STATE OF NEW MEXICO
ENERGY, MINERAL AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION DIVISION FOR
THE PURPOSE OF CONSIDERING:

APPLICATION OF KAISER-FRANCIS OIL COMPANY FOR POOL CREATION AND SPECIAL POOL RULES, LEA COUNTY, NEW MEXICO

CASE NOS 15821-15822

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

September 14, 2017

SANTA FE, NEW MEXICO

BEFORE: WILLIAM V. JONES, CHIEF EXAMINER
DAVID K. BROOKS, LEGAL EXAMINER

This matter came on for hearing before the New Mexico Oil Conservation Division, William V. Jones, Chief Examiner, and David K. Brooks, Legal Examiner, on Thursday, September 14, 2017, 10:49 a.m., at the New Mexico Energy, Minerals and Natural Resources Department, Wendell Chino Building, 1220 South St. Francis Drive, Porter Hall, Room 102, Santa Fe, New Mexico

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EXAMINER JONES: Let's go back on the record and call Cases 15821 and 15822, which are both the Application of Kaiser-Francis Oil Company for a Pool Creation and Special Rules and Regulations for Lea County, New Mexico.

Call for appearances.

MR. BRUCE: Mr. Examiner, Jim Bruce, of Santa Fe, representing the applicant. I have three witnesses, who are the same people that testified in the prior cases.

EXAMINER JONES: So let the record show the witness have been sworn and also qualified.

BARBARA COURTNEY

having been previously sworn under oath,

was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Ms. Courtney, let's be really brief about this. First of all, what is Exhibit 1?

A. Exhibit 1 is a plat depicting the Bell Lake South Unit area.

Q. And does it give the legal description on page 2?

A. Yes, it does.

Q. And is Exhibit 2 simply the special pool rules

that are being sought for the Bone Spring and Wolfcamp formations in these two cases?

A. Yes.

Q. And are the setbacks and the allowables being sought the same as in the prior two cases?

A. Yes.

Q. And who what is Exhibit 3?

A. Exhibit 3 is a list of the working interest owners, royalty owners, overriding royalty interest owners, nonparticipating royalty owners, unleased mineral interest owners and offset operators in the Bell Lake South 9 Section area.

Q. And what is Exhibit 4?

A. Exhibit 4 is a plat showing the offset operators to the Bell Lake South Unit within a one-mile radius.

Q. And then again, these offsets are listed in Exhibit 3?

A. That's correct.

MR. BRUCE: Again Mr. Examiner, Exhibit 5 is my Affidavit of Notice. You can see there are even more interest owners in this one than in the prior one.

Again, you know, yesterday I got some more green cards. I just again would ask that these two cases be continued, and I will submit the complete

notice materials in two weeks' time. I just need to make sure that we published against the right people.

Q. (By Mr. Bruce) And again, you did the same examination of the records, Ms. Courtney, to find out the interest owners in the South Unit?

A. Yes.

Q. And you made a good-faith effort to locate everyone involved who might be affected by these applications?

A. Yes.

Q. Were Exhibits 1 through 4 prepared by you or under your supervision?

A. Yes.

Q. And in your opinion, is the granting of these two applications in the interest of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits 1 through 5.

EXAMINER JONES: Exhibits 1 through 5 are admitted.

MR. BRUCE: Did Mr. Hall make an appearance in these cases?

MR. BRUCE: Yes, he did make an appearance in this case. He told me he was leaving, but I would

request the record reflect that he made an appearance in these cases also.

EXAMINER JONES: So on behalf of Energen, he has made an appearance in Cases 15821 and 15822.

MR. BRUCE: I did call him a coward for not sticking around.

EXAMINER JONES: It got a little too long-winded for him.

MR. BRUCE: I have no further questions of this witness.

EXAMINER JONES: Mr. Brooks?

MR. BROOKS: This South Unit, you have a depth severance of 9,000 feet, did you say?

THE WITNESS: As to the working interest ownership, yes, sir.

MR. BROOKS: As to the working interest ownership. I'm not thinking very well today, but does that create any problems?

THE WITNESS: We don't believe so. There's only four working interest owners in the Bell Lake South, and we own 92 percent. So we have an owner that owns about 6, and then two 1 percent owners.

The wells that we are planning to drill right now are all basically below that 9,000 foot severance, and it's a hard number. It's not a

formation.

MR. BROOKS: Yeah, that's what I gathered. Are the interests of the people that own above 9,000, are they unitized under the unit agreement?

THE WITNESS: Yes, sir.

MR. BROOKS: So as long as everything remains in the unit, that doesn't make any difference?

THE WITNESS: That's correct.

MR. BROOKS: And if there were any areas that went out of the unit, then they wouldn't get any?

THE WITNESS: That's correct.

MR. BRUCE: And I will ask the geologist a question, but the area affected by that isn't the entire unit. It's a very small portion of the unit, based on structure.

MR. BROOKS: Okay.

Go ahead.

EXAMINER JONES: I don't have any questions.

THE WITNESS: Thank you.

CHRIS MILLER

having been previously duly sworn under oath, was questioned and testified as follows:

EXAMINATION

BY MR. BRUCE:

Q. First of all, was Exhibit 6 of nine pages prepared by you or under your supervision?

A. Yes, it was.

Q. And if you'll look at page 1, really the only difference, looking at the South Unit, is it does depict the initial mile-and-a-half well drilled in the subunit, correct?

A. Correct.

Q. All the geology that the cross-sections, the zones of interest, the isopachs, they're all more or less the same?

A. Very similar, yes.

Q. And is both the various zones within the Bone Spring and the Wolfcamp zones, are they continuous across the South Unit?

A. Yes, they are.

Q. Let's move on to your page 3 of Exhibit 6. Could you describe briefly the only horizontal well drilled to date?

A. Yes. This is just a cross-section representing

where the Kaiser-Francis Oil Company T63H was landed in the second Bone Spring sand, pretty much right in the center of the second Bone Spring interval.

As I stated earlier, we did drill a vertical pilot hole, which this cross-section does not depict. But if you envision a straight hole going down through the Wolfcamp, that's where our pilot hole would have been. We came up and just drilled this lateral for a mile and a half.

This well was completed at the end of last June, and it's been producing for approximately 76 days and has produced approximately 90,000 barrels of oil to date.

This is really the only -- this exhibit here is the only one I didn't have for the North Bell Lake because they're going to have a well on North Bell Lake. All the other exhibits, like you said, are very similar.

Q. And in the Bone Spring and Wolfcamp, you used an 8 percent cutoff in the isopachs?

A. Yes, I did.

Q. And there's no faulting that would prevent the drilling of horizontal wells in this area?

A. That's correct.

Q. Looking at page 4, your cross-section, would

you discuss that 9,000 foot cutoff, which is a depth cutoff, not a stratigraphic cutoff, correct?

A. It's a depth cutoff. So basically if you look at page 5, the structure map on top of the upper Avalon, that 9,000 foot -- and I really haven't calculated it exactly. But you see the structure really drops off to the east and the west from the middle, Section 6 and Section 31, so the highest part of that structure right in there is really the only region affected by that 9,000 foot depth limitation.

Q. And once again, that really has nothing to do with the pool rule because that's all part of the same Bone Spring formation?

A. Correct.

Q. And it's more -- if I may, it would just mean more work for Ms. Courtney for the four working interest owners to come along on the drilling of the Avalon well?

A. Yes, that's exactly right.

Q. And do you request that your geologic testimony from the prior cases be incorporated in the record of this case?

A. I would, yes.

Q. And in your opinion, is the granting of these applications in the interest of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibit 6.

EXAMINER JONES: Exhibit 6 is admitted.

MR. BRUCE: I have no further questions of the witness.

EXAMINER JONES: Mr. Miller, the exhibit -- oh, okay. I just saw that Exhibit 6, page 3, shows the subsea depths. But if you add the elevation as what, 4,500 feet or --

THE WITNESS: 4,000-ish, give or take, 35- to 4,000.

EXAMINER JONES: So it's way up in the upper Avalon?

THE WITNESS: It would be in the upper Avalon only, yes.

EXAMINER JONES: All your previous geologic testimony in the previous two cases apply to this?

THE WITNESS: Yes, they do.

EXAMINER JONES: That well that you drilled, you drilled it starting over in Section 6, and you angled it over into 5 and 32, it looks like.

Then you drilled a pilot hole directly below in Section 6; is that correct?

THE WITNESS: Well actually, the pilot hole

-- you noticed yourself how the surface location is in 6, and then the well path for the lateral kind of curves out and reaches into Section 5. So that distance going into 5 for our lateral, we were going to have to do that for sure.

So what they did was they maintained -- like they were going to drill the lateral. They just kind of kept going at a slight angle, so it's deviated slightly. So the bottom local is in Section 5, the pilot.

EXAMINER JONES: How deep did you drill it?

THE WITNESS: 12,000 feet.

EXAMINER JONES: Was that through the Wolfcamp?

THE WITNESS: Yes.

EXAMINER JONES: On into the Strawn a little bit?

THE WITNESS: Very close to the Strawn.

EXAMINER JONES: You said you cored it and logged it. You did sidewalls?

THE WITNESS: Yep.

EXAMINER JONES: You logged it and then picked your sidewall depths to take --

THE WITNESS: Correct. We pretty much picked the sidewall cores off the triple combo log

because --

EXAMINER JONES: And the DFIT --

THE WITNESS: -- most of the other logs nowadays, I'm sure you're aware, are computed logs that take a few weeks to get back.

EXAMINER JONES: Oh, yeah. Okay.

THE WITNESS: But you get your gamma ray density neutron right there on location and resistivity, obviously.

EXAMINER JONES: What was your prime purpose of doing the sidewalls?

THE WITNESS: Mainly for reservoir evaluation.

EXAMINER JONES: Is that to tune your logs with your core porosity -- your porosity from your logs with the core porosity?

THE WITNESS: Yes, and you know, use that permeability and all that for reservoir simulation, like Mike talked about.

EXAMINER JONES: Is there a relationship between your porosity and permeability out here?

THE WITNESS: I don't know yet.

EXAMINER JONES: Okay. It's not like a sandstone, where you can almost draw it out?

THE WITNESS: Yeah. It's very tight rock,

very low perm. So the fracs really make the biggest difference, so that kind of messes your relationship up. The bigger the frac, the better your production. So artificially increasing your perm helps.

EXAMINER JONES: Okay. So pretty much you can say it's dominated the flows. Fracture-dominated flow and your matrix contributes, but it's -- well, you're on a structural high here, though, so you should have some sort of concentration.

Does that mean that when you're off of this high, that you're into water, or does that mean that --

THE WITNESS: No.

EXAMINER JONES: -- saturation gets higher in water or anything?

THE WITNESS: The water saturation, as I have mapped it, increases off structure. But you know, all of this production is down-dipped to us in the same horizon.

EXAMINER JONES: Okay.

THE WITNESS: So they might -- even though they might have slightly higher water saturation, but it's not apparent really.

EXAMINER JONES: Yeah.

THE WITNESS: We were hoping actually, since we are on structure, to get more natural

fracturing, but we didn't see any natural fracturing on the structure.

EXAMINER JONES: Oh, you didn't?

THE WITNESS: No, we did not.

EXAMINER JONES: On your mud log or --

THE WITNESS: We ran an FMI imaging tool.

EXAMINER JONES: On your pilot hole?

THE WITNESS: Yes.

EXAMINER JONES: So you didn't see -- what about on your lateral; did you notice any big breaks or anything?

THE WITNESS: No, we didn't.

EXAMINER JONES: It sounds like the well is a pretty good well?

THE WITNESS: We're happy with the well, yes, we are. As Mike said, we could have gotten more aggressive with the frac size, but it's our first well. We wanted to be as safe as possible, so we're happy with it.

EXAMINER JONES: Okay. Then that DFIT that you ran, you got the little pressure points up the hole in that?

THE WITNESS: Yeah. I wish I could talk more about that, but I can't.

EXAMINER JONES: Somebody's eyes lit up

back in the back here.

Thank you very much.

THE WITNESS: You're welcome.

MR. BROOKS: Could you say again what you said about the 9,000 foot depth severance?

THE WITNESS: Yeah. It only comes into play in the -- I think really the north half of 6, maybe in Section 31 where the upper Avalon interval -- if you'll look at page 2, it would only affect the upper Avalon interval in that small area.

MR. BROOKS: So the reason it --

THE WITNESS: Everything else drops structurally away.

MR. BROOKS: Everything else that you're interested -- all your other target areas are below the 9,000-foot-depth severance except in that small area?

THE WITNESS: Right.

MR. BROOKS: But the definition of the pool will be broader than that, right? It will go from the top of the Bone Spring?

THE WITNESS: That's correct.

MR. BROOKS: It doesn't -- well, first of all, the unit operating -- and maybe the land witness is the appropriate person to ask. All of these working interest owners above and below that level are parties

to the Unit Operating Agreement?

MS. COURTNEY: Yes, sir.

MR. BROOKS: And the Unit Operating Agreement covers all depths within the Bone Spring?

MS. COURTNEY: It covers all depths.

MR. BROOKS: And of course, does the unit -- what happens to the Unit Operating Agreement if any acreage is contracted out of the unit?

MS. COURTNEY: Well, the whole 18 sections is a Devonian participating area, and it's held.

MR. BROOKS: So the leases are held?

MS. COURTNEY: Yes, sir, all of them.

MR. BROOKS: So are you telling me then that the operating agreement continues to control the division of interest between the working interest owners, regardless of what pool it's in?

MS. COURTNEY: Yes.

MR. BROOKS: Okay, thank you.

MIKE RAINES

having been previously sworn under oath, was questioned and testified as follows:

EXAMINATION

BY MR. BRUCE:

Q. Mr. Raines, is your Exhibit 7 in these two cases, other than the South Bell Lake versus North Bell

Lake, identical to the Exhibit 7 that was presented in the prior cases?

A. Yes, it is.

Q. And would you ask that your testimony from the prior cases be incorporated in these two cases?

A. Yes, I would.

Q. And was Exhibit 7 prepared by you or under your supervision?

A. Yes, it was.

Q. And in your opinion, is the granting of these two applications in the interest of conservation and the prevention of waste?

A. Yes.

MR. BRUCE: Mr. Examiner, I'd move the admission of Exhibit 7.

EXAMINER JONES: Exhibit 7 is admitted, and we'll incorporate the engineering testimony and geologic testimony of Cases 15823 and 15824 into these two cases.

What did you find out on that DFIT testing; do the tools work?

THE WITNESS: Well, in our DFIT test it was a surface-measured pressure test, and the DFIT was run on the initial injection for the very first stage frac. And we ran this about a month before we actually moved in to do the big frac job so that we could get an

initial permeability measurement, an initial fracture closure pressure and an initial injection pressure and a breakdown pressure so that we could then take those back and do a more detailed and final fracture design for the well.

EXAMINER JONES: Okay. Do you get in on the fracture design, or is --

THE WITNESS: Yes, I do.

EXAMINER JONES: Well, you Kaiser-Francis people are kind of well-rounded. You seem to do --

THE WITNESS: We try to. But we have a completion engineering team who's primarily responsible for putting that frac together, the horse power, the field operations.

EXAMINER JONES: They bid it out?

THE WITNESS: They do. But since a lot of the fracturing design has to do with the reservoir component, then we share responsibilities. We come together as a team and do a design that everyone is happy with.

EXAMINER JONES: Okay, wow. So you've got to look at some of the sidewall core conventional analysis?

THE WITNESS: Yes, the analysis is still underway.

EXAMINER JONES: Okay.

THE WITNESS: But Chris and I worked together to pick the points, and then we had 50 points that we selected. We recovered 46 in total and sent those to the Schlumberger core lab. They're still cranking, through, and testing work should be completed in November sometime. But we do have a lot of the results back.

EXAMINER JONES: Okay. So did you use standard relative permeability curves out here, or you actually got them from --

THE WITNESS: For the reservoir simulation work?

EXAMINER JONES: Yeah, the simulation.

THE WITNESS: No, not standard. What we did is we developed our own relative permeability curves that allowed us to match the production for offset wells.

EXAMINER JONES: Okay.

THE WITNESS: The first stage in that reservoir simulation process was to attempt to calibrate the simulator. Since we only have 90 days of production data available, we can't do a long-term calibration. So we took several groupings of offset wells and actually simulated those from initial to current production to

try to dial in the calibration. In that process, we arrived at a series of relative permeability curves that allowed us to match the oil, gas and water production evolution.

EXAMINER JONES: Okay. As far as running your economics, you use Aries or Roger or one of the in-house models that you guys use?

THE WITNESS: We use two different things. One package that we use is an IHS package, and that allows us to develop economics quickly for wells that have decline curves already.

EXAMINER JONES: Okay.

THE WITNESS: You can pick a decline curve, set your economic parameters and calculate the economics. We also use Excel because it's not a complicated calculation. Once you have the oil and gas production and your estimate of oil and gas prices versus time and your lease operating expenses, then it's just a discounted cash flow calculation. It's simple to do.

EXAMINER JONES: Okay. I wish I could ask you more questions, but we better keep rolling here. Thank you very much. Thank all of you for coming.

We'll take Cases 15821 and 822 and continue them to September the 28th.

[The proceedings concluded at 11:14 a.m.]

STATE OF NEW MEXICO.

COUNTY OF BERNALILLO

CERTIFICATE OF COURT REPORTER

I, DEBRA ANN FRIETZE, Certified Court Reporter, New Mexico Certified Court Reporter No. 251, do hereby certify that I reported the foregoing proceedings in stenographic shorthand and that the foregoing pages are a true and correct transcript of those proceedings that were reduced to printed form by me to the best of my ability.

I FURTHER CERTIFY that the Reporter's Record of the proceedings truly and accurately reflects the exhibits, if any, offered by the respective parties.

I FURTHER CERTIFY that I am neither employed by nor related to any of the parties or attorneys in this case and that I have no interest in the final disposition of this case.

DEBRA ANN FRIETZE.
Certified Court Reporter
New Mexico CCR No. 251
Date of CCR Expiration: 12/31/2017