STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 10,789

EXAMINER HEARING

IN THE MATTER OF:

Application of Bright & Company for approval of a second well in a high angle/horizontal directional drilling pilot project, an unorthodox surface oil well location, and special operating rules therefor, Sandoval County, New Mexico

ORIGINAL

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

August 12, 1993

A P P E A R A N C E S

FOR THE DIVISION:

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I N D E X

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E X H I B I T S

APPLICANT'S EXHIBITS:

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WHEREUPON, the following proceedings were had at 9:35 a.m.:

EXAMINER CATANACH: Okay, at this time we'll call Case 10,789.

MR. STOVALL: Application of Bright & Company for approval of a second well in a high angle/horizontal directional drilling pilot project, an unorthodox surface oil well location, and special operating rules therefor, Sandoval County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

MR. BRUCE: Mr. Examiner, Jim Bruce from the Hinkle law firm in Santa, representing the Applicant.

I have one witness to be sworn.

EXAMINER CATANACH: Any additional appearances?

Would you please swear in the witness?

BRUCE GATES,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. My name is Bruce Gates. I live in San

Antonio, Texas.

Q. Who are you employed by and in what capacity?

A. Bright and Company as a geologist.

Q. And have you previously testified before the Division as a geologist?

A. Yes, I have.

Q. And were your credentials as an expert petroleum geologist accepted as a matter of record?

A. Yes, they were.

Q. Are you familiar with the matters pertaining to this Application of Bright and Company?

A. Yes.

Q. And does your area of responsibility at Bright and Company include northwest New Mexico?

A. Yes, it does.

MR. BRUCE: Mr. Examiner, I tender the witness as an expert geologist.

EXAMINER CATANACH: The witness is so qualified.

Q. (By Mr. Bruce) Briefly, Mr. Gates, what does Bright and Company seek in this Application?

A. We seek to drill a second horizontal well in the west half of Section 35, 21 North, 2 West.

Q. Would you please refer to Exhibit 1, identify it for the Examiner, and discuss its contents?

A. Okay. Exhibit 1 is a lease plat of the area of interest. The shaded area is the -- is Bright and Company's Cuba Mesa Unit, which is 100-percent federal land.

The 35 Number 1 well is shown in the west half of Section 35, together with the proposed 35 Number 2 well.

The offset leases are also indicated on the plat.

Q. What is the status of the 35 Number 1 well?

A. The 35 Number 1 well was approved by Order Number R-9676.

It was completed in the Mancos B2 zone in the summer of 1992. It initially produced 175 barrels of oil per day; it currently produces at 50 barrels of oil per day. It has produced 27,937 barrels of oil as of August 8, 1993.

Q. What is Exhibit 2?

A. Exhibit 2 is a decline curve of the production, from the first date of production up to the present time. And attached to it is the last month's daily production, water production, gas production, and also shows the cumulative as of 8-8.

Q. The decline has been relatively flat over the past several months?

A. Yeah, since the middle of November it's essentially been zero decline.

Q. What is the horizontal extent of the 35 Number 1 wellbore?

A. The horizontal extent is 800 feet.

Q. Was that what was planned originally?

A. No, we had planned a horizontal displacement of approximately 3300 feet.

However, due to oil flows encountered while drilling, we were forced to stop at the 800 feet, and we completed the well as an oil producer.

Q. As a result, do you think you've tested the entire Mancos interval under the west half of Section 35?

A. No, I do not think we have tested the entire...

Q. Would you refer to Exhibit 3 and briefly discuss the geology of the Mancos in this area?

A. Exhibit 3 is a structure contour map based on subsurface control.

The map sows monoclinal north dip into the basin.

The anomalous feature on this map is an east-west trending flexure that is depicted by the abrupt dip change. This abrupt dip change trends to our field

-- or through the field -- and also trends to our acreage and is documented by four seismic lines that run through our acreage or nearby.

From looking at vertical oil production in the field, the best production is associated with that flexure.

And that's -- the flexure is going to be the target of our 35-2 well.

Q. Would you move on to Exhibits 4 and 5 and discuss what they show and your proposed plans for the 35 Number 2 well?

A. Okay, Exhibit 4 is a structural cross-section showing the relationship of our 35-1 well with respect to the Mancos stratigraphy and the structural relationship with respect to the flexure.

I've marked the flexure with arrows showing the area of maximum flexure.

As you can see, the 35-1 well is drilled in the B2. It went out about 800 feet and it was clearly short of the flexure, and we did not meet our ultimate objectives.

The 35-2 well is shown downdip of this well. We want to drill into the B1 zone and test -- go ahead and drill through that flexure and drill out, and hopefully they'll drill out to 3500 feet or so.

Q. Now, on the Number 2 well, you show casing down to where it becomes horizontal.

A. Yes.

Q. That's different from the 35 Number 1?

A. That's right. Well, it's -- can we introduce -- Can I explain this exhibit to you?

Q. Sure.

A. Exhibit 5 is a log based from the pilot hole in our 35-1 well. It shows how I subdivide the Mancos interval into the A, B1, B2 and C.

Based on some information that we gained while drilling, I feel like each one of these zones -- specifically the B1, B2 and the C -- will act as independent reservoirs, and there will not be fracture -- or oil communication between these different zones.

You can see that we're targeting the B1.

In the event that I'm wrong and there is communication, we're planning to set casing through -- or into the B1 target, which will isolate our well from the area that the 35-1 well is currently producing from.

Q. And referring to Exhibit 6, would you please discuss the drilling procedure for your proposed Number 2 well?

A. Okay, we've already gained a lot of information from our pilot hole in the original well, and due to the close proximity of this well to that well, we don't need to do any additional logging and things.

So we're going to drill down to approximately 3500 feet and just run an induction log for correlation so we can tie back into the original well.

At that 3500 feet we'll kick off and build an angle at about eight degrees per hundred to a measured depth of approximately 4600 feet and a vertical section of 660 feet.

At that point we should be into the B1 target, and we will set 7-5/8-inch casing.

We're going to change our plan a little bit from the original well in that we're going to set a parasite string at 2500 feet, and we'll use a KCl/polymer mud, we will aerate through the parasite string to reduce our hydrostatic head at bottomhole to about 5.5-pound mud equivalent, which should allow this well to flow while drilling.

Q. And is this general procedure for the drilling of the well similar to procedures used for drilling the other half dozen or so wells in that area?

A. Yes, except for the parasite string. We

think the parasite string will alleviate our oil-flow problems that occurred in the original well.

Q. What is the surface location of your proposed Number 2 well?

A. It is 1010 feet from the south line, 820 feet from the west line, which is unorthodox because it's close to a quarter quarter section line.

However, the horizontal wellbore will be at least 660 feet from the outer boundary of the west half of Section 35, which conforms to Order Number R-9676.

Q. And why do you request the allowable while drilling, which is -- What was it? Sixty days times 320 barrels a day, I believe.

A. Okay, the well will be drilled in an underbalanced state unless it's an easier and better practice to produce while drilling.

We therefore request a 19,200-barrel allowable while drilling, which is the same as that approved for the wells in the -- offsetting in the San Ysidro and Ceja Pelon Units.

Q. And would you discuss your request for an extra 320-barrel-per-day allowable for the Number 2 well after it's completed?

A. Okay. At this point we're still in the experimental stages of trying to understand this

formation and to exploit the oil that exists in it.

As I stated before, I feel like these are going to be separate reservoirs and that they should have different allowables.

I cannot prove that to you at this time. Hopefully, with this next well I can come back and prove that.

And if we are successful, we'd like to benefit from the maximum production that we can accomplish, or the allowable that you'll give us, assuming that the well will produce at that rate.

Q. Your statement about being different reservoirs, has this been reinforced by experience in some of the offsetting Gary-Williams wells?

A. Yeah, in talking with the -- Josh, Gary-Williams, they've drilled two wells in that A zone, both of which -- both wells never produced anything from those zones.

They later -- In their last well they sidetracked that well and went into the B2 and made an oil well. In doing so, they went through the B2 zone several times, up and down.

When they were in the zone they were getting new shows, gas kicks, that kind of thing. As soon as they would go out of zone, they would lose all

indications of show.

I also saw that phenomenon occur in our well. We landed into the top of the B1 zone, I got them to go down as soon as we went into the zone, we had oil production.

We unfortunately went down through the bottom, and out of the bottom of the zone, but by no more than a foot. we lost all shows.

We got them to correct, come back up. As soon as we got back into the B2 formation we had a big gas kick, and that's when we had the tremendous oil flow that prohibited us from continuing drilling.

So from that I feel like the B1 will be separated from the B2. But I think with this additional drilling we'll have more evidence to prove that at a later date.

Q. Were all offset lessees notified of this hearing?

A. Yes, they were.

Q. And is Exhibit 7 your affidavit of notice with the notice letters?

A. Yes, it is.

Q. Were Exhibits 1 through 7 prepared by you or under your direction?

A. Yes, they were.

Q. And in your opinion, is the granting of this Application in the interests of conservation and the prevention of waste?

A. Yes, it is.

MR. BRUCE: Mr. Examiner, I would move the admission of Exhibits 1 through 7.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Gates, let me see if I have this right. The Number 1 well is in the B2 zone?

A. The B2 zone.

Q. The Number 1 well is projected to be in the B1?

A. The 35-2 well is -- we want --

Q. The 35-2?

A. Yeah, we intend to drill that in the B1 zone.

Let me say, regardless of whether there's communication or not, we strongly believe that the 35-2 well will be draining different reserves. As you can see, the borehole will extend downdip from the existing 35-1 well, and we're going to be isolated from that reservoir regardless of communication or not with the casing. It's going to be 7-5/8-inch casing.

This is a gravity-drained reservoir. So the oil that exists downdip of the 35-1 would not likely migrate up into the borehole on the 35-1 well.

So regardless of whether I'm right on the communication or not, the two wells will be draining different reserves.

Q. Did you have shows in the Number 1 well, in the B1 zone?

A. Yes, we did.

Q. You did?

A. Yes, we did. Now, what we did in -- You know, we went through it at a fairly high angle. But every time we drilled through the B1 zone in the pilot hole, we had very minimal show. We were overbalanced because we were going much -- just -- I mean, the first...

We had to sidetrack this well twice because of -- Well, we couldn't build angle.

Went through the second time, the B1 showed oil, and the third time it showed oil but we -- and we landed in the B2 zone, and that's where the production comes from.

Q. If you don't -- in the Number 2 well, if you don't get any shows in the B1, are you going to take it down to the B2?

A. We'll have to, I guess, make that decision.

Q. It's possible?

A. It is possible, that's correct.

I feel, from what we've seen, that the B1 will be every much as good a reservoir.

It was originally our original target. Unfortunately, because of Eastman's inability to build angle, we had to go to a second objective, which is the B2. Fortunately, we had the B2 objective to go to, or we would have been in a lot worse trouble.

Q. Have those mechanical problems been worked out?

A. Yes. Well, for one, we're going to kick off at a higher depth.

So instead of needing a 12-degree-per-hundred to make our target, we're only going to -- We're working on an 8-degree-per-hundred. So we'll be way under their ability to build angle.

And we -- from their -- We know they can build about a ten-degree out here, so we'll be all right.

Q. Is there vertical separation between the B1 and B2 zones? Is there some kind of barrier in there?

A. Well, there's a shale barrier, and there's other logging that we've done that shows that with --

for instance, an FMS log which shows that the interval is highly laminated.

We've run some digitized sonic logs that give us some rough properties that show that that shale interval is much more ductile than the surrounding B1 and B2 intervals. So...

And it gets more complex than that. I think within the B1 and the B2, it's laminated, and -- it's just you can't -- You've got to know your target because you can't go to a one-foot target, I don't think, and think you're going to be able to stay in it.

We've narrowed our target down to approximately seven feet.

And we're pretty successful in the first well. Staying in it, we didn't get very far. So we're going to test ourselves a little better on this next one.

Q. The second well would be -- What's the lateral distance that you're going to drill?

A. Approximately 3500 feet, actually 3600, yeah.

Q. Is the west half currently dedicated to the Number 1 well?

A. Yes, it is.

Q. Okay. So you're going to have two wells on the proration unit?

A. Yes.

Q. What's the allowable for that proration unit?

A. 320 barrels per day.

Q. So you're just asking for double the allowable for a standard proration unit?

A. Essentially, really -- the well -- The first well is currently producing 50 to 60 barrels a day, so we'll really be looking at a 380-barrel-a-day allowable.

Or we would take more if you would be willing to...

Q. Well, actually, you would be -- What you're asking for is 640 barrels a day allowable?

A. I guess technically the 35-1 does have a 320-barrel-a-day allowable, right. It's just not making that allowable.

Q. Well, I just want to make sure that I understand what you're asking for. You're asking for essentially 640 barrels a day --

A. Right, yes, sir.

Q. -- or the proration unit?

A. Yes, sir.

Q. Does Bright plan on developing any of the other sections in the unit?

A. Yes, we do. It just -- because of -- We do

not feel like we've tested the entire west half of that section. And from the promising oil shows we've got, we feel that drilling our second well at this location will be a lower-risk location, versus moving over, say, to the west side of the unit at this point in time, because we still don't understand everything about the formation. We're still learning.

We felt like this would be the best way to learn and make a well.

Q. The Well Number 1 cannot be recompleted to test that other zone, can it?

A. Not to test the B1 zone, I don't think. I think -- What I'd like to see in the future is, if that well does decline down to nothing, whenever that does happen, that we could pull that liner and come back and drill into the C zone at a later date, or drill out all the way through the B2 zone, one or the other.

Q. So you've got additional potential in the C zone?

A. I believe so. In fact, I think the C zone is probably the best zone in the Mancos in this area. It is so thin -- it's only about four feet -- I think there's a lot of risk in us trying to stay in that zone at this point in time.

Once we have the B1 zone drilled and we know

the structural dips all the way out to 3600 feet, it will be much easier for us to come back and drill through the C zone at a later date.

Q. Okay. The lease offsetting you to the west, the Union Pacific Resources, Samuel Gary --

A. Yes, sir.

Q. -- to your knowledge, those are the owners of that lease in Section 34?

A. Yeah. Sam Gary is the operator of those leases, and there's -- There's actually more interest owners in that acreage as shown here, and they're basically all listed in the letters that we've sent out.

Q. Is there any production in that section?

A. There was -- There was some old production. A vertical Mancos well produced 26,000 barrels of oil in the southwest corner of Section 34.

MR. BRUCE: Mr. Examiner, to the west of Bright's unit is the Ceja Pelon Unit, which is operated by the Gary Williams Company.

EXAMINER CATANACH: I'm sorry, Mr. Bruce, the -- What's the name of it?

MR. BRUCE: Ceja -- C-e-j-a -- Pelon Unit, which is operated by the Gary-Williams Company.

And to the southwest of Bright is the San

Ysidro unit, which is operated by Energy Development Corporation.

EXAMINER CATANACH: Mr. Bruce, who were the interest owners -- or who were the offset operators or interest owners who were notified of this Application?

MR. BRUCE: That's Exhibit 7. We notified -- I forget -- approximately 15 people.

They did notify the Gary-Williams Company and Energy Development Corporation, who are those operators.

Those units were approved by the Division, and their operatorship is a matter of record here.

But Bright and Company did go ahead and notify all offsetting lessees, rather than just the operators.

EXAMINER CATANACH: Okay, is that just in Section 34, is what --

MR. BRUCE: Actually, they notified everybody in the sections around their federal unit.

EXAMINER CATANACH: I see.

MR. BRUCE: If you look at the land plat, there's Celeste Grynberg, and she was notified, although she is part of the northeast.

EXAMINER CATANACH: Okay. I don't have anything else of the witness. He may be excused.

Anything else, Mr. Bruce?

MR. BRUCE: No, sir.

EXAMINER CATANACH: There being nothing else, Case 10,789 will be taken under advisement.

(Thereupon, these proceedings were concluded at 9:57 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10789, heard by me on August 12, 1993.

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 September 2, 1993.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1994