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NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10857

IN THE MATTER OF:

The Application of Phillips Petroleum Company for an Unorthodox Gas Well Location, Lea County, New Mexico.

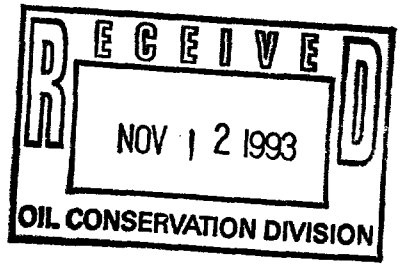
BEFORE:

DAVID R. CATANACH

Hearing Examiner

State Land Office Building

November 4, 1993



REPORTED BY:

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

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A P P E A R A N C E S

FOR THE NEW MEXICO OIL CONSERVATION DIVISION:

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BY: **W. THOMAS KELLAHIN, ESQ.**

I N D E X

E X H I B I T S

EXAMINER CATANACH: Call the hearing to order this morning for Docket No. 32-93. Let me go ahead and call the continuances and dismissals first.

[And there were proceedings had which were off the record.]

EXAMINER CATANACH: At this time, we'll call Case 10857.

MR. STOVALL: Application of Phillips Petroleum Company for an unorthodox gas well location, Lea County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm Kellahin & Kellahin, appearing on behalf of the Applicant, and I have one witness to be sworn.

EXAMINER CATANACH: Additional appearances?

[And the witness was duly sworn.]

MR. KELLAHIN: Mr. Examiner, we're back before you again today for another unorthodox gas well location in the West Ranger Lake Devonian gas pool.

Back in March of this year, you heard

Mr. Balke's geologic testimony concerning the Ranger No. 20 well. I provided you a copy of the order you entered in the prior case.

Mr. Balke is back today seeking an unorthodox location for the Ranger 21; very similar circumstances to the prior case.

We have four exhibits for introduction today, Mr. Examiner.

SCOTT C. BALKE

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

EXAMINATION

BY MR. KELLAHIN:

Q. For the record, sir, would you please state your name and occupation?

A. Scott C. Balke. I'm a geologist with Phillips Petroleum.

Q. On prior occasions, Mr. Balke, have you testified before the Oil Conservation Division as an expert petroleum geologist?

A. Yes, I have.

Q. Pursuant to your employment by your company, have you continued your geologic study of the geology of the West Ranger Lake Devonian gas pool in Lea County, New Mexico?

A. Yes, I have.

Q. Based upon that study, do you have a conclusion and a recommendation to the Examiner concerning the optimum place in which to locate what we've identified as the Lone Ranger 21 Well in Section 27?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Balke as an expert petroleum geologist.

EXAMINER CATANACH: Mr. Balke is so qualified.

Q. Let me ask you, sir, to turn to what is marked as Exhibit No. 1, and let's use that to orient the Examiner. First of all, find for us the approximation of your proposed unorthodox location for the Lone Ranger 21.

A. The location is labeled there in green, with a green circle, "Lone Ranger 21." The blue circles there are the orthodox locations.

Q. What is your proposal for the orientation of the 320-acre gas spacing unit for this well?

A. It would be the east half/west half.

Q. This would be in the east 320 then?

A. That's correct.

Q. I made reference to the prior case for the Ranger 20.

A. Uh-huh.

Q. Where is that well located, sir?

A. That well is located in the northwest quarter of Section 26.

Q. How is it identified on this exhibit?

A. It has the well number above, with a producing well symbol, as you can see. There are two producing wells within this field currently, within the Devonian. That's the Ranger 20 and the Ranger 17, which is in the southwest quarter of Section 26.

Q. What is the production information shown below each of the well symbols?

A. It will be current or cumulative production up until last month, and the Ranger No. 20 has only one month's worth of production.

Q. What is the footage location for your proposed Lone Ranger Well 21?

A. It's 2260 from the south, 450 feet from the east.

Q. To which boundary, then, is it unorthodox?

A. It would be unorthodox to the eastern

boundary. It should be 660 feet from the east.

Q. The color shading, the yellow shading on the display, what does that signify?

A. The yellow shading signifies the leasehold that Phillips Petroleum has 100 percent leasehold of.

Q. Let me have you turn now to Exhibit No. 2, would you identify that for us?

A. That's the survey of the Lone Ranger No. 21 location.

Q. Summarize for us why you're proposing to move this well approximately 200 feet to the east.

A. The other exhibits will demonstrate this, but essentially we're going to be in a more structurally favorable position; to eliminate any type of water encroachment, which will make our well more favorable, economically; and to be in the structurally highest position.

Q. From the closest standard location to the proposed unorthodox location, approximate for us your interpretation of the structural gain that you achieve by moving to this proposed location.

A. The structure map will show we should

gain approximately 25 to 35 foot of structure.

Q. Why is that of significance to you in this reservoir?

A. We see a direct correlation between structure and produceability and water encroachment. The higher we are in the structure, the less water we'll produce, and the better, the more favorable the well will be.

Q. Let's turn now to Exhibit No. 3. Before we discuss the details, tell us what we're looking at.

A. We're looking at a structure map of the Devonian reservoir itself. There's a small cap in some places to a very thick cap in some places, but we're looking at the reservoir itself, a structure map of the reservoir.

Q. What's the significance of the color codes?

A. Essentially, those are depicting the structure itself. The purples, both in the northwest portion of the map and the southwest portion of the map, are the deeper, low areas.

As you go from your greens, your yellows, to your reds, you're increasing in height. So your highest point is going to be

your reds, going down from your reds, oranges, yellows, to your greens, being the lowest structure point.

Q. How have you identified the proposed location on this display?

A. Identified it with a green dot, and a label above it, saying "Lone Ranger No. 21."

Q. The significance of the red dots in that area?

A. Red dots signify the orthodox locations.

Q. There is a black line running northwest to southeast on the display through the Lone Ranger 21 location. What is that?

A. We took a seismic cross-section across the area to depict what we're looking at, structurally, which, if you could look at Exhibit No. 4, that's Exhibit No. 4.

Q. Okay. On Exhibit No. 3, what is meant by the red lines?

A. Those are faults which we have found to be separating the reservoir.

Q. How is a display like this generated, Mr. Balke?

A. This was generated through a 3-D

seismic survey, which was shot two and a half years ago.

Q. Let's start with the Ranger 20 in the northwest quarter of 26, and give us some background about that well and what you propose to have accomplished with that well.

A. With that well we cored the Devonian reservoir, which was very significant, because we've learned evidence of the cap, possible cap string, and other information.

That well did show, essentially, virgin pressure, excess of 5,000 pounds within the reservoir. It's currently producing somewhere between 900 and a million on gas, and about 150 barrels of condensate, choked back, I believe, on a 10/64" choke.

Q. Does the Ranger 20 appear to have penetrated a portion of the Devonian reservoir that had not yet been produced?

A. That's the way it looks, from all evidence.

Q. Was there any indication of depletion of the reservoir within that portion of the reservoir for which Ranger 20 is producing?

A. None that we could see this far.

Q. Tell us, now, the objective of Lone Ranger 21.

A. Well, Lone Ranger 21, as you see, is essentially isolated by faults and by structural position. We're locating ourselves on what we feel is the top of the structure, the isolated fault block. And structure end being isolated, we should see virgin pressures, and we should have an ideal position for the well, which will allow for less water encroachment in that location.

Q. The darker pink, or the light red shading at the structural closure where Lone Ranger 21 is located, what does that signify in relation to the closest standard location identified by that red dot?

A. The red dot is south and a little bit west of the green dot. You lose approximately 25 to 35 foot of structure.

And the orthodox location will show, if we were to drill that, would have water encroachment much sooner than our unorthodox location.

Q. Can you demonstrate for us how you reach the concerns about water encroachment?

A. Well, each of the wells within the field, before they were plugged, saw water encroachment.

The Ranger 17, for an example, which is located in the southwest portion of 26, saw no water, initially. Several months into its production, we've seen water gradually increase.

The Ranger 20, in the northwest, also shows the same type of production pattern. And I believe that's historical through the field.

Q. Are these wells acting like gas wells in a gas reservoir?

A. Yes, they are. They have a very high GOR.

Q. Now, looking at the east half of Section 27, describe for us, again, why this is the optimum location within that spacing unit.

A. The well located, essentially, letter O of Section 27, that well that's southwest of the southeast quarter there, that was one of the better wells within the field.

As you go updip to the Lone Ranger 21 location, we should be higher on the structure, still contain the reservoir itself, and have no depletion effects from that well within the

southwest of the southeast quarter of 27. We should be an isolated pool there.

Q. Let's turn now to Exhibit No. 4. Tell us what we're looking at.

A. You see a cross-sectional view of the 3-D seismic survey itself. A - A', A being located on Exhibit No. 3, in the northwest, just beyond the fault in the dark area.

Going northwest to southeast, being A' down in the southeast quarter.

Exhibit No. 4 also shows the location of A to A' over there and our Lone Ranger 21 location, located approximately on that cross-section.

Q. What's the horizontal scale? What are we looking at across the top of the display?

A. It has no horizontal measurement.

Q. But you have approximated for us where we would find, on this display, the Lone Ranger 21?

A. That is correct. Because of the shot records you see at the top, we know where the shot records are on the field, and the shot records within the cross-sectional display.

Q. The points across the horizontal scale

are shot points?

A. That's correct.

Q. The vertical scale, what does that represent?

A. The vertical scale represents time. You're looking from 1,100 milliseconds down to 2,000 milliseconds; with your Devonian being at approximately 1,800, your Mississippian being approximately 1,700.

The Mississippian, as you can see, we've highlighted in yellow, and the Devonian we've highlighted in pink on Exhibit No. 4.

Q. What's the significance of those yellow lines that generally trend vertically on this display?

A. Those are faults, and those are corresponding faults that you see on Exhibit No. 3.

Q. Interpret the display for us and help us understand, then, what you propose to accomplish with the Lone Ranger 21.

A. Both exhibits read from left to right, A to A'. As you move from A, you see that things are substantially lower, structurally, until you get to that first fault, that upthrown oersted

feature there, which we would drill our 21 location in.

Then you see a slight depression there created by the graben of two faults, coming back to another oersted up feature, which we drilled our Ranger 17 location.

Then, getting onto the final fault, you see complete structural loss right there, with well locations that have shown that to be correct, also.

Q. On each side of Lone Ranger 21, that line, you have a fault?

A. That's correct.

Q. What do you achieve by putting yourself in this position, between those two faults?

A. Those faults separate the reservoir itself. There would be no communication between the reservoir, on either side of those faults.

Q. As you move down, then, on Lone Ranger 21 on that line--

A. Uh-huh.

Q. --between the two faults, and you get to the horizontal, yellow line, that is the Devonian reservoir at that point?

A. Which? On exhibit number--

Q. There's a color code between about 1,600 and 1,700.

A. Okay. That would be your Mississippian top.

Q. That's the Mississippian top?

A. That's correct.

Q. Okay. Now, as we move down and you get to the pink?

A. That would be the Devonian.

Q. When you look at the Devonian line then, the pink, what do you achieve, then, at this location?

A. You achieve the maximum structural position within the Devonian.

Q. Are there any offset operators towards whom this well encroaches, other than Phillips Petroleum Company?

A. No, there are not.

Q. To the best of your knowledge, understanding and belief, Mr. Balke, are the geologic displays true and accurate?

A. Yes, they are.

MR. KELLAHIN: That concludes my examination of Mr. Balke. We would move the introduction of Exhibits 1 through 4.

EXAMINER CATANACH: Exhibits 1 through 4 will be admitted as evidence.

MR. KELLAHIN: Exhibit 5, Mr. Examiner, is the certificate of notice. While this well only encroaches towards Phillips, we did, in fact, notify all of the operators that would adjoin the spacing unit, and they're set forth on the certificate.

In addition, while I have not presented her as a witness, Ms. Simone Gutberlet was the petroleum engineer who testified back at the prior hearing, in Ranger 20, and she's available should you have any questions about the reservoir engineering aspects of this pool or either of these wells.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Balke, what is the current status of the well in Section 27, the No. 1 well?

A. It is currently plugged. It was plugged back in the late 1970s, I believe.

Q. Do you know why that well was plugged?

A. It became uneconomical, due to water encroachment.

Q. Is the No. 21 well being drilled right

on the shot line?

A. If it's not, it's within 50 feet of a shot line. I know that, based upon the survey. I don't have the shot line spacing here with me, but the shot lines are positioned so that every 150 feet I'm sure there'll be a shot line.

Q. Am I correct in understanding that the--is it the No. 20?--was it drilled based on the information obtained from the same type of seismic data?

A. It was, and the No. 20 was before we had any kind of reservoir information, core, or any type of rock information. We knew there was a cap there, but since all these were old electric logs with no core information, we had no understanding about the reservoir, previous to the No. 20 well.

The No. 20 well provided a lot of information as far as the reservoir rock itself. That's why this Exhibit No. 3 is of the reservoir itself and not the top of the Devonian, because there is a difference there, and that's what we've learned on the No. 20 location.

There was a well spotted in the orthodox location on that. Some of the reasoning

for the No. 20 is that there's a house located just to the north and slightly to the east, that we're trying to stay away from.

Q. And you use the 3-D seismic in terms of identifying the structure?

A. Yes, we did.

Q. How accurate did you find that to be?

A. Within the top of the Devonian, we found it to be very accurate. Our error, if there was an error, was in the understanding of the reservoir itself, which is beyond the information that 3-D gives you. Now, with the core information, and we are planning to core the 21 location, we can fine-tune and even get more accurate our depiction of the structure within the field.

The cap, for instance, on the well within Section 27, is in excess of 70 feet. The well within the southwest of 26, Ranger 17, had no cap at all. So, you have divergence of the reservoir that you're not going to see on seismic, that with core and good geologic information, you should be able to fine-tune.

Q. Is your seismic information detailed enough to where you can make the determination

that you're losing 35 feet of structure?

A. Yes.

Q. It is that accurate?

A. It is that accurate.

Q. You are anticipating that you're going to get virgin pressure in the No. 21 well?

A. That's our intentions, yes, our conclusions.

Q. It's your opinion that it's geologically separate from the No. 1 well?

A. Separate from which well?

Q. No. 1.

A. Yes. Yes, it is.

Q. By faults?

A. By faults, and by your difference in structure right there. We're feeling about the reservoir that it's very similar to an Ellenburger reservoir, where there's a lot of carcining going on in through here, and we have both faults and structural changes which would allow us to conclude that there would be separation between the 21 location and the one location there in Section 27.

Q. Would the darker blue and purple shading indicate that that's not reservoir?

A. Well, that has been our case. We also have some well control. It's difficult to see because of the color scheme, but if you go to the north and slightly to the west, just west of that northeast red dot there, you see a well there with the dry hole symbol. They did penetrate the Devonian reservoir, but they found that to be uncommercial.

Q. So, your proposed well should effectively drain the remaining portion of the east half of that section?

A. That is correct, yeah.

Q. Did you testify that the yellow-shaded acreage was all Phillips-owned?

A. That is correct.

Q. Do you know if that's entirely Phillips-owned?

A. It is entirely Phillips-owned.

Q. Is that state lease or federal lease, do you know?

A. It's all state lease.

Q. Within the portion of the reservoir you seek to penetrate with the No. 21 well, do you have any idea where the gas-water contact may be?

A. That's what we're trying to establish

and find out ourselves. We're basing that upon, each one of the wells, like the No. 1 well in Section 27, watered out; and so we're basing probably an approximate gas-water contact at approximately 8710. If we know that the structure at 8714 watered out, that's going to be our approximate gas-water contact.

Q. At the point where you're drilling the No. 21 well, what is the structural position there, approximately?

A. Let's see here now. Contrainterval is 25 feet, so it will be 8625. I don't have that here; but, if I can count back up, I think it's 8625.

Q. That's approximate?

A. Yeah.

EXAMINER CATANACH: I think that's all I have of the witness. You may be excused.

Is there anything further?

MR. KELLAHIN: No, sir. That concludes our presentation.

EXAMINER CATANACH: There being nothing further, Case 10857 will be taken under advisement.

(And the proceedings concluded.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10857 heard by me on November 1993.

David R. Catanach, Examiner
Oil Conservation Division

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 November 11, 1993.

CARLA DIANE RODRIGUEZ, RPR
CSR No. 4

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date NOVEMBER 4, 1993 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
William F. Carr	Campbell, Carr, Berge + Sheridan	Santa Fe
Randell Foord	Collins & WARE	Midland TX
Dorothy	Yates Pet. Corp	Artesia NM
Scott Balke	Phillips Pet.	Odessa, TX
Simon Gutberlet	Phillips Pet	Odessa, TX
Maurice Trimmer	Bygrave Co	SF
W. Kellahin	Kellahin & Kellahin	Santa Fe
Pinon McShort	Yates Pet	Artesia, NM
MIKE BOLLS.	ARMSTRONG Energy	ROSWELL
HARRY SQUIRES	Snyder Ranch	HOBBS
Tim Kelly	Geohydrology Assoc	Allmg.

NEW MEXICO OIL CONSERVATION COMMISSION

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