lines.

The wells that are on that cross-section are circled in red. If they don't lie directly on the section, they have a dashed line prjecting them into the cross-section.

Q. Basically what does this show you about

the structure in the Morrow in this particular area?

A. This area of the Morrow produces primarily on a structural nose, that being the White City Penn field in the southern half of the map. The northern, northeastern corner of the map is the Carlsbad south field. It's producing primarily from stratigraphic troughs with a small structural overprint.

The White City Penn field has been documented in the literature as having a very strong structural overprint. And what that tells you is that you need to be as structurally high as possible with good sands to make an economic well.

BTA's location in the south portion of Section 4 is spotted on your map at our requested location of 1150 from the south line and 1650 from the south line. A 1650 from the south line would put the proposed location approximately on the contour line. It would be that much difference. It would give us that lower of a structural position.

Q. So here the reason for this location is to move the well up onto the structural nose?

A. That's correct. You'll also notice, if you refer back to the production map as well, the best wells on the map in general occur as the highest structural wells also.

Q. Are you ready to go to your cross-sections?

A. Yes.

Q. Let's move to Exhibit No. 4 and the A-A prime cross-section. Here, again, I'd like you to just identify this and review it for Mr. Catanach well by well.

A. All right. This exhibit is our structural cross-section, A-to-A prime. It's a south-to-north cross-section from left to right, south to north. It has a datum of minus 8,000 feet. That's consistent with all three cross-sections you'll see. They're all three structurally at the same elevation.

It has a vertical scale of two-and-a-half inches per hundred feet, horizontal scale of one inch to five hundred feet.

The first well on the cross-section is the highest structural well shown. It's the Ultramar No. 1, Pennzoil 9 Federal. Important

thing to note on this well is the perforated intervals.

This well is producing out of a clastic zone in what I've informally called Zone C and D and a small perforation as far as Zone F, the very bottom of the well. The perforations are marked in the depth track of the log in red.

The second well in the cross-section is the Ultramar No. 2, Penzoil 9 Federal. It's a slightly lower well, you can see on the cross-section. It has a gross production, a gross perforated interval in the same zones, C and D, and just a very small portion of Zone E. Zone F was not perforated in this well, probably because it's too thin to produce.

If you continue on the cross-section to the north, you see BTA's proposed location is projected into the cross-section. We are approximately 150 feet down-dip from these first two wells in the cross-section.

Likewise, we're also approximately 90 feet up-dip from the last well on the cross-section, which is the C & K No. 2, Allied Chemical well.

Q. Have you been able to pick a gas-water

contact in this portion of the field?

A. No, we haven't.

Q. Can you go now to your cross-section B-B prime and review that.

A. I would like to just review the perforations in this last well first.

Q. Okay.

A. C & K attempted to perforate and produce -- the lowest stand is Zone D in their well, and it's tested water. And that perforated interval is Zone D. And then moved up the well and end up producing the well out of Zone C, structurally higher.

That's all I have on this exhibit.

Q. All right. Let's move now to Exhibit 5, which is the B-B prime cross-section.

A. Okay. Again, it's a structural cross-section. Same datum, minus 8,000 feet. The scales are both the same as the first cross-section.

Actually, the first two wells on this cross-section on the left are the same as the first two wells on the preceding exhibit cross-section, A-to-A prime.

The last well in this cross-section,

extreme right well, is the C & K No. 1, Allied Chemical Federal well. It is in Section 4, the same section that BTA seeks to drill in. They're in the northwest corner of that section; whereas, we propose the southeast corner location.

The sands that have been correlated within these zones changed somewhat in character between the first two wells in this section and the last. For instance, Zone C that you see in the first two wells as one thick sand now becomes four thinner sands.

It was tested in this well wet. Rate of gas, too small to measure and recoveries of water. So this well is also too low to be productive. It was in fact recompleted as a Delaware test, around 1650 feet.

Q. Okay.

A. That's all I have.

Q. Let's move now to Exhibit No. 6, your cross-section, C-C prime.

A. The last cross-section, C-to-C prime, is an east-west cross-section; whereas, the first two were south-to-north roughly. Its purpose is primarily to pick up two additional wells in the vicinity of our proposed location that we haven't

looked at in detail yet.

In a gross sense you can see the overall structure that we're looking at on the structure map. You see a high in the middle of this cross-section. That's the strong nose that we're trying to stay as high as we can on.

The first well in the section on the left is the C & K No. 1, CK Federal. They Dst'd, the Morrow clastic's interval from the middle of Zone B all the way to the Zone D. And as the Dst results say there on the map, they Dst'd a small amount of gas and recovered larger amounts drawing fluid and water.

They ended up perforating the Morrow sand up above the Zone A and has made approximately 1.2 Bcf out of that well. The zones that we are primarily interested in are wet in this well, we feel like must be higher in this well.

Wells No. 2 and No. 3 on this cross-section are the same as the first two wells on the preceding two exhibits. The third and the fourth well on cross-section C-C prime, we haven't seen before either. No. 3 is the C & K Petroleum No. 2, Pennzoil Federal No. 10.

Again, you'll notice that the sands have changed from this well from the preceding well. Zone C is still one thin sand that hasn't divided up. Zone D is now several sands instead of two. And when it was DST'd twice, it showed to be a depleted reservoir, very small areal extent.

The last well on the cross-section is the Pennzoil No. 1, O'Neill "B." They tested the lowest part of the Morrow and recovered water, gas-cut water, but still water, nonproductive. And that lowest sand is Zone D.

Again, we feel like we have to be up-dip from these wells. They're off the structural nose in the center of the cross-section. They did make a Morrow well in the Zone B, and you'll also notice that these sands are different in character from the sands of Zone B in the middle of the cross-section.

I alluded earlier that this field has been described in the literature 1986, and there were six different environments of deposition identified in the White City Penn field and the Carlsbad South.

This well, this last well in

cross-section C-to-C prime, represents a change in the depositional environments of the sands. That's why this lower well is producing gas than the wells in the top of the field. It's a different environment. The sands are not connected.

The sands we see on the top of the field, you saw on Sections A and B, are continuous through our location, so we have to use those wells as our lowest structural point. Those wells were wet, and we have to be up-dip.

Q. What conclusions have you reached from your geologic study?

A. In order to effectively, efficiently produce the gas under our lease, we need to be as structurally high as possible in Section 4. And that necessitates us drilling at an unorthodox location.

Q. In your opinion will this location enable you to effectively produce the reserves under Section 4?

A. Yes, it will.

Q. Let's go back to your structure map, Exhibit No. 2, for a minute. Who offsets you towards the south?

A. Ultramar offsets BTA in Section 9.

Q. And then who to the south and east?

A. Pennzoil is operator in Section 10.

Q. Could you identify what has been marked as BTA Exhibit No. 7, please.

A. This is a letter from BTA to offset operators notifying them of this hearing and of our intentions to drill an unorthodox location.

Q. Attached to those letters are there copies of the return receipts showing that the letter was in fact received by these offset operators?

A. There are.

Q. Mr. Cox, in your opinion will the approval of this application be in the best interests of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, it will.

Q. Were Exhibits 1 through 7 either prepared by you, or have you reviewed them and can you testify as to their accuracy?

A. Yes, they were.

MR. CARR: At this time we would move the admission of BTA Exhibits 1 through 7.

EXAMINER CATANACH: Exhibits 1 through

7 will be admitted as evidence.

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

MR. STOVALL: Mr. Carr, can you assist BTA in preparing the affidavit that I have been so consistently referring to all day?

MR. CARR: If we know exactly what you want, we'll put anything in it you deem.

MR. STOVALL: Did you serve notice upon these --

MR. CARR: As long as it's truthful.

MR. STOVALL: Always a catch, Mr. Carr.

Did you serve notice upon the parties entitled to notice under the rules and notify them?

MR. CARR: And do you want the numbers of the return receipts on that in the form of the affidavit?

MR. STOVALL: If you actually attach them -- I think the reason we did it with Amoco is because of the sheer volume. You can attach the receipts themselves in this case.

MR. CARR: We'll provide an affidavit after the hearing.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Cox, BTA originally proposed the standard location. Was this location staked before you did any geologic interpretation?

A. Yes, it was.

Q. Approximately how many feet of structure are you gaining in your proposed location?

A. From the original?

Q. From a standard location.

A. Probably on the order of 50 feet.

Q. Why is it so difficult to determine the gas-water contact in this reservoir?

A. I don't know that it's difficult. I haven't worked that in.

Q. Do you feel like a well at a standard location would be wet in some of these zones?

A. Yes, sir, definitely.

Q. Which zones do you think it would be wet in?

A. Zone D.

Q. D?

A. Yes. And everything below it.

Q. Are Zones A and B the most prolific

sands in this pool?

A. No, they're not. Actually, they are not even produced in any of these wells.

Q. Which zones would be the most prolific zones in your opinion?

A. Zones C and D.

Q. C and D. The well in Section 4, the existing well, the C & K, Allied Chemical Federal --

A. Yes.

Q. -- that was never produced in the Morrow?

A. Not to my knowledge.

Q. They plugged it back and made a shallow well?

A. That's correct.

Q. But it was tested?

A. By Dst, yes. Drill stem test.

Q. Do you believe the well at your proposed location will recover more gas under Section 4 than a well at a standard location?

A. Yes, sir, I do. I think there are three possible sands that we will produce out of that. There's one in zone C, one thick sand. Zone D has two thinner sands.

If we were at a standard location, I think, at least the lower half of Zone D, one-third of our reservoir would be wet. I think we would increase our reservoir recovery a very large percentage by having all three above water.

Q. Has BTA heard from any of the offset operators in terms of any kind of objection to this location?

A. I'm not aware of any objections to this location.

Q. Okay. The south, you said, was owned by Ultramar --

A. Yes.

Q. -- in Section 9. And Section 10 is owned by Pennzoil?

A. That's correct.

MR. CARR: Mr. Catanach, Pennzoil originally had given a waiver when we were seeking it administratively.

EXAMINER CATANACH: I have no further questions of the witness.

MR. STOVALL: I just have one. You would rather be at this location than the standard location even if the BLM didn't have any surface considerations; is that correct?

THE WITNESS: I would geologically, yes.

MR. STOVALL: Nothing further.

MR. CARR: I have nothing further in this case.

EXAMINER CATANACH: You may be excused.

There being nothing further, Case 10419 will be taken under advisement.

(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. 10419, heard by me on December 5 1991.

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 December 17, 1991.

Debbie Vestal

DEBBIE VESTAL, RPR
NEW MEXICO CSR NO. 3

NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10419

IN THE MATTER OF:

The Application of BTA Oil Producers for an Unorthodox Gas Well Location, Eddy County, New Mexico.

BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

February 6, 1992

REPORTED BY:

CARLA DIANE RODRIGUEZ
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE NEW MEXICO OIL CONSERVATION DIVISION:

ROBERT G. STOVALL, ESQ.
General Counsel
State Land Office Building
Santa Fe, New Mexico 87504

EXAMINER CATANACH: At this time we'll call Case 10419.

MR. STOVALL: Application of BTA Oil Producers for an unorthodox gas well location, Eddy County, New Mexico.

EXAMINER CATANACH: It's my understanding that this case was originally heard December 5, 1991, and subsequently readvertised for today to make some changes in the pool that the well will be placed in.

I see, by an empty room, there are no additional appearances in this case.

MR. STOVALL: Please note the sentence following the ending of the case name, in the middle of that advertisement.

EXAMINER CATANACH: "In the absence of objection, this case will be taken under advisement," and we will do so at this time.

(And the proceedings concluded.)

CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, 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 February 17, 1992.

Carla Diane Rodriguez

CARLA DIANE RODRIGUEZ, RPR
CSR No. 4

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10419, heard by me on February 6 1992.

David R. Catanach, Examiner
Oil Conservation Division