STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

APPLICATION OF CHISHOLM ENERGY OPERATING, LLC FOR A NONSTANDARD SPACING AND PRORATION UNIT AND COMPULSORY POOLING, LEA COUNTY, NEW MEXICO.	CASE NOs. 15865, 15866, 15867, 15868
	Consolidated with
APPLICATION OF GREAT WESTERN DRILLING, LTD. FOR A NONSTANDARD OIL SPACING AND PRORATION UNIT AND COMPULSORY POOLING, LEA COUNTY, NEW MEXICO.	CASE NOs. 15875, 15876

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

December 13, 2017

Santa Fe, New Mexico

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

This matter came on for hearing before the New Mexico Oil Conservation Division, Michael McMillan, Chief Examiner, William V. Jones, Technical Examiner, and David K. Brooks, Legal Examiner, on Wednesday, December 13, 2017, 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.

REPORTED BY: Mary C. Hankins, CCR, RPR
New Mexico CCR #20
Paul Baca Professional Court Reporters
500 4th Street, Northwest, Suite 105
Albuquerque, New Mexico 87102

APPEARANCES

FOR APPLICANT CHISHOLM ENERGY OPERATING, LLC:

ADAM G. RANKIN, ESQ.
JORDAN L. KESSLER, ESQ.
HOLLAND & HART, LLP
110 North Guadalupe, Suite 1
Santa Fe, New Mexico 87501
(505) 988-4421
agrankin@hollandhart.com
jlkessler@hollandhart.com

FOR APPLICANTS GREAT WESTERN DRILLING, LTD. AND ADVANCE ENERGY PARTNERS:

J. SCOTT HALL, ESQ.
SETH C. McMILLAN, ESQ.
MONTGOMERY & ANDREWS LAW FIRM
325 Paseo de Peralta
Santa Fe, New Mexico 87501
(505) 982-3873
smcmillan@montand.com
shall@montand.com

FOR INTERESTED PARTY MEWBOURNE OIL COMPANY:

JAMES G. BRUCE, ESQ.
Post Office Box 1056
Santa Fe, New Mexico 87504
(505) 982-2043
jamesbruc@aol.com

FOR INTERESTED PARTIES TIM S. CASHON AND MARK STANGER/ ALLENCREST NM I, LLC (Overriding Royalty Interest Owners):

TIM S. CASHON
4239 Bowser Avenue
Dallas, Texas 75219

MARK STANGER
5151 Beltline Road, Suite 360
Dallas, Texas 75254

INDEX

INDEX (Cont'd)

INDEX (Cont'd)

EXHIBITS OFFERED AND ADMITTED

(9:06 a.m.)

EXAMINER McMILLAN: Good morning. My name is Michael McMillan. I would like to call the hearing to order. Today's date is December 13th, 2017. This is Docket 44-17. Today we will be hearing six cases.

What I'd like to do at this point is just to inform everyone to please look at the court reporter when you answer the questions.

What I'd like to do now is call Cases 15865, 15866, 15867, 15868, 15875 and 15876.

Are these cases going to be combined at this point?

MR. HALL: Yes.

MS. KESSLER: Yes.

EXAMINER McMILLAN: Okay. With that mind, I'm just going to go through the case numbers. Case Number 15865, application of Chisholm Energy Operating, LLC for a nonstandard spacing and proration unit and compulsory pooling, Lea County, New Mexico. This will be combined with Case Number 15866, application of Chisholm Energy Operating, LLC for a nonstandard spacing and proration unit and compulsory pooling, Lea County, New Mexico; Case Number 15867, application of Chisolm Energy Operating, LLC for a nonstandard spacing and proration unit and compulsory pooling, Lea County, New

Mexico. This will be combined with Case Number 15868, application of Chisholm Energy Operating, LLC for a nonstandard spacing and proration unit and compulsory pooling. This will be combined with Case Number 15875, application of Great Western Drilling Limited for a nonstandard oil spacing and proration unit and compulsory pooling, Lea County, New Mexico. Lastly, this will be combined with Case Number 15876, application of Great Western Drilling Limited for a nonstandard oil spacing and proration unit and compulsory pooling, Lea County, New Mexico.

Call for appearances.

MS. KESSLER: Mr. Examiners, Jordan Kessler and Adam Rankin on behalf of the Applicant, Chisholm Energy.

EXAMINER McMILLAN: Any other appearances?

MR. HALL: Mr. Examiner, Scott Hall and Seth McMillan, Montgomery & Andrews Law Firm, Santa Fe, appearing on behalf of Great Western Drilling Limited and for Advance Energy Partners, LLC.

EXAMINER McMILLAN: Any other appearances?

MR. BRUCE: Mr. Examiner, Jim Bruce of Santa Fe, representing Mewbourne Oil Company.

EXAMINER McMILLAN: Okay. At this time the witnesses would please stand up and be sworn in.

(All witnesses sworn.)

MR. CASHON: Two more appearances here. My name is Tim Cashon, representing myself.

MR. STANGER: And Mark Stanger. I represent Allencrest NM I, LLC. We're an overriding royalty interest owner in the south half of 320, Section 34.

MR. HALL: I thought he was your attorney.

MR. BRUCE: Flipped.

MR. FRANCIS: Bill Francis, F-R-A-N-C-I-S.

MR. HULING: James Huling, H-U-L-I-N-G.

MR. SHELTON: Luke Shelton.

MR. BURKE: Brad Burke, B-U-R-K E.

MR. HARWELL: David Harwell.

MR. MUIRE: Carter Muire, M-U-I-R-E.

MR. WILLIAMSON: Terry Williamson.

MR. SCOTT: David Scott. And it's Advance, without the D on the end.

MR. HALL: Mr. Hearing Examiner, where would you like the witnesses to sit?

EXAMINER McMILLAN: The witnesses will sit next to Jordan.

Please proceed.

MS. KESSLER: Thank you. I'd like to make an opening statement, if I may, Mr. Examiner.

EXAMINER McMILLAN: Okay.

OPENING STATEMENT

MS. KESSLER: As you are aware, this is a competing operatorship in Section 34 case, and when there are competing operatorship cases, the Division and Commission look to Commission Order R10731-B, which has been cited in a number of recent Division and Commission cases for Commission -- for contested operatorship cases.

The factors of the Division and Commission review are primary geology. That's the first factor. The second factor is percent control of the working interest by a given party. Then the Division looks at timing of proposal, cost of proposal, and the operator's history in the area.

The evidence today, Mr. Examiners, will show that the working interest is controlled by Chisholm. 56.25 percent interest in Section 34 is controlled by Chisholm. Chisholm's plan is for full development of Section 34. So there are four wells that are in front of you today, four pooling applications in front of you today for each spacing unit. What Chisolm plans to do in the future is develop the section of eight wells in the Bone Spring. So full development, which will prevent waste and, again, shows Chisholm's

commitment to drilling the section.

I'd like to contrast that to Great Western's plan, which is to put two wells in the section -- one east half-east half and west half-west half.

The timeline here is that Chisholm proposed these wells in June, negotiated for over six months with various parties in the spacing unit. With the interest owners, they obtained permits. Great Western knew about Chisholm's plans for June, July, August, September, and in October, they submitted well-proposal letters, and that was only after Chisholm had filed pooling applications in Section 34.

Chisholm's AFEs are substantially less expensive to the tune of approximately, I believe, it's $1.9 million for AFEs.

And finally, it's a little bit unclear what's going on here with Great Western's plans, whether Advance or Great Western will be drilling the wells. We know now that Mewbourne will not be drilling the wells, whose proposals and AFEs are in front of the Division.

But this much is clear, Chisholm has four applications, has three rigs going in New Mexico, and is ready to drill and be done with Section 34. They're committed to operating and have great results in other

areas, including in New Mexico.

And just to recap, you know, we're looking at the factors: Chisholm has a higher working interest percentage, they plan full-section development for prevention of waste on the development of the resources, they were the first to properly propose and diligently prosecute this drilling plan, and they have cheaper AFEs and wells drilled in New Mexico. All of the factors here favor Chisholm.

So we would request that you would grant Chisholm's applications and deny Great Western's and Advance's application.

MR. HALL: I'll waive any opening.

EXAMINER McMILLAN: Jim?

MR. BRUCE: I have no opening.

EXAMINER McMILLAN: Any others?

MR. CASHON: We'll wait.

MS. KESSLER: May we call our first witness?

EXAMINER McMILLAN: Yes. Please proceed.

LUKE SHELTON,

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

DIRECT EXAMINATION

BY MS. KESSLER:

Q. Can you please state your name for the record, and tell the Examiners by whom you're employed and in what capacity?

A. Luke Shelton, Chisholm Energy, senior landman.

Q. Have you previously testified before the Division?

A. No.

Q. Can you please review your educational background?

A. I graduated from TCU in 2006 with a Bachelor's of Science in Criminal Justice. I worked five years as a contractor on the Barnett Shale as an independent landman. Then I've worked two years contract in-house at Range Resources working on Barnett Shale and the Marcellus Shale from 2013 to 2017. I was employed with Range Resources as a senior landman with a focus on the Marcellus Shale, Utica Shale and Powder River Basin in Wyoming, and then in June of 2017, with Chisholm.

Q. Do your current responsibilities include the Permian Basin?

A. Yes.

Q. And are you a member of any professional associations?

A. The AAPL and the Fort Worth APL.

Q. Are you familiar with the applications that have been filled in these consolidated cases?

A. Yes.

Q. And are you familiar with the status of the lands in the subject area?

A. Yes.

MS. KESSLER: Mr. Examiners, I would tender Mr. Shelton as an expert in petroleum land matters.

EXAMINER McMILLAN: Any objections?

MR. HALL: No objection.

MR. BRUCE: No, sir.

MR. CASHON: No.

MR. STANGER: None.

EXAMINER McMILLAN: He is so qualified.

Q. (BY MS. KESSLER) Mr. Shelton, please turn to Exhibit 1. Is this a plat showing the area of Chisholm's interest in the wells drilled?

A. Yes, it is.

Q. Approximately how many wells are either drilled or drilling in New Mexico?

A. Fifteen wells drilled and three drilling.

Q. And Chisholm has three rigs in New Mexico; is that correct?

A. That's correct.

Q. What is Chisholm's development plan for Section 34?

A. Full-section development. We'd like to form four 160-acre spacing units with eventually two wells per spacing unit.

Q. And the full-section development is shown on the second and third pages of Exhibit 1, correct?

A. Correct.

Q. This is just showing that there are four planned wells in the 2nd Bone Spring and four planned wells in the Lower 3rd Bone Spring?

A. Yes.

Q. Okay. Please explain what Chisholm seeks today with these consolidated applications.

A. To form four nonstandard spacing units, to pool the Bone Spring Formation, and for one initial well per spacing unit, two in the 2nd Bone Spring and two in the 3rd Bone Spring.

Q. Let's turn to Exhibit 2. Does Exhibit 2 contain four approved C-102s for each of the proposed wells?

A. Yes.

Q. Could you please review the spacing unit for the Grama Ridge East 34 3BS No. 2H well?

A. West half-west half, Section 34.

Q. That would be in Township 21 South, Range 34 East in Lea County, correct?

A. Correct.

Q. Does this have an API number assigned to it?

A. Yes, 30-025-43825.

Q. Turning to the second page, can you please identify the spacing unit for the Grama Ridge 34 3BS No. 3H well?

A. It's east half-west half Section 34, 21 South, 34 East.

Q. And this will be a 3rd Bone Spring well?

A. Yes.

Q. This also has an API number that's been assigned to it?

A. 30-025-43826.

Q. All right. Turning to the third page, is this the approved C-102 for the Grama Ridge East 34 State 2BS No. 8H well?

A. Yes.

Q. What are the spacing units?

A. West half-east half, Section 34, 21 South, 34 East.

Q. This will be a 2nd Bone Spring well?

A. Yes.

Q. And it has an API number assigned to it?

A. 30-025-43823.

Q. All right. And finally looking at page 4 of Exhibit 2, is this an approved C-102 for the Grama Ridge East 34 State 2BS No. 9H well?

A. Yes.

Q. What is the spacing unit?

A. East half-east half, 34, Township 21, Range 34 East -- 21 South, 34 East. Sorry.

Q. And this is a 2nd Bone Spring well?

A. Yes.

Q. And it has an API number assigned to it?

A. 30-025-43824.

Q. Has the Division identified a pool and pool code covering Section 34?

A. Yes. It's the Grama Ridge Bone Spring, Northeast, Pool Code 28435.

Q. Is that pooling governed by Division statewide rules?

A. Yes.

Q. Will each of the four completed intervals comply with the 330-foot setback requirements?

A. Yes.

Q. And what type of land is Section 34?

A. State.

Q. Are there any depth severances in the Bone

Spring Pool?

A. No.

Q. Are there pads built for these wells?

A. Yes.

Q. How many pads have you built?

A. Two pads.

Q. And is there a surface agreement in place?

A. Yes.

Q. Let's look now at Exhibit 3. Is this a lease tract map showing Chisholm's interest and the parties that you seek to pool?

A. Yes.

Q. Now I'd like to turn to the second page of this exhibit. Looking at the second and third, is there a unit recap for each of the four spacing units?

A. Yes.

Q. And if we can review these interests, it looks like Chisholm owns 37.5 percent working interest, correct?

A. In the south half you mean --

Q. I'm sorry. Yeah. They own approximately what?

A. -- 39.

Q. 39.827 percent in the total spacing unit?

A. Yes.

Q. Okay. And Continental Land & Fur owns

approximately 16 percent?

A. Yes.

Q. Timothy R. MacDonald owns .015 percent?

A. Yes.

Q. And Great Western owns 43.75 percent?

A. Yes.

Q. Are all of these interests committed, except for Great Western Drilling?

A. Yes.

Q. Have CL&F -- I'm sorry -- Continental Land & Fur and Timothy R. MacDonald signed operating agreements?

A. They have.

Q. And does CL&F -- have they -- have they created a letter supporting Chisholm's plan of development in their applications?

A. Yes, they have.

Q. So the committed interest total is 56.25 percent; is that correct?

A. That's correct.

Q. And that represents the interests signed on to the plan, as well as Chisholm's interest?

A. Yes.

Q. Summing up, Chisholm controls 56.25 percent of the section and Great Western controls 43.75 percent; is

that correct?

A. That's correct.

Q. Okay. Turning to Exhibit 4, is this a letter from a Continental Land & Fur stating that they support Chisholm's drilling plan for this section?

A. Yes.

Q. And, once again, they assigned the AFE and signed the operating agreement with Chisholm?

A. That's correct.

Q. Was that after a technical review of data provided by Chisholm's technical team?

A. Yes.

Q. Is Exhibit 5 a copy of each of the four well-proposal letters that you sent for the four wells?

A. Yes.

Q. Now, this well-proposal letter is to Continental Land & Fur, but an identical letter was sent to Great Western; is that correct?

A. That's correct.

Q. What date was this letter sent?

A. July 26th.

Q. Did each of the letters include an AFE?

A. Yes.

Q. Did you also transmit technical data for review?

A. Yes.

Q. It's not included on this letter, but was it sent to all of the parties that you were attempting to reach an agreement with?

A. Yes.

Q. Did it include a geologic memorandum as well as a net pay map?

A. Yes.

Q. Is Exhibit 6 a copy of each of the AFEs sent for the 2H, 3H, 8H and 9H wells?

A. Yes.

Q. Can you please identify the total costs of each of these wells?

A. Okay. The 2H is 5,119,221. The 3H is 4,254,311. The 8H is 4,146,651. The 9H is 4,146,651.

Q. The 2H well includes a pilot hole; is that correct?

A. That's correct.

Q. And you've brought an engineer who will review the specific costs?

A. That's correct.

Q. Are the costs on these AFEs consistent with what Chisholm has incurred for drilling similar horizontal wells in the area?

A. Yes.

Q. What are your proposed overhead and drilling costs?

A. 7,500; 750.

Q. Per well?

A. Yes.

Q. Are those overhead rates consistent with what other operators in the area charge for similar wells?

A. Yes.

Q. Do you ask that those costs be incorporated into any order resulting from this hearing?

A. Yes.

Q. Do you ask that the costs be adjusted in accordance with COPAS accounting procedures?

A. Yes.

Q. When did Chisholm propose their plan?

A. In July.

Q. And when did Great Western send well-proposal letters?

A. Um.

Q. Would October 3rd sound familiar?

A. That sounds right, yes.

Q. And that would be after Chisholm had negotiated for approximately four months with various parties; is that correct?

A. Yes.

Q. Is that also after Chisholm had filed for compulsory pooling?

A. Yes.

Q. Is Exhibit 7 a correspondence log between Chisholm and Great Western?

A. Yes.

Q. In addition to sending well-proposal letters to Great Western, what other efforts did you undertake to reach an agreement with them?

A. Offered an operating agreement and then a modified operating agreement. We offered to purchase their interest.

Q. Okay. Did you make multiple offers, in fact, to purchase their interest?

A. Yes.

Q. What were Great Western's concerns with Chisholm?

A. They were concerned about the number of wells that were proposed. They were -- another concern was they were familiar with Chisholm as an operator. They didn't like the 2nd Bone Spring Formation, and they wanted more money.

Q. Can you please explain how you arrived at the amount per acre of money that you offered Great Western?

A. Yes. We used a comp from a December 2016

estate sale with Section 16 in the Township. Mewbourne purchased 160 acres for $7,000 per acre.

Q. So similar size tract within the same township in December of 2016.

A. Yes.

Q. And remind me, you proposed these wells in July of 2017; is that correct?

A. That's correct.

Q. Did you offer -- in response to Great Western's concerns about eight wells, did you offer to drill only four wells?

A. Yes.

Q. And that was to alleviate their concern?

A. Yes.

Q. And then there would be -- sorry -- four wells in 2017, 2018, and then four wells in 2019?

A. Correct.

Q. Did you also offer to set up a technical meeting to review the geology, as well as sending over a geologic memo detailing the 2nd Bone Spring?

A. Yes.

Q. And it outlined Chisholm's geosteering plans and was also for the purpose of getting familiar with Chisholm's reputation?

A. That's correct.

Q. Finally, did you offer them more money?

A. Yes.

Q. At any point did Great Western make a counteroffer?

A. No.

Q. Most recently, did Great Western ask to swap out of Section 34 -- I'm sorry -- out of the east half of Section 34?

A. Yes. It was "choose your half" swap, yes.

Q. Okay. So Chisholm would operate one-half of the section and Great Western would operate another half on the section?

A. That's correct.

Q. Okay. Why did -- what did Chisholm say?

A. We said no. We didn't want conflict in development. We thought we'd save costs with facility sharing on the surface. We thought we'd have better, more efficient spacing within the section. We already had a surface-use agreement in place throughout the entirety of the section and we had both pads built.

Q. Primarily for technical reasons you said though; is that correct?

A. Yes.

Q. And will there be technical witnesses to address various of these concerns?

A. Yes.

Q. And now it appears that Great Western has sold to Advance; is that correct?

A. Yes.

Q. When did you learn about that?

A. Getting onto the airplane on Monday.

Q. In your opinion, have you made a good-faith effort to reach an agreement with Great Western?

A. Yes.

Q. You offered them a variety of the deals but were simply unable to reach an agreement?

A. Yes.

Q. With respect to the uncommitted interest owner, whether it be Great Western or Advance, do you request the Division impose 200 percent risk penalty?

A. Yes.

Q. Were the parties that you seek to pooling Great Western locatable? Did you have a functional address for them?

A. Yes.

Q. And did you identify offset operators or lessees of record in the 40-acre tract surrounding the proposed nonstandard spacing units?

A. Yes.

Q. Were they included in notice of this hearing?

A. Yes.

Q. Is Exhibit 8 an affidavit prepared by my office with attached letters providing notice of the hearing to the parties that you seek to pool, as well as the offsets?

A. Yes.

MS. KESSLER: And, Mr. Examiner, this includes notice of the original application and the amended -- the two amended applications.

Q. (BY MS. KESSLER) Does Exhibit 9 include affidavits of publication for each of these cases?

A. Yes.

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

A. Yes.

MS. KESSLER: Mr. Examiner, I'd move admission of Exhibits 1 through 9, which include affidavits.

MR. HALL: And we have no objection.

EXAMINER McMILLAN: Jim?

MR. BRUCE: No questions.

MR. CASHON: No questions.

MR. STANGER: No questions.

EXAMINER McMILLAN: Okay. Exhibits 1 through 9 may now be accepted as part of the record.

(Chisholm Energy Exhibit Numbers 1 through 9 are offered and admitted into evidence.)

MR. HALL: May I?

EXAMINER McMILLAN: Please proceed.

CROSS-EXAMINATION

BY MR. HALL:

Q. Mr. Shelton, do I understand correctly that a lot of the personnel in Chisholm came over from Range Resources?

A. Yes.

Q. I think that you explained most of your experience and background is in the Barnett-Marcellus, Utica?

A. My experience, yes.

Q. And how many wells in New Mexico have you been involved in the drilling of?

A. The 15 and the current three.

Q. Okay. Okay. Do the wells that Chisholm proposes here differ significantly from the company's experience and practice in the Barnett-Marcellus?

A. I don't think I'm even fit to answer that question. I'd defer it to engineering.

Q. Okay. You don't know that.

Did the completions that were proposed here and shown on your AFE, were they influenced by the

company's experience in Barnett and Marcellus?

A. Again, I'd defer to engineering.

Q. Okay. In fact, Chisholm has eight wells permitted on this acreage, correct?

A. Correct.

Q. Let me ask you about your well-proposal letter. Exhibit 5, for example, is fine. We can look at that one.

A. Uh-huh.

Q. First of all, you propose the wells be drilled under a modified 1989 AAPL form of agreement. It is not included with your exhibit, correct?

A. Correct.

Q. Tell me, you have one or more parties under your JOA under the contract acreage?

A. Yes.

Q. Could you explain how your drilling commitment will work for the eight wells under your JOA?

A. Yes. It's basically four wells are drilled in a one-year period that's -- there must be a one-year delay prior to the completion of the fourth well.

Q. So what are your actual plans?

A. I'm sorry. I said "prior to completion." I mean after completion.

Q. I see. I see.

A. Our current plans are to drill our four this year and then wait for one year and then drill the other four in 2019.

Q. Okay. I'm sure you meant drill in 2018?

A. Yes.

Q. Okay. Let me ask you about some of the provisions in the JOA you circulated. First, if you'll look at your transmittal letter for that -- I'm looking at Exhibit 5, the July 26, 2017, proposal for the 3BS 2H -- and it proposes overhead and supervision rates of $10,000 and $1,000.

A. Yes.

Q. How did you derive those rates?

A. That would be a question for accounting.

Q. Okay. But you are not asking for those overhead rates at this proceeding, correct?

A. Correct.

Q. And you have indicated that you have two surface locations already built; is that right?

A. Yes.

Q. And one is in the north. The other in the south; is that correct?

A. I believe that's correct.

Q. And why are the wells oriented that way?

A. That's -- I defer to technical on that, okay?

Q. If a party signs your JOA and goes nonconsent on a well, will you still give it well data?

A. I don't recall.

Q. For eight perspective wells on the section, what arrangements are in place for water disposal?

A. That would be a question for technical, engineering.

Q. Okay. Can you tell us anything about the existing infrastructure out there?

A. Again, I would defer to engineering.

Q. Refer to your Exhibit 3. Who is Eau Rouge?

A. Eau Rouge was an entity that Nearburg had -- it was another entity of Nearburg that we had acquired.

Q. All right. So Eau Rouge was an owner in this acreage?

A. Yes.

Q. And is the Eau Rouge interest consolidated with what you're showing for Chisholm on this exhibit?

A. Yes, and it has been filed of record.

Q. Okay.

MR. HALL: That's all I have, Mr. Examiner.

MR. BRUCE: No questions.

MR. CASHON: No questions.

MR. STANGER: No questions.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. All right. My first question is: You said you're going to drill four wells in 2018?

A. That is correct.

Q. Are those going to be the wells that are the subject of this hearing?

A. That's correct.

Q. Okay. And for clarity purposes, there were no unlocatable interests, right?

A. Correct.

Q. Now, on your -- which one is on your -- on your AFE, how were the -- how were the title opinions? Were the title opinions included in here?

A. Engineering put together the AFE, so I defer to them.

CROSS-EXAMINATION

BY EXAMINER BROOKS:

Q. I'm sorry. I have forgotten your name already.

A. It's Luke Shelton.

Q. Mr. Shelton, I usually forget names. It's not special for you.

A. That's okay.

Q. First of all, you said your background was -- your education was in criminal justice and then you went

into oil and gas land. You know, some of us have suspected some connection between those two fields --

A. (Laughter.)

Q. -- that sequence --

Okay. I am guessing from these numbers that you have in the well names that the No. 2 and No. 3 wells are 3rd Bone Spring and the No 8 and No. 9 wells are 2nd Bone Spring; is that correct?

A. That's correct.

Q. Okay. The No. 2 and No. 3 are both in the west half?

A. Yes, sir.

Q. And the No. 3 -- No. 8 and No. 9 are in the east half?

A. Yes, sir.

Q. Okay. You've also affirmed that a 2nd Bone Spring and 3rd Bone Spring wells in each of the units?

A. Yes.

Q. Okay. What is the spacing in this section, the Grama Ridge? All of those wells are in the Grama Ridge Bone pooling?

A. Yes.

Q. What is the spacing?

A. 160 acres.

Q. Well, you're asking for 160 acres, but what is

the standard spacing unit in that pool? Is that 40 acres?

A. Yes, I believe so.

Q. Okay. What type of land is it - federal? state?

A. It's state.

Q. It's all state?

A. Yes, sir.

Q. The whole section?

A. Yes, sir.

Q. Is it one state lease?

A. I believe it's two.

Q. And do you know how that's divided, one of them east half and one of them west?

A. One of them north half and the other south half.

Q. So you're going to have a communitization agreement?

A. Yes.

Q. But you usually don't do those until you drill a well?

A. Yes.

Q. Okay. Are there any overrides? You don't list any in your exhibits.

A. Yes.

Q. Okay. And you take the position, I take it, since you don't list them, that the overrides are pooled by virtue of what?

A. Pooled by virtue of what?

Q. Well, state leases do not have pooling clauses.

A. Yes.

Q. So are there pooling provisions in the assignments to the overrides?

A. They'd be likely ratification of the com.

Q. Well, yeah, but override ratification of the com is not required by the State Land Office, as I understand it.

A. Uh-huh.

Q. In practice it's not anyway?

A. Right.

Q. Okay. But you didn't think it was necessary to notice the overrides of hearing proceeding?

A. No, sir.

Q. Now, you gave notice to -- did you ever have a joinder from -- from Continental Land & Fur?

A. Yes.

Q. And you gave notice to Timothy R. MacDonald?

A. Yes.

Q. Now, let's see. Is Mr. -- are you here representing Mr. MacDonald?

MR. CASHON: No.

EXAMINER BROOKS: Who are you representing?

MR. CASHON: I'm representing myself as an overriding owner as well.

MR. STANGER: I'm an overriding royalty owner as well.

EXAMINER BROOKS: Okay. Very good.

Q. (BY EXAMINER BROOKS) And you got a green card back from Mr. MacDonald?

A. Yes. He signed the JOA.

Q. So he's not being pooled. Only people you're pooling are -- well, Continental -- is Continental Land & Fur. They agreed to your proposal, but are they participating, or did they sign the JOA?

A. They both have signed JOAs. Yes.

Q. So the only person you're trying to pool is Great Western?

A. Yes.

Q. And, of course, they're here so we don't have to worry about them being noticed.

Okay. I think that's all my questions. Thank you.

RECROSS EXAMINATION

BY EXAMINER McMILLAN:

Q. Actually, for clarity purposes, you're drilling

the four wells that are going to be subjects to the hearing. And then the four wells in 2019 are going to be infill wells, correct?

A. Yes.

Q. And they would be subject to those terms?

A. Yes.

Q. Okay.

RECROSS EXAMINATION

BY EXAMINER BROOKS:

Q. They'll be technically infill in the sense it's the same spacing unit, same pool, but actually they're going to be offsets; are they not? Because you're drilling two 2nd Bone Spring wells in the west half, and you're drilling two 3rd Bone Spring wells in the east half. And then in 2019, you're going to do the others. Are you going to be offsetting the wells you drilled in 2018?

A. Yes. I think so. That's correct.

EXAMINER BROOKS: Go ahead.

RECROSS EXAMINATION

BY MR. HALL:

Q. If I could, Mr. Shelton, the AFE you provided for the Examiners here today is under your Tab 6. Let me ask -- but that -- why is this the only AFE you brought today?

A. They're all there.

Q. They are?

Let me ask you about the one for -- this is for the 3BS 2H -- I beg your pardon. They are all here. The one on top, you have completed costs of just under $5 million?

A. Yes.

Q. And if we look at the others, they are substantially lower. They're all each about a million dollars lower than the top one; is that right?

A. Yes.

Q. Why is that?

A. I defer to engineering on that also.

Q. Is that your pilot-hole well?

A. I believe so, but I will let him verify that.

Q. Okay. I've been following your AFE numbers -- let me see. Let's look at the line items on page 2. It's line item 165, 852165, acidizing and fracturing. It shows 860,000. Are all of the wells carrying that same cost for a frac job?

A. I defer to engineering on that also.

Q. Okay. You haven't reviewed these before?

A. I have. But he'd be best to explain them.

Q. Okay. All right. Mr. McMillan asked you a question about title examination costs. He asked you a

related question about legal costs. These are -- title examination costs go back to the working interest owners under the JOA. Is that your understanding?

A. I believe -- I can't recall exactly what the JOA says on that, but --

Q. Okay. Do Ms. Kessler's legal fees for appearing here today go back to the interest owners?

A. I would defer to engineering on that also.

Q. Okay.

MR. HALL: That's all I have.

EXAMINER BROOKS: I have one more question I forgot.

RECROSS EXAMINATION

BY EXAMINER BROOKS:

Q. You were asked, as I understood it, that whether or not Chisholm would be willing to share the downhole data with a nonconsenting pooled party. And your answer was you didn't recall, which seemed rather strange answer to a question what you were going to do in the future. Did I misunderstand the question, or did I misunderstand the answer?

A. It would be governed by the JOA.

Q. Okay. The -- the custom in the industry -- are you aware of the custom in the industry that you do not share --

A. Yes.

Q. -- nonpublic data with nonconsenting parties?

A. Yes. And I've also seen to the opposite.

Q. There are exceptions, of course.

A. Right.

Q. Generally -- generally, that isn't done in the industry. There is an understanding that the custom is otherwise although you can agree to anything you want to.

A. Yes.

Q. Voluntary agreement?

A. Right.

Q. And people do.

A. Yes.

Q. Thank you.

MS. KESSLER: Couple of questions on redirect.

EXAMINER McMILLAN: Please proceed.

REDIRECT EXAMINATION

BY MS. KESSLER:

Q. Let's go back for the discussion of the rates, Mr. Shelton. You said you testified in your cross-examination that your well proposals letters have 10,000 a month while drilling and 1,000 while producing?

A. Yes.

Q. Today you asked for 7,500 and 750?

A. Uh-huh.

Q. Are you lowering what you're asking for based on your revised operating agreement with CL&F?

A. Yes.

Q. Did you discuss those rates with them, and did they request that you lower them?

A. Yes.

Q. And as a concession, you did?

A. Yes.

Q. And also, final point, you intended to drill four wells in 2017; is that correct?

A. Yes.

Q. And you were delayed by Great Western?

A. Yes. That's correct.

MS. KESSLER: That's all I have.

EXAMINER BROOKS: I'm through.

EXAMINER McMILLAN: Okay. Thank you.

We'll take a five-minute break.

(Recess, 9:56 a.m. to 10:05 a.m.)

EXAMINER McMILLAN: Everyone is here. I'd like to call the hearing back to order.

Please proceed.

BILL FRANCIS,

after having been previously sworn under oath, was

questioned and testified as follows:

DIRECT EXAMINATION

BY MS. KESSLER:

Q. Mr. Francis, can you please state your full name for the record and tell the Examiners by whom you're employed and in what capacity.

A. Yes. Bill Francis, senior geologic advisor for Chisolm Energy.

Q. Have you previously testified before the Division?

A. I have not.

Q. Can you please outline your educational background.

A. Yes. Bachelor of science in geology, Oklahoma State University, 1983; master's in geology, University of Tulsa, 1988.

Q. What has your work experience been since that time?

A. I joined Mobile Oil Corporation out of graduate school. Worked 12 years for Mobile as a development geologist and an exploration geologist, working San Joaquin, California and the Caspian Sea area. I left Mobile at the ExxonMobil merger and went to work for Kerr-McGee. I worked the Anadarko Basin for a couple years for Kerr-McGee. In 2001, I joined Encore

Acquisition Company, which was a new company in Fort Worth, Texas. I started out as a development geologist drilling horizontal wells in Montana and North Dakota, progressed to senior vice president of operations for Encore, assets under my control in Texas, New Mexico, Mississippi, Oklahoma, Louisiana. Mainly a lot of horizontal drilling programs.

I left -- Encore was sold in 2010, at which point I formed up with two or three colleagues from Encore and we started a new company called Silver Oak Energy. Silver Oak Energy was backed by EnCap Investments and by Mack Energy of Artesia, New Mexico. We actually officed with Mack's Fort Worth employees. Silver Oak Energy sold in 2016, and in 2017, I joined Chisholm, in February of 2017.

Q. So for the past approximately ten years, has your experience and your responsibilities included the Permian Basin?

A. They have.

Q. Are you a member of any professional associations?

A. AAPG.

Q. Are you familiar with the applications filed in these consolidated cases?

A. Yes.

Q. And have you conducted a geologic study of the lands that are the subject of this application?

A. I have.

MS. KESSLER: Mr. Examiners, I would tender Mr. Francis as an expert in petroleum geology.

EXAMINER McMILLAN: Objections?

MR. BRUCE: No objection.

MR. HALL: No objection.

MR. CASHON: No objection.

MR. STANGER: No objections.

EXAMINER McMILLAN: So qualified.

Q. (BY MS. KESSLER) Let's first turn to Exhibit 10. Is this a locator map of the Northern Delaware Basin and showing the area of interest?

A. Yes, it is.

Q. This also shows well control in the area; is that correct?

A. Yes.

Q. Is there anything else you'd like to point out with this exhibit?

A. No. It just shows our vertical well control horizontal wells and wells being permitted.

Q. And as discussed by Mr. Shelton, Chisholm has proposed three Bone Spring -- three 2nd Bone Spring wells -- I'm sorry -- two 3rd Bone Spring wells, two 2nd

Bone Spring wells; is that correct?

A. That's correct.

Q. Let's first discuss the geology of the 3rd Bone Spring. Is Exhibit 11 a structure map of the 3rd Bone Spring?

A. Yes.

Q. Can you please review this exhibit for the Examiners?

A. Yes. Exhibit 3 is a structural contour map mapped on top of the Lower 3rd Bone Spring Sandstone. The contour interval is 100 feet. The Section 34 is highlighted in yellow. It shows all of the vertical and horizontal wells and permitted wells nearby. It also shows the locations of our two proposed 3rd Bone Spring wells on the west half of Section 34. The purple dots are data points that were used to construct the map, and the blue dots are horizontal wells that were actually drilled in the Lower 3rd Bone Spring Sand.

In addition, I've got posted what we call our "max monthly rate of oil," which is green; and of gas, which is red. And those, what we did is we take the first 90 days of production and we look at the highest monthly total and we call that our "maximum 30-day rate" in the beginning of a well. And for each of the Lower 3rd Bone Spring wells, I have that posted.

Q. Okay. What do you see with respect to structure and dip in this area?

A. Over our Section 34, it's very subtle a dip -- these wells -- we're thinking they're going to dip down at about 4, 5 degrees.

Q. Based on the structure, have you identified -- do you see any hazards to drilling these horizontal wells? Do you see any faulting or pinchouts?

A. No.

Q. Is Exhibit 12, a line of section marked B to B prime reflecting the data points and logs used for your cross-section exhibit for the 3rd Bone Spring?

A. Yes, it is.

Q. Do you consider these logs to be representative of 3rd Bone Spring wells in the area?

A. I do.

Q. All right. Is Exhibit 13 your cross-section exhibit for the 3rd Bone Spring Sand?

A. Yes, it is.

Q. Can you please review this for the Examiners?

A. Yes, it is a cross section from B to B prime, north to south, showing the general gross thickness of the Lower 3rd Bone Spring Sand. It's a stratigraphic cross section hung at the top of the 3rd Bone Spring Sand. That's denoted by the orange line at the top.

The dashed line in the middle is what we call the top of the Lower 3rd Bone Spring Sandstone. The red line is the base of the 3rd Bone Spring Sandstone, and the area shaded in yellow is the gross interval of the 3rd Bone Spring Sandstone in this area. It varies between 125 to 100 feet thick.

Q. And that would be your target interval, correct?

A. Yes.

Q. What did you see with respect to continuity of the formation across Section 34?

A. I see it being very comparable, very uniform in thickness.

Q. Is Exhibit 14 a gross thickness isopach map on the 3rd Bone Spring target?

A. Yes, it is.

Q. And, again, this is the target interval. This is not the 3rd Bone Spring Sand that you've mapped, correct?

A. That's correct. It's the target interval that's actually shaded yellow in the cross section.

Q. Can you please review this exhibit for the Examiners?

A. Yes. Gross -- isopach thickness contour interval of 25 feet. Everything else is basically the

same as the first map. The purple dots are the data points that are used to construct the map. The numbers are the IP30 rates for the Lower 3rd Spring -- 3rd Bone Spring horizontal wells, which are indicated by the blue dots.

Q. Looks like you have good well control in this area, correct?

A. Correct.

Q. Have you identified the gross thickness as being relatively consistent throughout Section 34?

A. Yes.

Q. No major changes?

A. No major changes.

Q. Okay. I'd like to move to the geology now of the 2nd Bone Spring. Is Exhibit 15 the structure map of the Lower 2nd Bone Spring target interval?

A. Yes.

Q. Okay. And, again, you have Chisholm's leasehold in yellow, Section 34, called out, correct?

A. Correct.

Q. What do you see with respect to structure in Section 34 for the 2nd Bone Spring?

A. I see very similar structure as the 3rd. This map is also contoured on a 100-foot contour interval. It's very subtle over Section 34. Again, the data

points used are denoted by the purple dots. The Lower 2nd Bone Spring horizontal wells are highlighted in blue, and the IP30 rates are also posted at the wells.

Q. And it looks like there is a handful of 2nd Bone Spring -- Lower 2nd Bone Spring producers in the area, correct?

A. Correct.

Q. They're horizontal wells?

A. Yes.

Q. Are they commercial wells?

A. Yes.

Q. Is Exhibit 16 a line of section labeled "A to A prime" that corresponds with your cross-section exhibit?

A. Yes.

Q. Did you have good well control to put together your cross section and following gross isopach map?

A. Yes, we did.

Q. And do you consider the wells on A to A prime -- the logs on A to A prime representative of 3rd Bone Spring -- 2nd Bone Spring wells in the area?

A. I do.

Q. All right. Let's look at Exhibit 17. Is this the cross section for the lower 2nd Bone Spring Sand?

A. Yes.

Q. Now, I'll call your attention to the fact that

you have target interval shaded in yellow and marked with a dashed green line. Can you please explain the difference between a target interval and the top of the Lower Bone Spring Sand?

A. Yes. The target interval is our internal target of the where we'd like to land the horizontal, and that's something that we pay a lot of attention to, and it varies between 40 and 50 feet thick in this area.

Q. So it's not the entire lower 2nd Bone Spring, correct?

A. No.

Q. All right. Can you please walk us through the remainder of this exhibit?

A. Yes. It's a stratigraphic cross section. The orange line at the top is the top of the 2nd Bone Spring Sand and that's what the cross section is hung on. As you walk down, you get to -- the red line is what we are calling the top of the Lower 2nd Bone Spring Sandstone. Below that is the top of our target interval denoted by the green-dashed line, and the black line at the bottom is the base of or 2nd Bone Spring Sandstone or the base of our target interval.

Q. Okay. Do you see this target interval as being relatively consistent throughout Section 34?

A. Yes.

Q. Is Exhibit 18 the gross-thickness isopach map of the Lower 2nd Bone Spring in Section 34 and the surrounding area?

A. Yes, of the Lower 2nd Bone Spring target interval.

Q. Okay. So once again, you've mapped the gross thickness of the target rather than the gross thickness of the Lower 2nd Bone Spring?

A. Yes.

Q. Can you please review this exhibit?

A. Yes. It's a gross-thickness map using a 10 percent contour interval. Again, the purple dots are data control points that were used to construct the map. The blue dots are Lower Bone Spring Sandstone horizontal wells, and the IP30 rates are posted below the well symbols.

Q. Okay. Do you see the gross interval as being consistent throughout Section 34?

A. I do -- of the target interval of the 30, 40, and 50 feet.

Q. Are you aware that Great Western expressed concerns of development of the 2nd Bone Spring?

A. That's what my landman told me.

Q. You haven't specifically spoken to their technical folks, have you?

A. I have not.

Q. Did you offer to set up a technical meeting to explain your concerns?

A. Yes.

Q. And did you have a technical meeting with CL&F and explain your technical program?

A. Yes, we did.

Q. What were their concerns as you understand them?

A. Through Luke Shelton, the thickness of the Lower 2nd Bone Spring.

Q. Okay. And what is the gross thickness of the Lower 2nd Bone Spring?

A. In our area where we're -- it's like 70 to 80 feet thick.

Q. Okay. What is the -- did you also send to Great Western a net pay isopach map?

A. Yes.

Q. And what was the net pay throughout Section 34?

A. It varied between 40 -- of the target interval, if I remember -- 45. There was to 8 feet using an 8 percent porosity cutoff.

Q. Why did you use an 8 percent porosity cutoff?

A. That's what we use internally to high-grade our landing zones. And the document that was sent was an

internal document to high-grade where we'd like to place these laterals.

Q. Is that a conservative cutoff?

A. It is.

Q. Is 6 percent also a typical porosity cutoff?

A. Yes.

Q. What would the net pay be at 6 percent porosity cutoff?

A. It would be -- in the well where we had 8 percent, it would have been 26 feet.

Q. 26 feet?

A. Yeah. And in the gross interval, it gets up to 55 feet.

Q. I believe that we've reviewed the fact that there are a number of other 2nd Bone Spring producers in the area, and you mentioned that these are commercial wells, correct?

A. Yes.

Q. Is Exhibit 19 a mud log of a well located in Section 34?

A. Yes.

Q. Okay. I'm going to ask you to hold your finger on this exhibit and then turn back to Exhibit 18 and point out where this vertical well is.

A. Yeah, this mud log comes from the vertical well

in the northeast quarter of Section 34.

Q. So if I'm looking at Exhibit 18, it looks like this exhibit is smack in the middle of the 2nd Bone Spring wells that you've proposed, correct?

A. Yes.

Q. Can you please review what you've marked as the oil shows located in the 2nd -- Lower 2nd Bone Spring?

A. Yes. This -- copy of this mud log shows the Lower 2nd Bone Spring target interval, which I have noted by arrows. And the black bars just to the left of the descriptions are -- indicate fluorescence and cut of the oil shows that was logged by the mud logger, at the time the well was drilled in 2003.

Q. So there are oil shows in the section in your target interval where you intend to drill these wells; is that correct?

A. Yes.

Q. Did you rely on this mud log to select and pursue the 2nd Bone Spring target interval?

A. We did.

Q. And has Chisholm drilled successful wells with less gross thickness?

A. Yes.

Q. Can you please turn to your Exhibit 20 and review this exhibit for the Examiners?

A. Okay. Exhibit 20 is a -- is a view of our well we drilled in the Lea South Federal, 2BS, 10H well. It's in the yellow box up in Township 20 South, 34 East, Section 27. It's approximately 7.5 miles from our proposed Grama Lower 2nd Bone Spring well. The well is landed in the same target interval. It was completed in October of 2017, at a rate of over 1,600 barrels a day of oil and 1.4 million cubic feet of gas per day.

Q. What was the gross thickness in this section?

A. Approximately 25 feet in the target interval.

Q. Of gross thickness in the target interval?

A. Yes.

Q. And why were you able to successfully drill with this relatively low gross thickness?

A. We were able to keep the horizontal well in the zone.

Q. And how were you able to do that?

A. With our geosteering.

Q. Let's look at Exhibit 21. Is this a log showing the gross thickness of the Lea South well?

A. Yes.

Q. Okay. And this shows that there is approximately 25 feet of the gross thickness in the 2nd Bone Spring -- Lower 2nd Bone Spring interval; is that correct?

A. Yes. The C well is the least vertical well control well, and this well at the C prime is our Grama well, control well. So you can see the -- it's a stratigraphic cross section hung on the base of the Lower 2nd Bone Spring Sand and I've highlighted our target interval in yellow and the target interval that was used in the Lea South well is also in yellow.

Q. You mentioned you were able to stay in zone due to geosteering. Can you please discuss that just a little bit more?

A. Yes.

Q. And we can turn to Exhibit 22 for that explanation.

A. Exhibit 22 is just an example of our Lea South. It was our postmortem study on our Lea South horizontal well. And what you see here on the left side is the geology, the surfaces that the geologist put into the software. The blue up top, the base of the blue is the base of the carbonate below the 1st Bone Spring Sand. The next interval he put in was our 25-foot target interval, which is highlighted in green. You've got our directional drilling plan on there and our actual drilling survey that's posted on the green target interval. And then to the right, it shows how we utilize our resistivity data, our gamma-ray data while

we're drilling, and we can correlate to our type log and we know exactly where we are in zone. And I believe that has been one of the reasons we've been successful in placing our laterals out here.

Q. Is geosteering technology a focus for Chisholm?

A. Very much so.

Q. And you mentioned that the geology in this area is similar; is that correct?

A. That's correct.

Q. So similar target Lower 2nd Bone Spring Sand, similar geology, lower gross isopach thickness -- or lower gross thickness. And you were able to successfully drill and complete this well?

A. Yes.

Q. Based on your analysis and your geosteering capabilities, will the 2nd Bone Spring, in your opinion, be productive?

A. Yes.

Q. And are you as confident of your ability to stay in zone?

A. Yes.

Q. Have you also requested seismic for the subject area?

A. We have.

Q. And will you review that prior to drilling and

completion of the wells?

A. Yes.

Q. And the seismic will provide final confirmation of your ability to stay in zone; is that correct?

A. Yes, it will.

Q. Based on your geologic study of this area, have you identified any impediments to drilling horizontal wells?

A. No.

Q. And do you believe that the area can be efficiently and economically developed by horizontal wells?

A. Yes.

Q. Do you believe that each of the proposed nonstandard units will contribute on average more or less equally for production in the well?

A. Yes.

Q. And in your opinion, is granting Chisholm's applications in the best interest of conservation, for the prevention of waste and the protection of correlative rights?

A. Yes.

Q. Were Exhibits 10 through 22 prepared by you or compiled under your direction and supervision?

A. Yes, they were.

MS. KESSLER: Mr. Examiner, I'd move admission of the Exhibits 10 through 22.

MR. HALL: No objection.

MR. BRUCE: No objection.

MR. CASHON: No objection.

MR. STANGER: No objection.

EXAMINER McMILLAN: Exhibits 10 through 22 may now be accepted as part of the record.

(Chisholm Energy Exhibit Numbers 10 through 22 are offered and admitted into evidence.)

EXAMINER McMILLAN: Cross-examination.

CROSS-EXAMINATION

BY MR. HALL:

Q. Mr. Francis, you were not saying, are you, that drilling at Section 34 as Chisholm proposes is without geologic risk?

A. That's correct.

Q. What constitutes the risk that you see?

A. Say that again. Restate the question so we're both clear.

Q. Do you see geologic risk in drilling Section 34?

A. I see no more geologic risk in Section 34 than I've ever seen drilling any horizontal well in my

career.

Q. All right. And is there any mechanical risk that you foresee?

A. I will defer to our Operations Group.

Q. Okay. I hope you can help me understand your nomenclature for your intervals. If you would turn to -- it's Exhibit 11 and log wells you looked at -- you identify them the attribute map wells. You have the 3rd Bone Spring Lower, and then those are blue --

A. Yeah.

Q. -- and then the top Lower 3rd Bone Spring Sand. Are those identifiable on Exhibit 13, your cross section? Make sure I understand where --

A. Yeah. The -- let's see? So I'll -- I'll explain my attributes. The blue dot is the Lower 3rd Bone Spring horizontal producer, is noted by the blue. And the purple is actually a well that I used data from to construct the map.

Q. Okay. All right. That helps me. Thank you.

MR. HALL: I have no more questions.

MR. BRUCE: No questions.

MR. CASHON: No questions.

MR. STANGER: I have one question.

CROSS-EXAMINATION

BY MR. STANGER:

Q. In regards to -- I don't know whether engineering is better to answer this. But how does the proposed frac and completion that you-all are proposing on this well compare to the offset wells that you cited on the exhibits, your production rates --

A. Yeah.

Q. -- in regard to total volume, number of stages, and stage separation?

A. Okay. I will refer to the operations engineer.

Q. Okay.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. Okay. All right. The first question I've got is: What were the parameters you used for the gross -- what parameters were used for the gross interval for the 3rd Bone Spring?

A. Gross interval for the 3rd Bone Spring. The lower third?

Q. Yeah, whatever your target interval --

A. It's a -- we look at -- it's a carbonate above it or a little -- using the resistivity and gamma ray combination. We see carbonate marker that we lock into.

MS. KESSLER: Exhibit 14, Mr. Examiner.

Q. (BY EXAMINER McMILLAN) So what signifies the top, and what signifies the bottom?

A. The top would be of the Lower 3rd Bone Spring would be the dashed line.

Q. Okay. And what is that?

A. It's a -- it's a limey -- it's a little carbonate we take our -- we've correlated that throughout this localized area.

Q. Okay. And then what's the base?

A. The base is going to be that carbonate below, the base of the 3rd Bone Spring Sand, that little resistivity kick that you see on the red line.

Q. And these are correlative markers throughout --

A. Localized areas and you can take them --

Q. -- within this area?

A. -- oh, absolutely. Yes.

Q. Okay. Same question for the 2nd Bone Spring.

A. Sure.

Q. Where am I?

A. It would be Exhibit 17.

Q. Yeah.

A. So the red line is our -- what we call the top -- of the lower 2nd Bone Spring. And, again, it bumps up against the little limey carbonate zone. You see on the resistivity logs and the gamma ray logs, the

green-dashed line is when we are identifying our target interval. And it is even thinner carbonate, but we can correlate throughout the area, the localized area. And then the base of our target interval sits on another carbonate, and it's noted by the black line.

Q. So both of these are correlative within the area?

A. Yes.

Q. Now, the next question -- okay. I appreciate that.

Here's -- the next question is: Looking at your map, I don't see values for the wells. For instance, I'm looking at Exhibit Number 11, and your 7400 contour comes through the well in the southeast quarter of the southeast quarter of 22. How do we know that's correct? Because this does not have the well log values on it. So how are we assured these values are correct?

A. I did not post those values on this map.

Q. So then you didn't -- how do we know these values are correct?

A. I guess you have to trust me. I can get those values. I just didn't post them to clutter up the map.

Q. We as Examiners don't know that these values are correct if we don't see the log values.

A. Okay.

MS. KESSLER: We can supplement the record, Mr. Examiner.

THE WITNESS: Yeah.

EXAMINER McMILLAN: Everyone has to agree to that.

EXAMINER BROOKS: Well, I don't know. I think you have the right to allow it if you think it's necessary to get a complete record.

EXAMINER McMILLAN: Yeah. It has to be.

THE WITNESS: Okay.

MS. KESSLER: That would be on the structure map or the --

EXAMINER McMILLAN: I want -- I picked this one as an example, but then when I go to the isopachs, I see the same thing.

THE WITNESS: Right. I can -- I can certainly.

MR. HALL: What am I agreeing to?

EXAMINER BROOKS: Well, what I said was I don't really think that it's necessarily required that everybody agree to it to supplement the record. I think the Examiner has the authority to order that. And the question would be whether you object. If you object, we'd make a ruling on it. But if not, then -- but it

doesn't -- I don't think it is something that can only be done with the agreement of counsel. We would have to consider any objections, but it is something the Examiner can rule on.

MR. HALL: It's fine with us.

EXAMINER McMILLAN: Okay.

EXAMINER BROOKS: My understanding is the issue was supplementing the record with additional log data.

EXAMINER McMILLAN: Yes.

THE WITNESS: Or log values on the maps.

EXAMINER McMILLAN: Yes.

MS. KESSLER: What we'll do, Mr. Examiner, is we'll simply resubmit these structure and isopach maps with log values on them.

EXAMINER McMILLAN: Yes.

MR. HALL: Provided we would have leave to see those and provide you with any response of a rebuttal-type evidence that goes to the supplementation.

EXAMINER McMILLAN: Yes. So when can you supply it to the -- to all affected parties?

THE WITNESS: I'll be in the office tomorrow.

EXAMINER McMILLAN: Tuesday? Tuesday, all affected parties, 4:00 p.m., Santa Fe time.

THE WITNESS: Okay.
MR. HALL: Well, so we want to see it and respond to it.
EXAMINER McMILLAN: No. What I'm telling you, you have to supply it to the affected parties.
MR. HALL: Right.
EXAMINER McMILLAN: We've got to get -- we need to get the show on the road. The best way to do it is set a definitive time where you will supply the data.
MR. HALL: And we'll be providing any responses.
EXAMINER McMILLAN: Yeah. I'm just saying, I want him to do that, and then we'll give you --
MR. HALL: I'm not working Christmas.
(Laughter.)
EXAMINER McMILLAN: We'll give you until -- I've got to think -- December 28th to respond? I mean, or we can move -- we can be flexible on this.
MR. HALL: Okay. Sometime after New Year's? I'm going to be gone.
EXAMINER McMILLAN: Until when?
MR. HALL: I should be back by the 3rd.
MS. KESSLER: Mr. Examiners, what if we provided it Friday by 5:00 p.m., and then Mr. Hall will have next week to review it?

MR. HALL: Next week is hard, Jordan. It's an awful-looking docket.

EXAMINER BROOKS: Why don't we say January 6th?

MR. HALL: That's fine.

EXAMINER McMILLAN: Okay. January 6th. That's fair.

EXAMINER BROOKS: That's on a Thursday.

Q. (BY EXAMINER McMILLAN) Okay. The next question I've got -- I'm going back to, I believe, Exhibit, essentially, 13. How close is that interval to the Wolfcamp -- target interval?

A. The red line would sit just above the Wolfcamp.

Q. So the base would be the Wolfcamp?

A. Yes. That's what we call the -- really the base of the 3rd Sand -- somewhere down there is the Wolfcamp. It's very close to that red line.

Q. Okay. Now, the question there becomes: Are there any depth severances within the Wolfcamp? Through the base of the Wolfcamp, are there depth severances?

MR. SHELTON: I don't believe so. No.

EXAMINER McMILLAN: Okay. Just in case you steer into it.

THE WITNESS: Right.

EXAMINER McMILLAN: We don't want to run

into that question of ownership.

Do you have any?

EXAMINER BROOKS: Not for this witness, no.

MR. CASHON: I have one more question.

EXAMINER BROOKS: I'm sorry. You have a question?

MR. CASHON: I do have one more question.

EXAMINER BROOKS: Go ahead.

CROSS-EXAMINATION

BY MR. CASHON:

Q. Mr. Francis, any other formations uphole or downhole across 34 besides --

A. Definitely potential. We're drilling a pilot hole on that first well, and that's looking to be through the Strawn. So that's why we want to get a pilot.

Q. Thank you.

EXAMINER BROOKS: I said January 6th. That's a Saturday. So that's wrong.

MR. HALL: Is that a Saturday? So say January the 5th?

THE WITNESS: It's there. I've got to go back and flip that button on in my programs.

MS. KESSLER: We'll call our next witness.

EXAMINER McMILLAN: Please proceed.

BRAD BURKE,

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

DIRECT EXAMINATION

BY MS. KESSLER:

Q. Please state your name for the record, and tell the Examiners by whom you're employed and in what capacity.

A. Brad Burke, employed by Chisholm Energy.

Q. Have you previously testified before the Division?

A. No.

Q. Can you please outline your educational background?

A. I'm senior engineer.

Q. What is your educational background?

A. I graduated from Texas Tech University with a Bachelor's of Science in petroleum engineering in 2009.

Q. What has your work history been since 2009?

A. After graduating with bachelor's degree, I signed on with Range Resources, and I worked there until March of this year in varying disciplines ranging from reservoir engineering, completions, operations, production, and drilling as well. Started out in reservoir, worked varied basins Barnett-Marcellus,

Permian, Coalbed Methane in Virginia; switched to Completion Productions, where I was sole engineer over gang's field in the Permian Basin for completions and production.

And then I have since switched to drilling, drilled a couple of wells in that same field, as well as in the Marcellus Mid-Continent area and the Powder River Basin, and since then drilling completions for Chisholm Energy in New Mexico.

Q. Approximately how many years of experience do you have in the Permian Basin?

A. Three, four.

Q. Are you a member of any professional associations?

A. Yes, I'm a member of Society of Petroleum Engineers and ADE.

Q. And do you have any professional certifications?

A. I passed Fundamentals exam.

Q. Are you familiar with the applications that have been filed in these consolidated cases?

A. Yes.

Q. Have you conducted a study of the reservoir basin operations that are the subject of this hearing?

A. Yes.

MS. KESSLER: Mr. Examiner, I tender Mr. Burke as an expert in petroleum engineering.

MR. HALL: No objection.

MR. BRUCE: No objection.

MR. CASHON: No objection.

MR. STANGER: No objection.

EXAMINER McMILLAN: So qualified.

MS. KESSLER: Thank you.

Q. (BY MS. KESSLER) I'd like to turn to Exhibit 23.

MS. KESSLER: It's very light in the exhibit book. If you need a darker copy, Mr. Examiners or Counsel, we have more legible copies.

Q. (BY MS. KESSLER) Mr. Burke, are you familiar with the two AFEs of Great Western?

A. Yes, ma'am.

Q. So they're included as Exhibit 23?

A. Yes.

Q. When were these received?

A. Um.

Q. Were they received with the well-proposal letter of October 3rd, 2017?

A. As far as I'm aware, yes. They were supplied to me by our land department.

Q. And it appears from the AFEs that Great Western

intends to target the 3rd Bone Spring; is that correct?

A. That's correct.

Q. It's somewhat unclear, given that the name of the 9H well is the Grama Ridge, East 32, State No. 9H well; is that correct?

A. Yes, that was a little unclear.

Q. But you understand from their proposal letters they are targeting the 3rd Bone Spring?

A. That's what I've been told, yes.

Q. What are the completed well costs to Chisholm's four wells versus Great Western's two wells?

A. The totals for all four wells?

Q. Yes.

A. I have to flip back and get the exact totals.

Q. In Exhibit 6.

A. Okay. Starting out with the 3BS 2H, the total well cost is at approximately $5.1 million.

Q. Does that include the pilot hole?

A. Yes, ma'am, it does.

Moving over to the 3BS 3H, the total well cost for that well is approximately $4.3 million. The 2BS 8H is $4.1 million total well cost, and the 2BS 9H is a total of $4.1 million, approximately.

Q. Okay. Now let's go to the Great Western proposals.

A. Great Western's proposals for the 2BS 9H well, the total proposal is for approximately $6.1 million, and for the 3BS 2H, it is approximately $7.1 million.

Q. Having reviewed the AFEs for Great Western's 2H and 9H wells, what are the major differences in cost?

A. Of course, there are always differences in how we structure the AFEs, but the major ones that really stood out to me were the acidizing fracture costs. For example, on the 3BS 2H proposal, Great Western's acidizing fracture or stimulation -- I believe, they state it -- is approximately $1.3 million higher. Secondly, their coil tubing costs are AFE'd at $445,000 higher. And their subsurface equipment, which they call, I believe, liner, hanger, packer equipment -- I believe is what they call it -- is about $275,000 higher on that well.

Flipping over to the 9H well, acidizing fracture is about $940,000 higher. Coil tubing cost was $357,000 higher, and subsurface equipment, about $240,000 higher.

Q. So you have a $1.9 million difference between the two AFEs?

A. Yes. And, obviously, they -- we are higher on some areas, and they're higher on other areas. But that is the difference I found.

Q. And you mentioned that the major difference is in completions; is that correct?

A. Yes. All those things we file under completion. That's correct.

Q. So as you understand it, Great Western has a very different completion program than what Chisholm's proposed, correct?

A. It's hard to say.

Q. You haven't spoken with Great Western regarding their program?

A. No. I've not received any information from Great Western regarding their stimulation.

Q. Are there cost savings associated with simultaneously drilling four wells?

A. Absolutely. So there's two sides of it. So one part of it is if you're pad drilling, you obviously save money on rig moves, on your production equipment, your tanks, et cetera. You save money on locations. There's shared costs along wells whenever you do it that way. And that's reflected in our AFE, as you can see.

Just as a quick example: Our roads and locations, we have $20,000 in there per well. Originally, when we had, you know, multiple wells on pads, those add up, versus the 90- -- I think, 98,000, I think is what I saw in the Great Western's,

where you're drilling one well, have to build a whole pad for that one well. There's certain cost savings like that that go along with it.

Q. Are there cost savings associated with having a single operator in whole sections?

A. Yes. And several of those overlap into having a single operator in the section. You're going to have less wells -- or less pads to build because you don't have two operators out there building pads, facilities the same way. You have one set of facilities per pad, and that's how we have it designed, versus setting the facilities on each pad.

There is also a cost savings on rig moves. So instead of moving a rig in and out -- two of us doing that -- one of us brings it in, drills, moves over, drills, and we see a significant cost savings there, as well as having one gatherer come to the section. You have one gas gatherer come pick up the gas at that section. So there is cost savings there as well.

Q. You mentioned cost savings associated with savings and production.

Does Chisholm intend to seek approval for commingled production in a single facility for each half of the lease?

A. Yes.

Q. You mentioned a single gas mine and that would be another cost savings; is that correct?

A. Correct.

Q. In your opinion, are Chisholm's applications in the best interest of conservation and prevention of waste?

A. Yes, ma'am.

MS. KESSLER: Mr. Examiner, move admission of Exhibit 23.

MR. HALL: No objection.

MR. BRUCE: No objection.

MR. CASHON: No objection.

MR. STANGER: No objection.

EXAMINER McMILLAN: Exhibit 23 may now be accepted as part of our cross exam.

(Chisholm Energy Exhibit Number 23 is offered and admitted into evidence.)

EXAMINER McMILLAN: Cross-examination?

CROSS-EXAMINATION

BY MR. HALL:

Q. Let's look at any of your Chisholm's AFEs. The one for your pilot hole is fine.

Mr. Burke, please. And after the line items, there is an approval page underlying each one and -- well, I'll let you -- can you just summarize your

plans for completing and stimulating these wells?

A. Sure. So our plan is to case and cement a 5-1/2 inch string. We'll have that string run back to the surface. We'll go in and do a typical plug-and-perf completion, where you go in and perforate the casing, stimulate it, and then set a plug over the top of that and move to the stage -- perforate, stimulate, work your way back.

Q. All right. Could you elaborate on your stimulation?

A. What particularly are you --

Q. Let's look at that approval page.

A. Okay.

Q. You're proposing a 315,000-pounds-per-stage slickwater design resulting in a lateral treatment of 1,500 pounds per foot. Did I read that correctly?

A. You did. Yes, sir.

Q. Tell us what a slickwater design is.

A. Slickwater simply means that it's going to be fracked with water and then some friction reducer in there, so the friction reducer makes it slick; therefore, it's termed slickwater.

Q. All right. And how did you arrive at 315,000 pounds per stage?

A. That is based on experience in this basin, in

other areas. I mean, it's a number that we've pulled based on looking at offset operators in this area, offset data in this area, as well as past experience in what an effective stimulation is.

Q. And so you looked at offsets of other operators drilled with --

A. We looked -- essentially, what we've done is taken the direct area. Typically, you know, we'll look in Township and see what wells are drilled in that formation, look at what other operators are doing and use that as one data point in devising our stimulation.

Q. Well, the stimulation technique was not the same over time, was it? Did you encounter different stimulation techniques, completion --

A. Oh, sure, they're all over --

Q. -- and what's the most recent comparable slickwater frac of these sizes that you've seen in the area?

A. Well, I think that, you know, for me personally, I'd point back to the wells we just recently completed that Mr. Francis showed in the leased-out area where we implemented the same exact technique on the 2nd Bone Spring well.

Q. Any others?

A. Sure. There's a handful of them in the area,

and they range anywhere from 500 pounds a foot up to 2,000 -- 2,500 pounds per foot.

Q. All right. And in your capacity as the engineer, you're seeing AFEs for well proposals by other operators in the area on a regular basis; is that correct?

A. I've seen a few.

Q. Okay. How many?

A. Three, maybe.

Q. Three. All right.

Of those three, are Chisholm's AFE costs in line with what you're seeing from the other operators?

A. Again, AFE costs vary wildly. We've seen some that are in line with us, and we've seen others that are different.

Q. Is it accurate to say that Chisholm's AFE costs are substantially lower than what you typically see?

A. Not always.

Q. Okay.

A. In this case, yes. I mean, we have Great Western wells, and they're substantially higher.

Q. Okay. And did you undertake an analysis to see why your AFE case deviated from what you've seen other operators do?

A. I dove into the specific AFEs to see what major

differences there are and, again, you can only gather so much from the one-line items on what people are lumping into.

Q. All right. So you just compared the Great Western and Chisholm AFEs. Any others?

A. I have not directly compared ours with anybody else, no.

Q. In your response to a question from Ms. Kessler, you indicated that there would be savings from simultaneously drilling the four wells. What -- do you plan to drill the four wells simultaneously?

A. Yes, simultaneously back to back. Not simultaneously at the exact same time.

Q. Back-to-back. I understand.

A. Yeah.

Q. So will there be any period that will allow you to evaluate the success of the first well before starting another well?

A. No.

Q. Is that prudent?

A. Yes, I believe it is. With the data we have in-house on geology, as well as the pilot hole we'll be drilling and the data we receive off of that, I believe it's prudent. I believe it's common practice.

Q. What situation could arise that would cause

Chisholm to delay starting the second well based on the results of the first well? What would you be looking for?

A. That would cause us to delay --

Q. Yes.

A. -- the drilling of the second well? I mean, obviously, everything that we base our plans on is geologically in what the formations look like, what our logs look like. So that would be the biggest case, if the log showed something other than what we expected or detrimental to what we expected.

Q. Anything specific?

A. No. I'd have to let Bill answer that.

Q. So all four wells are going to get drilled back-to-back no matter what?

A. That's the plan.

Q. Okay. What about the other four wells you have permitted out there?

A. As Mr. Shelton stated, the plan is to drill those in 2019 after a one-year delay, as we agreed with CL&F.

Q. Right. Right.

The completion and stimulation design that you describe in the AFEs, is that something you brought over from Range?

A. No, sir. No, sir. I mean, this technique and design has been developed since we got to Chisholm.

Q. Okay. And you've employed it on how many wells?

A. We have completed nine wells.

Q. Okay.

A. All the same. Yes, sir.

Q. All right.

MR. HALL: Nothing further.

Thank you.

MR. BRUCE: Just one question.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Are you going to drill all four wells and then complete all four?

A. Yes, sir.

Q. Thanks.

EXAMINER BROOKS: No questions.

CROSS-EXAMINATION

BY MR. CASHON:

Q. Am I correct, Mr. Shelton, that your drilling campaign begins July 2018?

A. For these wells?

Q. Yes.

A. I believe on our latest schedule -- and this

shifts as rigs come off. The rigs and things, latest schedule has them drilling in -- it's going to be springtime. I think July is a little far back.

MR. SHELTON: They're sooner than that. April, I believe.

THE WITNESS: Yeah.

Q. (BY MR. CASHON) I'm sorry. I couldn't hear you.

A. April, I believe. Sometime in the springtime, they'll be drilled.

Q. And then your follow-up fracking would happen when?

A. It'll take us probably four months, roughly, to drill them all, get everything off and bring completion pretty quickly after that. So we'd be looking at early fall. And obviously --

Q. To be finished --

A. Yes, sir, to complete drill-out, simultaneously frac, drill and turn them on.

Q. What advantage is pad drilling? Is there less surface disturbance?

A. Yes.

Q. So less impact?

A. The same with the pipeline as well.

Q. Right.

Who is your gas working for?

A. Who will be gas marketing?

Q. Gas marketing.

A. I don't know if we have an agreement in place heading towards us. I'm just not sure if I'm at liberty to say who it is.

Q. Very good.

But it's in the stages of planning right now?

A. They're planning and actively working to get our direction.

Q. Very good.

Are you responsible for running economics on the wells?

A. No, sir.

Q. Okay. Thank you.

A. Thank you.

MR. STANGER: I had a question.

EXAMINER McMILLAN: Please proceed.

CROSS-EXAMINATION

BY MR. STANGER:

Q. You-all have a proposed frac and completion design on these two 3rd Bone Spring wells. Can you comment any on that, how that compares in total volume -- volume per foot, number of stages, stage

separation, the total design as is compared to those other 3rd Bone Spring wells that were cited on that Exhibit 11 that you previously talked about?

A. Sure. So I don't have the data here right in front of me, but based on what I've seen, there is a -- there is kind of a cluster of wells that are in the 1,000-pound-per-foot range. That is a cluster, 1,500 pounds per foot, and a smattering of wells above that with higher pounds per footage. And I believe I would say the majority of the wells have been drilled 1,500-foot -- pretty close between 1,000 pounds per foot and 1,500 pounds per foot. We're not lumping them in bins -- but most of them in those two bins are typically in the 1,000-pounds-per-foot range and the 1,500-pound-per-foot range.

As far as number of stages, that's not typically publicly released. So it's hard to say. Typically what we get on the State Web site and top perf, bottom perf, total volume of the fluid, total volume -- other broken out 40, 47, whatever it is broken out. Typically we see stages on offset wells. So I'm not sure on that.

But I would say, overall, we fit pretty well in the middle of where everybody's at or in that 1,500-pound-per-foot bin, where probably a majority of

people have been in the area.

Q. Well, on that Exhibit 11, there was a well in Section 11 that you-all showed that its 30-day average in the first 90 days was 66,000 barrels a month --

A. Yes, sir.

Q. -- as compared to -- there is another well in the section, 32,000 barrels, and another one in Section 11 that was 14,000.

A. Yes, sir.

Q. To your knowledge, do you know whether the one that was 66,000 barrels a month was completed any differently than those other two?

A. I know as far as what their pounds per foot was. And so the furthest east well, the one that's 14,000 barrels, 30-day IP, was completed with approximately 1,500 pounds per foot. The next well over, at 32,000 barrels of oil, that one was completed at, I think, 655. It was in the 6- to 700-pounds-per-foot range, so quite a bit on the lower range. The next one over is 66,000. The one you're referencing was approximately 1,600 pounds per foot, and then the furthest one to the west was around 2,000 pounds per foot. So it varies.

Q. Were they about -- were they approximately the same in total volume? Total pounds?

A. No, because they're all the same length, so you just take the pounds per foot, multiply it times --

Q. Stimulated length wasn't the same --

A. They were approximately. They were pretty close.

(The court reporter requested the parties speak one at a time.)

Q. Never mind. Withdraw that question.

MR. CASHON: I do have one other question, though.

RECROSS EXAMINATION

BY MR. CASHON:

Q. Did you utilize any outside consultants or anyone in coming up with the stimulation design or anything, other than Chisholm personnel?

A. Mr. Huling has been a part of that process as well looking at offset wells. I mean, not in --

Q. He works in-house as a --

A. He is a consultant, so yes. I would think that's the answer to the question.

Q. And then just kind of a similar question: For the 2nd Bone Spring -- that was on Exhibit 15 -- did you-all also look at those offset wells in coming up with your completion design there as well?

A. Yes. And it's a similar story. You have a

grouping and in that 500 to 1,000 grouping and 1,500 and 2,000-plus wells. It's not a lot of variation across those from what I've seen.

Q. Okay. That's all the questions I have. Thank you.

A. Yes, sir.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. How did you figure out the cost for the title for the wells on the AFE?

A. How did we figure out how much it was going to be?

Q. Yes.

A. So that's just based off of past experience and past -- running title in the past. So that is in our bond permits and inspections portion, line -- 8,500, 135. It's in there with --

Q. Okay. So is it -- so what happens if you drill the first well and then you don't drill the second well? How would that cost affect -- how would that -- if you drill the first well and you don't drill the second well, then what happens to that line item in your AFE?

A. To that particular one?

Q. Yes.

A. It will likely increase, as most of these will,

because, again, I split them out across the pad, across the wells on the pad.

Q. So you are -- so you looked at 200,000 and you estimate 250 to each?

A. Yes.

Q. Okay. And then so you're saying if you don't drill the other wells, then you'll have -- then that cost will proportionately go up --

A. Yes.

Q. -- for the undrilled wells?

Now, so you want to have -- you're going to have one or two surface facilities?

A. We'll have -- we'll have one tank battery on each location.

Q. Okay. And will you agree that each well will be measured separately?

A. Yes. Each have their own test separator or their own separation.

CROSS-EXAMINATION

BY EXAMINER BROOKS:

Q. I need you to clarify one thing. You said one tank battery at each location, but you're going to have only two pads --

A. Yes, sir.

Q. -- for four wells. So one tank battery on each

pad or two tank batteries?

A. Yes. One tank battery on each pad. Yes, sir.

Q. And that tank battery is going to be charged -- necessarily going to be charged to the first one you complete, right?

A. It will be split out between the two wells.

Q. Okay. So the cost of it will be split out?

A. Correct.

CONTINUED CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. And you're aware that for the, quote, infill wells are going to be metered separately, also?

A. Yes, sir.

EXAMINER BROOKS: No questions.

EXAMINER McMILLAN: Okay. Thank you.

MR. HALL: Follow-up, if I might.

EXAMINER McMILLAN: Please proceed.

RECROSS EXAMINATION

BY MR. HALL:

Q. Mr. Burke, I believe you said nine wells have been completed. Did I have that right? Nine?

A. Yes, sir.

Q. Have those completions been reported to the State by way of a sundry notice or anything?

A. Yes.

Q. They're all available to us online?

A. They've been submitted. Whether or not they're online or not, I do not know.

Q. Do you know when they might have been submitted?

A. I don't. That was done by regulatory personnel.

Q. I see. Okay.

And then -- ask you about your well path orientation. You have two going south, two going north. Why is that?

A. I believe, originally, when we were looking at developing this location, there is a road, and I don't know which road it is. It cuts off the northwest corner, so ideally, we would put them on the north side just to save costs. Having them both in that -- with that road coming through, it's not possible. So we stuck one in the bottom corner.

Q. Nothing further. Thank you.

MS. KESSLER: Brief redirect.

EXAMINER McMILLAN: Please.

REDIRECT EXAMINATION

BY MS. KESSLER:

Q. Mr. Burke, if you could turn to Exhibit 20. Were you the -- this shows the Lea South Federal-Com 2BS

No. 2H well. Were you the billing and operations engineer overseeing this well?

A. Yes, ma'am.

Q. Did you prepare the AFE for that well?

A. Yes, ma'am.

Q. And did you hear, in Mr. Francis' testimony, that the geology was similar and was also a 2nd -- Lower 2nd Bone Spring target?

A. Yes, ma'am.

Q. Did I hear you say earlier that you used the exact same completion technique?

A. Yes, ma'am.

Q. What were -- do you remember what the actual -- what the AFE was on that well?

A. AFE on that well, and I'd have to give you an approximate number, but it was approximately $4.2 million.

Q. And what were your actual costs on that well?

A. On that one in particular, we don't have all the accounting costs back in, but we're estimating field estimate costs of about $4.4 million on those.

Q. So approximately 5 percent higher than your AFE costs?

A. Yes.

Q. And that was an actual well that you were

responsible for drilling, correct?

A. Yes, ma'am.

Q. I think that you already said this, but for Chisholm's well completion plan with -- did you say 315,000 pounds per stage?

A. That's correct.

Q. Does that fall within the range of completion for immediate wells in this area?

A. Yes.

Q. And finally, I want to look back at Exhibit 1. Does Chisholm have experience drilling multiple wells in a particular area?

A. Yes.

Q. So the same technique of drilling back-to-back-to-back and then completing?

A. Yes.

MS. KESSLER: Those are all the questions I have. Thank you.

EXAMINER McMILLAN: Thank you very much.

MS. KESSLER: That is all of our direct.

EXAMINER BROOKS: Okay. You have no more witnesses.

MS. KESSLER: We're reserving rebuttal.

EXAMINER BROOKS: Okay. Let's take a recess then. I don't -- it's up to you or whoever wants

to weigh in on whether we take a lunch recess now or brief recess to be followed by a lunch recess later. But I would like to take a ten-minute recess.

EXAMINER McMILLAN: We're going to come back at 12:30. That's the best way of doing things.

EXAMINER BROOKS: Well, I forgot. I have one question -- I have one question of Mr. Chisholm -- not Mr. Chisholm -- Mr. Shelton.

(Laughter.)

LUKE SHELTON,

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

RECROSS EXAMINATION

BY EXAMINER BROOKS:

Q. Are there any overrides in this title, other than the gentlemen who are here present?

A. I believe so.

EXAMINER BROOKS: That's all.

MS. KESSLER: So you don't want to do any of their witnesses before lunch?

MR. HALL: I prefer lunch.

EXAMINER McMILLAN: We have no idea how long they're going to take. It makes more sense to do them all in one shot.

MS. KESSLER: Okay.

(Recess, 11:15 a.m. to 12:40 p.m.)

MR. McMILLAN: Great Western would call its first witness.

EXAMINER McMILLAN: Please proceed.

FOREST CARTER MUIRE,

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

DIRECT EXAMINATION

BY MR. McMILLAN:

Q. Good afternoon, sir. You've previously been sworn in, correct?

A. Yes.

Q. Please state your full name and place of residence.

A. My full name is Forest Carter Muire. I live in Midland, Texas.

Q. And by whom are you employed and in what capacity?

A. I'm employed by Great Western Drilling, Limited as a land manager.

Q. Are you authorized to testify today on Great Western's behalf?

A. Yes.

Q. Have you previously testified before the Division or one of its examiners --

A. Yes.

Q. -- and had your credentials accepted and made a matter of record?

A. Yes.

Q. Great.

Are you familiar with the applications filed in these cases?

A. Yes, I am.

Q. And are you familiar with the land matters in these cases?

A. Yes.

MR. McMILLAN: Mr. Examiner, I would tender Carter Muir as an expert petroleum landman.

EXAMINER McMILLAN: Any objections?

MR. CASHON: No objections.

MR. STANGER: I don't think so. No objections.

EXAMINER McMILLAN: So qualified.

MR. McMILLAN: Thank you.

Q. (BY MR. McMILLAN) Sir, would you briefly state what Great Western seeks by the applications that it's filed in these cases?

A. In Case Number 15875, Great Western seeks an order approving a nonstandard oil spacing and proration unit for the Bone Spring Formation comprised of the west

half-west half of Section 34, Township 21 South, 31 East -- 34 East, New Mexico Prime Meridian, Lea County, New Mexico, and approving all mineral interests in the Bone Spring Formation underlying the nonstandard unit. The unit will be dedicated the to the Great Western's proposed Grama Ridge 34 State, 3rd Bone Spring No. 2H well.

In Case Number 15876, Great Western seeks an order approving a nonstandard oil spacing and proration unit in the Bone Spring Formation comprised of the east half-east half of Section 34, Township 21 South, Range 34 East, New Mexico Prime Meridian, Lea County, New Mexico, including all mineral interest in the Bone Spring Formation underlying the nonstandard unit. The unit will be dedicated to Great Western's proposed Grama Ridge 34 State 2 Bone -- 2nd Bone Spring No. 9H well.

Q. Great. Thank you.

Have you prepared certain exhibits for introduction in this case?

A. Yes.

Q. Do you have those exhibits in front of you?

A. I do.

Q. Great. Let's take a look at Exhibit Number 1. Are these the C-102s for the two wells that Great

Western has proposed here?

A. Yes.

Q. And can you identify for us the surface and bottom-hole locations for each of the proposed wells?

A. For the Grama Ridge 34 State 2nd Bone Spring 9H well, the surface location will be located 1,320 feet from the east line, 275 feet from the south line. Bottom-hole location will be 460 feet from the east line and 330 feet from the north line of Section 34.

Q. And how about for the other well?

A. For the Grama Ridge East 34 State 3rd Bone Spring 2H well, the surface location is 275 from the north and 870 feet from the east -- west line, with a bottom-hole location of 460 from the west and 330 from the south line of Section 34.

Q. And taking into account the landing points for each of these wells -- let me take a step back.

Do you know what the setbacks are for oil wells in this pool?

A. It's 330 feet.

Q. And keeping in mind or taking into account the landing points for each of these wells, are the locations proposed by Great Western within setbacks?

A. Yes.

Q. Can you briefly tell us what the primary

objective is for each of the proposed wells?

A. The 34 State 3rd Bone Spring 2H well is a test of a 3rd Bone Spring Formation located in the west half-west half of Section 34.

The 34 State two 2nd Bone Spring 9H will be a test of the 2nd Bone Spring in the east half-east half of Section 34.

Q. Okay. And are the proposed project areas outlined in red in the C-102s in Exhibit 1?

A. Yes.

Q. And are project areas of this size established for the Bone Spring Pool in this area?

A. Yes.

Q. Does Great Western own the right to drill on each track that will be traversed by the wellbores?

A. Yes.

Q. Does Exhibit 2 -- turn to Exhibit 2 with me. Is this an ownership breakdown for the subject acreage?

A. It is.

Q. And can you just review that for us?

A. Currently, I guess prior to the recording of an assignment from Eau Rouge into Chisholm, which I was unaware about, Chisolm held 5.1 percent; Eau Rouge owned 37-1/2 percent; Great Western owned 43.75 percent; Continental Land & Fur had 16.4 percent; and Timothy

MacDonald has a .015875 percent working interest in the wells.

Q. And those are the same percentages for each of the two project areas, correct?

A. Correct.

Q. When did Great Western first commence its evaluation of the Bone Spring in this area?

A. Probably around 2013.

Q. Okay. Let's take a look at Exhibit 3. Do you recognize this exhibit?

A. I do.

Q. And does this -- is this an area of the development plat showing Bone Spring producers in the vicinity of our subject acreage?

A. Yes, it is.

Q. Can you please describe for us the general development pattern in the area?

A. Orientation of the horizontal wells on the plat are in the north-south direction or south-north direction, whichever you please. North-south.

Q. And is the stand-up orientation for Great Western's wellbores consistent with the prevalent development pattern in the area?

A. Yes.

Q. Does Great Western's development plan

potentially strand any acreage?

A. No.

Q. Is Great Western asking the Division to pool any unjoined working interests and mineral interests within the subject acreage?

A. Yes.

Q. In your -- in your work, did you find any unleased mineral interest owners?

A. No.

Q. Okay. Did Great Western also seek the imposition of 200 percent risk penalty against unjoined working interests?

A. Yes.

Q. Do Great Western's applications seek to have Great Western designated as the operator of these wells?

A. Yes. Of the wells that we've made application for.

Q. Right.

A. Yes.

Q. Okay. Can you please discuss for us the efforts that Great Western made to obtain the voluntary participation of the unjoined working interest owners, the mineral interest owners, in these proposed wells?

A. On October 3rd of 2017, we proposed two wells that I previously described -- one in the east half-east

half, one in the west half-west half -- to test the 2nd and 3rd Bone Spring formations. We also supplied a joint operating agreement at the time and requested that the parties review our joint operating agreement. And that's basically what we did and made some calls, and communications occurred between the parties.

Q. Okay. Let's look at Exhibit 4. Does this appear to be a true and correct copy of the well-proposal letter sent to the working interest owners on October 3rd, 2017?

A. Yes.

Q. Okay. And in looking at Exhibit 4, am I correct that there are two such letters, one for each of the two proposed wells?

A. That's correct.

Q. And is there an AFE attached to each?

A. Yes.

Q. Were these letters sent to each of the working interest owners listed in Exhibit 2?

A. Yes.

Q. And was there a correction that had to be made to these letters subsequent to October 3rd?

A. Yes. On October 19th, we corrected the description of the township. The original letter showed the lands to be in 20 South. The correction then showed

the lands to be in 21 South.

Q. Do you recall hearing testimony this morning from Chisholm's witnesses describing a certain confusion as to whether these were 2nd Bone Spring or 3rd Bone Spring wells based upon the well-proposal letters they had received?

A. I do.

Q. Can you address these letters and explain, perhaps, explain away that confusion?

A. The Grama Ridge 34 State 3rd Bone Spring No. 2H well is proposed as a test of the 3rd Bone Spring Formation. It was to have a bottom hole and a total vertical depth of 12,070 feet, which was to be entered and tested for the Bone Spring also. That was the pilot-hole well location, which is somewhat similar to what Chisholm proposed to do at that same location, was to drill a pilot-hole well.

The second proposal is a test of the -- this is the 34 State 2nd Bone Spring 9H well. It was to be located in the east half-east half. It's a test of the 2nd Bone Spring Formation. It had a bottom hole -- or total vertical depth of 10,275 feet, which did enter the 3rd Bone Spring test, and, in fact, probably went into the top of the Wolfcamp. We felt it was necessary to at least penetrate that zone for further information.

That was not a pilot-hole well, but it is a 2nd Bone Spring test, as opposed to the confusion that certain parties thought it was a 3rd Bone Spring test.

Q. So to be clear, the Grama Ridge 34 State 2nd Bone Spring No. 9H well is a 2nd Bone Spring well?

A. Correct. That's the first line of the letter.

Q. Okay. In your opinion, has Great Western made a good-faith effort to locate all unleased mineral interest owners and working interest owners and communicate with them in order to obtain their voluntary participation in the proposed wells?

A. Yes.

Q. And you made mention of some -- in addition to the well-proposal letters -- you made mention of some telephonic communications. Can you just give us a gross on those communications?

A. We had conversations with Chisholm. I don't remember exactly when they started, but there were conversations with Chisholm. We also had several conversations with Continental Land & Fur -- they were one of the working interest owners -- concerning -- largely concerning the development plan of Chisholm and the difference of opinion that Great Western had in relation to that plan.

Q. Now, did you hear testimony earlier this

morning which Chisholm essentially characterized Great Western's conduct as having contributed to or having caused some delay to their plans beginning the summer of 2017 to the present day? Do you remember that testimony?

A. I do, yes.

Q. Do you think that's a fair characterization of Great Western's conduct during that time period?

A. I certainly don't. We told them early on we had some reservations about the 2nd Bone Spring Formation in general. That was one of our issues. We also felt that we were concerned about the proposal, initially of eight wells, all to be drilled back-to-back. We thought that was probably way too much money without the benefit of having a period of time to evaluate the wells following the initial drilling of maybe one or two. We thought that was an excessive risk. And as a result of that conversation, I feel like they later modified the proposal to propose that they drill four wells back-to-back, two 2nd Bone and two 3rd Bone.

There were discussions about the operating agreement at the time. We felt like our operating agreement was much more fair to the working interest owners. It had -- our operating agreement initially had

a lower overhead rate of 8,000 for drilling wells and 800 for producing wells. They later modified that in their second proposal of the operating agreement that we received on October 24th to reflect that they were requesting that the drilling rate be 7,500 and the producing rate be 7,000 -- or 750.

Do you have some more questions for me?

Q. I do. That's enough for that one, and we'll talk a bit more about the JOAs later.

Let's take a look at Exhibit 5. And I believe we've actually seen this as part of the Chisholm's exhibit package, but are these Great Western's AFEs?

A. These are, yes.

Q. Okay. In discussion with the other interest owners, did any of the interest owners indicate that Great Western's estimated well costs were out of line?

A. No.

Q. What is the total for each proposed completed well?

A. Great Western's Grama Ridge 34 State 3rd Bone Spring second horizontal well have a total AFE cost of $7,125,000. That's the pilot-hole location. The Grama Ridge 34 State 2nd Bone 9H well has a total cost of $6,072,000.

Q. Now, these are -- in your experience, are these costs in line with what is being charged by other operators in the area for similar wells?

A. Yes.

Q. And did you hear testimony this morning as to Chisholm's AFEs?

A. Yes, I did.

Q. Okay. Well, we'll look at those in a moment.

Has Great Western made an estimate of the overhead and administrative costs while drilling and producing the well?

A. Yes, we have.

Q. What are those estimates?

A. Our estimates for a producing well overhead rate was 8,000 a month, and then the producing rate was $800 a month.

Q. Okay. And are these costs in line with what is being charged with other operators in the area?

A. Based on our experience having participated in large horizontal wells in New Mexico at this depth, those are accurate.

Q. They are accurate?

A. They are in line, yes.

Q. In line. Okay.

You may want to speak up a little bit for

the court reporter.

A. Yes, they are.

Q. And does Great Western recommend that these drilling and producing overhead rates be incorporated into the order that results from this hearing?

A. Yes.

Q. Does Great Western request that the order to be issued in this case provide for an adjustment of the drilling and producing overhead rates in accordance with the current COPAS bulletin in the area?

A. Yes.

Q. Now, in your opinion, has Great Western acted diligently to develop these reserves?

A. Yes.

Q. And to the extent that there were suggestions of delay with respect to Great Western's development of these reserves, suggestions made this morning in Chisholm's testimony, did you want to address those as far as why Great Western took the steps it did when it took them?

A. Well, we felt like at some point we might be force pooled and we did not see a force pooling coming down the line. We did not want to initiate the force pooling. I don't believe we received the force pooling ordinarily as soon as you might expect it. It came much

later than we expected it. That was one issue.

There were negotiations going on about the joint operating agreement. And we had reservations about their development plans and their proposals to complete the zones and the amount of frac stimulation methods that they were to use. There were issues and real concern. And that was the subject of my evaluation and discussions with other parties.

Q. Okay. Now, it's -- is it your understanding that Chisholm Energy has proposed well units that are in conflict with the units proposed by Great Western?

A. Yes.

Q. Did Chisholm send well proposals to Great Western with respect to their proposed units?

A. Yes.

Q. And have you reviewed those?

A. Yes.

Q. Have you seen Chisholm's AFEs?

A. Yes.

Q. In your position as landman at Great Western, do you see a lot of well proposals and AFEs?

A. Yes.

Q. And in your opinion, are Chisholm's proposed costs in line with what is being charged by other operators in the area for similar wells?

A. No.

Q. And why not?

A. Because they're substantially less than what we would see for some of the wells that have been recently drilled successful in this area in particular. We felt that Chisholm's AFEs were low and light on the amount of the money to be spent on the fracture and stimulation, and we were concerned that some of the other elements of their frac proposals were not going to be sufficient to demonstrate an economic rate of return for the production on the wells.

Q. Is it fair to say that of all the line items showing on Great Western's AFEs that the greatest differential with Chisholm's AFEs really arises with respect to completion?

A. Yes, it is.

Q. Okay. What is your current understanding of Chisholm's development plan?

A. As I understand it, right now they have an operating agreement that says they will drill one well. They verbally indicated that they intend to drill four wells in 2018. They've also entered a provision into the amended operating agreement that they presented after the initial operating agreement that was presented that would have proposed that they wait for a year after

the completion of the last of the four initial wells before they commence drilling another round of four wells or another well. So there was a lag time between the four wells of a year before they would commence drilling the next four wells, but, in fact, they do intend to drill eight wells.

Q. Okay. Let's look at exhibit -- I guess it's Exhibit 6. Is this a compilation of Chisholm's well proposals and AFEs for all eight wells that they proposed?

A. Yes.

Q. And you've -- I think you previously testified that you've taken a look at all of these.

A. Yes.

Q. And what is the total of the AFEs for all eight of Chisholm's completed wells?

A. 34 million, I believe.

Q. And in your opinion, is this total proposed cost in line with other wells -- similar wells in the area?

A. No, sir.

Q. Okay. Having testified that Chisholm's well costs are out of line in that they seem to be low, what issues do you see arising with respect to Chisholm's AFEs and their intent to drill these -- drill and

complete these wells at such a low cost?

A. I don't know how they can complete them at an economic rate and provide a rate of return that is acceptable for the investment of the capital they're requesting to be made. I think that's the major issue we would have. They also propose to drill multiple wells back-to-back, as I said, without allowing time to evaluate the production of wells prior to committing more capital to drill the remainder.

Q. Does that seem to be prudent to you?

A. In my view, it's not prudent to drill four wells back-to-back without a period of time to evaluate them.

Q. You previously testified that you took a look at Chisholm's initial JOA, correct?

A. Yes.

Q. And then there was a second JOA; is that correct?

A. Yes. That's correct.

Q. What kind of concerns arose from your review of the initial JOA?

A. Well, the initial JOA as I've indicated, there were -- nonconsenting parties were not to be permitted to have any kind of information related to the wells that were drilled but they had understood might be

drilled when they signed the JOA.

Chisholm has no firm obligation to market the production on behalf of the nonoperating parties. Their initial overhead rate was $10,000 for drilling wells and $1,000 for producing wells. That also included, under the COPAS, that in addition to the overhead rates, the employee costs, consulting costs, professional services, legal costs, administrative costs were to be direct charges to the working interest owners outside of the administrative overhead rate that was provided. So you'd be paying the $10,000 plus all these costs, which are commonly associated with administrative overhead rates.

Q. Okay. Upon reviewing the second proposed JOA from Chisholm, did you see that Chisholm had remedied all of these issues?

A. They had lowered their overhead rate, but all of these charges I did describe -- the employee costs, the consulting costs, professional services, and administrative costs -- were still to be direct charges to the joint account of the working interest owners.

Q. Uh-huh. And, again, those are not commonly charged back to the interest owners?

A. Not in our usual -- we certainly attempt to avoid being double-charged overhead plus direct charges

for the same costs that are usually covered by the overhead rates.

Q. When did you receive that second proposed JOA from Chisholm?

A. Great Western received the second proposed JOA on October 24th.

Q. Was that somewhat late in the game to your --

A. I knew that it was being negotiated, and I knew some of the key elements. But I did not personally receive a copy of that thing until October 24th.

Q. Okay. And, of course, ultimately, Great Western did not sign the JOAs?

A. We did not sign it.

Q. Okay. Did you hear this morning testimony suggesting that one of the Great Western's reasons for negotiating with Chisholm was simply because Great Western wanted more money?

A. I did hear that, yes.

Q. And is that a fair characterization?

A. I certainly don't believe it is. They had made an initial offer in the area and they supplemented it with another offer. I don't think we actually responded in any favorable manner. We certainly didn't counterpropose any offer that they made.

Our main interest was avoiding being in any

wells that Chisholm was proposing to drill. One, because of their experience in the area, their costs seems to be out of line on the assessment. And their costs for administrating and operating the wells and the overhead was extremely unusual. So we wanted to avoid that.

We had proposed in our negotiations that we cross-assign interest. Great Western would have assigned more acreage to Chisholm than it would have taken in cross-assignment. They would have gained an extra 12 acres in the cross-assignment, such that Great Western would have ended up one 320-acre unit and Chisholm would have ended up with the other 320-acre unit.

We would have ended up with less than 83 percent of the one, and I think they would have had more than that because we would have cross-assigned to them a greater number of net acres. We thought that was a reasonable thing to do, but they did not. That was our effort to avoid being in a well that they would be drilling.

Q. So ultimately, that offer was rejected, and here we are today, right?

A. That's basically right.

Q. Okay. Let's discuss the role of Advance Energy

Partners in all this. Advance recently intervened in this case, correct?

A. They did.

Q. And to your understanding, why?

A. Advance is interested in acquiring acres in the area and they'd like to buy Great Western's position in this section.

Q. If you'll turn with me to Exhibit 7, does this appear to be a true and correct, although redacted, copy of a letter agreement with Advance?

A. Yes.

Q. When was this agreement entered into?

A. Advance made an offer on December 6th or by letter dated December 6th, and Great Western made acceptance of that letter December 11th.

Q. So very recently, correct?

A. Very recently.

Q. Broadly, what are the terms of the transaction?

A. The terms are that they would -- they proposed to buy Great Western's interest with an effective date of the December 1 to be closed on or about February 2nd, and they would then participate with Great Western in this hearing in addition to doing normal due diligence.

Q. So I guess the question we all have -- and perhaps you've testified to this in some way previously

-- but why did Great Western decide to sell its assets here to Advance?

A. Largely, we were unable to finalize negotiation with Chisholm to avoid being in the wells that they were proposing to drill and complete we felt was not in our economic best interest.

Q. Okay. And so what would Advance's role be going forward should the provision grant Great Western's application and deny Chisholm's?

A. Advance would assume operations. The permits would be transferred to Advance, and then they would propose to -- engage in their development operations.

Q. Okay. In your opinion, sir, would the granting of Great Western's applications and the denial of the Chisholm's competing applications be in the best interest of conservation the prevention of waste and the protection of correlative rights?

A. Yes.

Q. Were Exhibits 1 through 7 prepared or compiled by you or at your direction and control?

A. Yes.

MR. McMILLAN: Mr. Examiner, at this time, I would tender Exhibits 1 through 7 for admission.

MS. KESSLER: No objection.

MR. CASHON: No objection.

MR. STANGER: No objection.

EXAMINER McMILLAN: Exhibits 1 through 7 may now be accepted as part of the record.

(Great Western Exhibit Numbers 1 through 7 are offered and admitted into evidence.)

MR. McMILLAN: That concludes my direct examination.

EXAMINER McMILLAN: Cross-examination?

MR. RANKIN: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. RANKIN:

Q. Good afternoon, Mr. Muire. How are you today?

A. I'm good.

Q. I have a few questions for you. I want to step through them one at a time. And forgive me if I take a moment to get my thoughts in order as we walk through my questions.

But first let's talk about -- I'd like to address your testimony regarding your efforts to reach agreement on your proposals and your AFEs --

A. Okay.

Q. -- to the parties in the spacing units.

A. Okay.

Q. If I understood correctly, you indicated that your -- your efforts to reach agreement were based on

the proposal letters --

A. Correct.

Q. -- the AFEs, and calls and communications between the parties; is that correct?

A. That's correct.

Q. Okay. And with respect to Chisholm, what were your efforts subsequent to the issues of your proposal letters?

A. I think most of our efforts probably occurred prior to the issuance of our proposal letters and after the issuance of our proposal letters largely to negotiate a settlement of our differences.

Q. But did you during that time ever specifically negotiate the terms of your well proposals or your AFEs?

A. I don't remember -- I think we definitely talked about their low volume tracks and frac costs being out of line and we felt like ours were in line and, therefore, that justified the extra expense associated with our --

Q. But with respect to your well proposal and your AFEs, did you negotiate with Chisholm over those proposals or just --

A. I didn't -- I didn't hear that they had any large objections to our AFEs in the first place. There was no grounds for -- or no reason to have negotiations

directly with them. They didn't have a problem with my AFEs. At least there was nothing stated.

Q. But after you submitted the proposals -- let me back up.

The date that you issued those proposals was after the applications to pool was filed in this case, correct?

A. Yes. That's correct.

Q. Okay. So what was the reason for issuing those well-proposal letters at that point?

A. We felt like we needed to engage in a competitive force pooling application to support our claim that their method of the developing a section, we didn't agree with it. We felt like we only needed initially to propose the two wells we proposed under a joint operating agreement that would then provide for the subsequent drilling of additional wells at a later time after allowing for a thorough evaluation on the first two wells that had been drilled -- one east half-east half and one in the west half-west half -- which is a means to delineate the development on the section.

Q. So wait -- when you proposed those wells, did you intend to drill them?

A. Yes. Eventually, we would have definitely

drilled them if we were successful in the force pooling, or if we became the operator, we would have drilled them.

Q. Okay. And has Great Western ever drilled a horizontal well in the Bone Spring before?

A. Not Great Western.

Q. Okay. And has it ever -- so it's never drilled a horizontal well in the 2nd Bone Spring?

A. No. It has not -- not -- or in the 3rd Bone Spring.

Q. So the purpose of the well-proposal letters after the filing of these applications was a defensive posture, correct?

A. Yes, it was. We do -- we did intend to bring another operator. We had discussions with Mewbourne, and they were certainly behind our efforts, you know, that we would have been assigned our permits to Mewbourne. Mewbourne had made an offer to acquire our interest in that section, which would have resulted in Great Western retaining an interest in that section under the proposed swap that I discussed a minute ago where we would cross-assign interests.

We would have then removed ourselves from Chisholm's operations, and it would have been under a 320-acre unit in that section and additional acres

operated by Mewbourne. We thought that was a better position to be in with respect to the money we wanted to spend.

Q. Okay. So going back to your proposal letters though -- any contractor that you may have reached agreement with to drill a well, would they have followed your plans to drill, or would they have had their own plans to drill?

A. Well, we filed AFEs. Mewbourne had more or less reviewed our AFEs. They were willing to operate under the AFEs that we used and proposed.

Q. Okay. But Mewbourne's not part of the AEP.

A. They are not. That is correct.

Q. Does AEP agree with your proposal to drill these wells and the completions that you've proposed?

A. Yes, they do.

Q. So AEP's intent, if they were called to testify, would be that they intend to follow the well plans proposals that you've laid out in the exhibits?

A. That's correct.

Q. So are you -- Mr. Muire, you testified that you are -- have been qualified previously as an expert in petroleum land matters; is that correct?

A. Yes.

Q. But you have no expertise in planning well

completions or well designs?

A. I'm a landman. I'm not an engineer. I don't profess to have that expertise necessary to design a frac technique.

Q. Okay. So your testimony about -- your concerns on Chisholm's fracture and stimulation program is not based on any expertise that you have?

A. It's based on the information that was supplied to me by Great Western's engineering staff and geologic staff and Mewbourne's geologic and engineering staff.

Q. But you didn't independently evaluate Chisholm's fracture stimulation plan?

A. I did notice that their costs were remarkably less than what I normally have seen on a number of 3rd Bone and 2nd Bone Spring that Great Western participated in recently.

Q. Have you ever conducted a study to evaluate the effectiveness of the various types of completions against production?

A. No.

Q. So you have no idea whether or not those costs are --

A. I would rely on the testimony of the engineering staff.

Q. Let me finish my question. You have no idea

whether or not those costs result -- those lower costs result in poor performance?

A. I personally am not capable of making that analysis. I have to rely on the judgment of engineers that work with the same company I do.

Q. So your testimony wasn't based on that kind of study. You didn't do that.

A. I did not do the analysis, but I did look at the cost.

Q. Okay. So you think higher costs would be better?

A. I do.

Q. Okay. Prior to Chisholm's proposals to develop Section 34, what were Great Western's plans -- development plans for this section?

A. Initially, we would drill the two wells that we proposed. Wait a period of time following that, conceivably a year or so, to determine what the productivity of the initial tests would be --

Q. Okay. I thought you told me --

A. -- under a joint operating agreement.

Q. -- I thought you told me that the well proposals that you issued were sent after Chisholm had proposed its wells?

A. They were.

Q. On the application?

A. That's correct.

Q. So did Great Western have those plans to drill those wells at some point before?

A. We -- I don't remember exactly when we drew up our AFEs. There is a date on the AFEs that were drawn up. There was a period of a few weeks in there where we were discussing with other operators in the area to develop the AFEs.

Q. Would you mind referencing -- pointing that out to me in the exhibits where it was, where it was referenced?

A. What do you want to know? I'm sorry.

Q. I asked -- the question is: When did Great Western develop its plans -- come up with its plans to develop Section 34? And I thought your testimony was that the proposal letter went out of after Chisholm had --

A. It did.

Q. -- filed its applications?

A. It did. It came.

MR. HALL: Hang on just a second.

EXAMINER McMILLAN: Excuse me. Please speak to her. That's all I'm asking.

Q. (BY MR. RANKIN) So I just want to make clear:

When did Great Western come up with its plans to develop Section 34?

A. Within -- after we received -- initially after we received Chisholm's proposals to drill eight wells back in July. In that time frame and prior to our well proposals, we were reviewing quite a bit of the different information in a very general manner, and then toward the end of that, we narrowed down to what we want to propose and use as AFEs.

Q. Okay. So prior to Chisholm's proposals, Great Western didn't have any plans to develop Section 34?

A. Not at that time, no.

Q. You testified -- and correct me if I'm wrong -- that Great Western did not want to initiate forced pooling for Section 34; is that correct?

A. That's correct.

Q. Okay. And is that because Great Western didn't have any -- my understanding would be that it was because Great Western didn't have any plans to develop in this section; is that right?

A. We developed our plans after we received the eight applications of Chisholm. That was in reaction to Chisholm's proposal --

Q. And --

A. -- which we thought and I've discussed why we

didn't agree with the proposals.

Q. -- I think you also said that Great Western had expected to be -- have an application for force pooling or for a well proposal for that section; is that right?

A. I believe so.

Q. And I believe you testified that Great Western -- that Chisholm's application of proposals came sooner than Great Western had expected?

A. Their forced pooling applications -- no. They came later than I expected them to. I would have thought they'd come in much sooner.

Q. Sooner during the course of your negotiations?

A. Yes. Yes. After the 30-day period lapsed where there were some negotiations. Yeah.

Q. Okay. And that was because they continued to try to negotiate with Great Western to reach a deal; is that correct?

A. That's correct.

Q. So assuming the total value -- total cost for the eight wells that Chisholm was proposing -- originally proposed, you agree with me, don't you, that they modified their proposal to eliminate four of those wells from their proposals; is that correct?

A. Under the forced pooling, yes.

Q. And they did that in response to the

negotiations -- partly in response to the negotiations with Great Western over your concerns; correct?

A. Yes. That's correct.

Q. Does Great Western have any rigs currently running in the Permian Basin?

A. We do, yes. Most recently, we did not -- we just TD'd one the other day. The rig's been removed.

Q. Is that a vertical well or --

A. It's a vertical well, correct.

Q. So Great Western has one rig running in the Permian?

A. We're nonoperator in a large number of wells drilled by a number of -- of other operators that we -- we do have our own operating program, but more than half of our activity is nonoperating.

Q. And for those wells that you are operating, do they tend to be vertical versus horizontal wells?

A. Most of our operations are vertical. We're planning two horizontal wells in the next -- before --

Q. Separate from these?

A. Separate from these, correct, that we would operate.

Q. Now, I want to just talk a little bit about Chisholm's good-faith efforts to negotiate their proposals and their AFEs. And just to be clear,

Chisholm originally proposed to drill eight wells back-to-back-to-back within Section 34?

A. Right. Uh-huh.

Q. You initiated -- you expressed concerns that that was too many.

A. Yes, we did.

Q. And as a result, they modified their proposal to just four wells?

A. They also had objection to -- Continental Land & Fur also had the same objection Great Western did to the eight. And Continental was involved in some of the same negotiations. So it was not simply Great Western having the issues.

Q. As a result of those discussions, they conceded and modified the plans just to drill four wells?

A. Correct.

Q. And on the cash deal, is it correct that Chisholm made an offer of cash for Great Western's interest in Section 34?

A. They did.

Q. And was your recollection that that offer was for approximately $500 an acre?

A. That was the first offer, yes.

Q. Did Great Western ever formally respond to that offer?

A. Not initially, no.

Q. Did it ever?

A. We later got a second offer, and I asked if that was their last offer, basically. And they said, Basically, that's our last offer. And we did not counter anyway.

Q. At no time did you make a counter to their offer?

A. No, we did not. As I said, our main concern was avoid being in drilling applications with Chisholm's operator. We wanted to keep an interest, not sell. That was what we were trying to accomplish.

Q. Did you explain that to them?

A. Yes, we did. They knew -- in fact, we made the counterproposal to Chisholm to swap net acreage where we would be the operator of one 320, and they would be the operator of the other 320.

Q. But now you've made a deal to sell your interest in whole to AEP; is that correct?

A. That is correct, largely due to our inability to reach a negotiated settlement with Chisholm.

Q. Okay. Now, on discussing their plans, you expressed that you had concerns about the geology, as well as the technical aspects of their experience; is that correct?

A. That's correct.

Q. Okay. And did -- you heard -- you were present for the testimony of Mr. Shelton earlier this morning?

A. Yes.

Q. Did you hear Mr. Shelton testify that he had made an offer to set up a meeting between Great Western and Chisholm to discuss their technical plans and technical abilities and experience?

A. Yes, I did.

Q. And did Great Western ever take them up on that offer?

A. They did previously send us a PowerPoint that laid out their entire development plan and their geology and we reviewed that and had some phone conversations. We really didn't think we needed to have a full-blown meeting and we just didn't elect to do that. It was not worth our time, I guess, basically.

Q. But did -- you continued to have questions after they presented you with their full geology or development plans?

A. Yes.

Q. But did you express those questions or concerns to Chisholm at the time?

A. Yes, yes.

Q. And you don't think they would have been

resolved through a meeting to review?

A. Not necessarily, no. I mean, they did, you know, come back with a full well proposal.

MR. RANKIN: All right. I think that's it, Mr. Examiner, for my questions.

EXAMINER BROOKS: I think Mr. Bruce jumped ship.

MR. HALL: Yeah. He said he had to go.

MR. STANGER: No questions right now.

MR. CASHON: No questions.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. Okay. My first question is: Your 8,000 and 800 for your operations and drilling costs, where are you -- where are you getting that information from?

A. We participate in a lot of the different horizontal wells, and that's more or less in line with many of the wells we're already in as a nonoperator.

Q. Okay. Have you looked at any compulsory poolings for one-mile horizontal Bone Spring wells in New Mexico, what the rate is?

A. No, not recently. I have not.

Q. Okay. I just want to make sure I'm clear on something. The 34 BS 2H, is that the pilot hole?

A. Yes, sir, at a total vertical depth of 12,070

feet.

Q. Okay. I understand.

You have no objections -- so do you have interest in the entire section?

A. Yes. It's undivided, 43.75 percent, in both leases, whole section.

Q. So you have no objection to the compulsory pooling in the east half of the west half and the west half of the east half?

A. Our plan initially was to file a complaint of forced pooling on the basis -- develop the unit. We didn't want to file additional forced pooling on other wells that we might not be willing to drill immediately.

Our proposal was to have parties in our well sign the JOA that covered the whole section, subsequent development in an orderly timely manner where the parties make election under the provision of the joint operating agreement with 300 percent nonconsent. We didn't feel the need to force pool if we could make a settlement under a joint operating agreement that would later provide for the ordinary development of the unit without causing four wells to be drilled immediately. We thought that was inconsistent with our desire to see the section developed in, you know, a little bit slower, methodical manner.

Q. So you have nothing of record of your objecting to the two other project areas?

A. We object to the notion that we're being forced pooled under four units to drill four wells, but we didn't file competitive applications. We did this in an effort to negotiate a settlement of this.

MR. McMILLAN: Mr. Examiner, I may be able to help here. Their pre-hearing statement does set forth Great Western's objections to all four of Chisholm's applications.

EXAMINER McMILLAN: Okay.

THE WITNESS: Sorry about that.

CROSS-EXAMINATION

BY EXAMINER BROOKS:

Q. Like Chisholm, y'all did not give notice to the overriding royalty owners; is that correct?

A. I don't believe we did.

Q. Okay. Well, I don't know the answer to that question, but I intend to research it before I approve an order in this case.

MR. McMILLAN: That's clear.

MR. HALL: What is the question?

EXAMINER BROOKS: Pardon me?

MR. HALL: What is the question we would be referencing?

EXAMINER BROOKS: State leases do not have pooling costs. So the logic in one Texas case I'm familiar with says that if there is a pooling clause in the lease that there are royalty owners, it says that the royalty -- whether the royalty owner gives the -- the working interest owner -- pool a lease, that the override -- overrides under that lease are subject to that pooling power.

Now, the question I have is: In a state of New Mexico oil and gas lease, which does not have a pooling clause, are overrides subject to that if there is not a clause in the assignment? Now, if there is a clause in the assignment, we don't have to worry about it because I would assume if there is a pooling power clause in the assignment, that -- there's a pooling clause in the assignment, that they would cover the overrides.

But I do not know about the other situation. I've read one Wyoming case that sort of touches on this issue. But it's a federal district court case out of Wyoming, so it's not overwhelmingly persuasive authority. So I really am curious about that. And I've just gotten -- I admit I've been at this business for years and I hadn't really thought about it until recently, but that has become a source of concern

to me since I did think about it.

MR. HALL: Right. I would say just bear in mind we're pooling for the right to drill.

EXAMINER BROOKS: Yes.

MR. HALL: Executive rights only.

EXAMINER BROOKS: And that can be settled without -- I mean, we can decide who should have the right to drill without deciding whether the overrides need to be parties to it. But my concern is that I don't see how we can write an order without doing that. So -- or maybe we can. That's one position a person -- that could be argued, that he could write the order and then leave it up to the operator's title attorney to determine whether or not he's got the title to the interest or not.

MR. HALL: I think that's what you do. You still pool all unjoined interest, whatever they may be. The interest you are pooling has the right to drill. In this case, the overrides -- the overrides are interest of record and it is up the operator to recognize them in making distributions of proceeds. But in this case, the overrides are here in the room.

EXAMINER BROOKS: Well, that's why I asked the question if there were other overriding royalty owners who are present, and I believe --

THE WITNESS: There are.

EXAMINER BROOKS: -- and I believe the testimony was there. I believe that was Chisholm's testimony, too.

MR. HALL: Well, that is an arguable position, that it doesn't make any difference because it's only a question of division of interest, and the division of interest is an issue under the Payment Proceeds Act --

EXAMINER McMILLAN: Right.

MR. HALL: -- which we do not administer.

EXAMINER BROOKS: So yeah, that's a good point. But I will --

MR. HALL: I'll let you know if I need breach briefing on this issue and we can continue the cases and notify them.

EXAMINER BROOKS: Pardon me?

MR. HALL: I mean, we could continue the cases and notify in them. That's where you land.

EXAMINER BROOKS: Well, if the parties aren't in too much of a hurry to do that, yes. So I will defer that until we get to the end of the case.

MR. HALL: Okay.

Q. (BY EXAMINER BROOKS) I don't believe I have any other questions for you. I have some questions about

the AFEs, but I gather that while you expressed some opinions on that, that is not your area of expertise; is that correct?

A. When it comes to frac design, no. It's definitely not my area of expertise.

Q. Well, frac design is the biggest difference between the AFEs; is it not?

A. Yes.

Q. That was my understanding. Okay.

You're going to put on an engineering witness, correct?

A. I believe they are.

MR. McMILLAN: Indeed.

EXAMINER BROOKS: Okay. So I will defer any questions until we get to the engineering witness.

Thank you.

MR. McMILLAN: I have a little bit of redirect. Is it my turn?

EXAMINER BROOKS: Oh. Yes, it's your turn.

REDIRECT EXAMINATION

BY MR. McMILLAN:

Q. Okay. Just a couple of quick questions here. You were asked whether Great Western operates any horizontal wells in the Permian Basin. The answer was no.

A. We do operate some horizontal wells in the Permian Basin; that is correct.

Q. And is this in partnership with other operators?

A. No. We actually -- physically and we're named operator of some horizontal wells in the Permian Basin that we actually drilled, I think.

Q. Approximately how many?

A. About three.

Q. Three. Okay.

And while I think the timeline might have gotten a little bit muddled, at least in my head, I just want to make clear that -- did, in fact, Great Western send its well-proposal letters prior to filing its force pooling applications?

A. Yes.

Q. Yes?

A. Yes, sir.

Q. That should do it for me.

MR. HALL: May the witness be excused?

MR. McMILLAN: Right. May the witness be excused?

Thanks. (Laughter.)

Great Western would call its next witness.

EXAMINER BROOKS: Could we take five

minutes?

EXAMINER McMILLAN: Let's take a five-minute break.

(Recess, 1:38 p.m. to 2:01 p.m.; Examiner Jones present.)

EXAMINER McMILLAN: Let's get started.

TERRY L. WILLIAMSON,

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

DIRECT EXAMINATION

BY MR. McMILLAN:

Q. Sir, would you please state your name and place of residence?

A. Terry Lamont Williamson, Midland, Texas.

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

A. Great Western Drilling as a senior geologist.

Q. Are you authorized to testified today on Great Western's behalf?

A. Yes.

Q. Have you previously testified before the Division or one of its Examiners and had your credentials accepted and made a matter of record?

A. No.

Q. Will you please give the Examiners your

education and work experience?

A. Basically, I graduated from Eastern New Mexico University in December of 1980. Went to work in Midland, Texas, February of 1981, and have been an exploration geologist in Midland, Texas, ever since then.

Q. And just for the record, what was your degree in in 1980?

A. BS in geology.

Q. Good.

A. Sorry.

Q. You said you started in 1981. How many years in the industry?

A. Well, 30 -- what is the math? 37.

Q. 36, 37 years?

A. Been in Midland the whole time, primarily working the Permian Basin.

Q. Are you familiar with the applications filed in this case?

A. Yes, sir.

Q. And are you familiar with the area of the geology and the proposed wells?

A. Yes.

MR. McMILLAN: Mr. Examiner, I'd tender Mr. Williamson as an expert petroleum geologist.

EXAMINER JONES: Did you know Fred Niles [phonetic] or Dr. Pitt or Dr. Corbett [phonetic]?

THE WITNESS: I did, yes. They were my professors. Dr. Corbett, too. It was more petroleum -- they were all consultants, too, for oil companies. It was all petroleum-related. Yes. I was there when they were there.

EXAMINER JONES: Any objections?

MS. KESSLER: No objections.

MR. CASHON: No objections.

MR. STANGER: No objections.

Q. (BY MR. McMILLAN) Mr. Williamson, have you prepared exhibits in this case?

A. Yes, sir.

Q. Let's take a look at those exhibits. Turn in the binder to Exhibit Number 8, please. Can you tell us what we're looking at here?

A. Yes. This is a structure map on top of the 2nd Bone Spring Sand. It's using 50-foot contour intervals, basically showing it's kind of a pronounced ridge that runs northeast-southwest with the acreage in question, Section 34 being pretty much close to the crest of the ridge. And the tags on there show Great Western drilling the 3rd Bone Spring. The arrows are pointing towards the surface locations. The 3rd Bone Spring well

is located in the west half of the west half of 34. The 2nd Bone Spring's location is located in the east half of the east half of 34.

Q. And are those the corresponding project areas for the two -- for the two wells what you just described?

A. Yes, sir. Yes.

Q. To your understanding, is the completed interval for the proposed wells located entirely within the producing area of the project area for the wells --

A. Yes.

Q. -- project areas for the wells?

A. Yes, sir.

Q. To your understanding, can the completed interval of the wells be produced in conformity with the setbacks for the project areas?

A. Yes, sir.

Q. Is it your understanding that all of the 40-acre tracts contribute reserves to these wells?

A. Yes, sir.

Q. And are you aware of any geologic or structural discontinuities across the project areas for the proposed wells that would adversely affect development by horizontal wells?

A. No, sir.

Q. Thus, in your opinion, is a horizontal well the most economical method to producing each of the 40-acre units comprising the project areas here?

A. Yes, sir.

Q. I see that on your Exhibit A -- 8, rather -- you have -- you show A to A prime cross-section line, correct?

A. Yes, sir.

Q. And are the green circles -- what do those represent?

A. They're the wells in the cross section.

Q. Okay. Great.

Let's turn now to Exhibit 9. And is this the cross section you're referring to?

A. Yes, sir.

Q. Okay. And while the image in the exhibit binder is a tad small, we were sure to bring a large copy of this cross section for the Examiners' benefit.

EXAMINER JONES: He's the geologist (indicating).

Q. (BY MR. McMILLAN) Okay. With reference to your Exhibit Number 9, sir, can you identify for us what the target intervals are for Great Western's proposed wells?

A. Well, the target intervals will be the 2nd Bone Spring Sand and the 3rd Bone Spring Sand, but at the top

of the map horizon is the 2nd Bone Spring that's shown SBSG at the top, which is there (indicating). You have the 2nd Bone Spring Sand. If you look at that, you're going to have -- there's a red color and there are green colors.

What this is -- my isopach maps are going to be isopach maps of under 10 ohms, and that's what -- they're colored red on the resistivity side. The green is showing the separation in the resistivity logs, and, again, the -- if you look real carefully, you can see these little -- like, for example, take the first well on the cross section, you see the arrow there in the 2nd Bone Spring. That's suggesting there is a nearby well. That's where they physically drilled the horizontal well that's in close proximity to it. And the whole thing says "horizontal target" into the COG wells, which is, basically, the basal portion of the 2nd Bone Spring Sand. That would be the primary objective from the 2nd Bone Spring Sand.

And then a good example on the 3rd Bone Spring Sand's objective would be down on the last two wells of the cross section. You can see where Mewbourne has drilled their horizontal wells, which they're in red, which would be right there (indicating). That's the target for them. And that's probably -- that's the

best place to drill here.

Q. Great. I think that answers the question as to where the target intervals would be.

Does your cross section demonstrate that the Bone Spring Formation -- and I would include both the 2nd Bone Spring Sand and the 3rd Bone Spring Sand in there. Does it demonstrate that the formation is continuous across the project areas?

A. Yes, sir.

Q. Let's take a look at your Exhibit 10? Can you tell us what we're looking at here?

A. Exhibit 10 is an isopach of the lower two-thirds of the 2nd Bone Spring Sand and it's based on resistivity deeper than 10 ohms -- I mean less than 10 ohms.

Q. That's the same cross section you're showing there, A to A prime, that we just looked at?

A. Yes, sir. And if you look at those, the numbers -- like, for example, the first well will have a 3 by it. That's telling you there's 3 feet there and 25 feet there, et cetera.

Q. Okay. So in broad strokes, what does this exhibit tell us?

A. Basically, it tells us that the zone is still across our zone, cross section 34, this might be a

little -- the reason I'm using two-thirds is, as you go further west, the 2nd Bone Spring is extremely thick, so if you frac the basal portion, you can't communicate with the top. It's a little bit unfair and, usually, it's a pretty good indication of where your best wells are. Where you have trouble, that's when you get up to the updip edge of it. That's where we are here. Sometimes you get so much oil saturation that you read over the 10 ohms. So -- and that's kind of -- and as you come along the ridge, that's kind of where you start to see the pinchout -- where you start losing a little bit of the porosity.

Q. Well, let's turn now to your Exhibit 11. Can you tell us what we're looking at here?

A. Here we're looking at the 3rd Bone Spring Sand. Very similar, same thing as the 2nd Bone Spring Sand. Again, it's -- we're looking at under 10 ohms, basically showing a thick -- as you go to the west as you go updip, it -- you know, we still have the 3rd Bone Spring. It looks really good in the -- well, actually, the southeast quarter to the southeast quarter, although doesn't have much under 10 ohms, it's got a lot of separation over here, resistivity curve suggesting pretty good reservoir quality.

Q. I see you've got the same A to A prime cross

section here, correct?

A. Yes, sir.

Q. And you've identified what looks like five Mewbourne 3rd Bone Spring wells in Section 11 and 13, below?

A. Yes, sir.

Q. Can you just explain why those are called out?

A. Well, I initially -- we were -- to Mewbourne, you know, we've been trying to make a deal with Mewbourne, and I wanted to point out where their wells were.

Q. Okay.

A. So they're probably more relative now than they were then. But that's why I have them there.

Q. So in sum, is it your opinion, as an expert petroleum geologist, that both the 2nd and 3rd Bone Spring Sands are continuous across Great Western's proposed project areas?

A. Yes, sir.

Q. Great.

In your opinion, would the granting of the Great Western's application be in the best interest of conservation and prevention of waste and the protection of correlative rights?

A. Yes, sir.

Q. And finally, were Exhibits 8 through 11 prepared by you or at your direction and control?

A. Yes, they were.

Q. Excellent.

MR. McMILLAN: I'd like to tender at this time Exhibits 8 through 11, Mr. Examiner.

MR. STANGER: No objections.

EXAMINER McMILLAN: No objections?

MR. CASHON: No objections.

EXAMINER McMILLAN: Exhibit 8 through 11 may now be accepted as part of the record.

(Great Western Exhibits Numbers 8 through 11 are offered and admitted into evidence.)

MR. McMILLAN: That's all I have for direct examination.

CROSS-EXAMINATION

BY MR. RANKIN:

Q. Mr. Williamson, I just have a quick question for you on Exhibit 12, I think -- 11, my bad -- Exhibit 11, the exhibit where you showed me the 3rd Bone Spring well in Section 11?

A. Yes, sir. Right here (indicating).

Q. Are you familiar with Mewbourne's frac completion techniques on each of those wells?

A. No, but I'm very familiar with Mewbourne

because, I mean, every day on drilling report five or six Mewbourne wells. So we deal with operators, and I know in my area what we have done, and I assume, although I haven't studied, I imagine it would be something very similar to theirs.

Q. Okay. So if Mewbourne -- whatever Mewbourne is doing, you feel like they are a reputed operator and have a fairly good handle on --

A. Oh, yes.

Q. But you don't know, for each of these wells, how Mewbourne completed them or fracked them?

A. Not exactly.

Q. Okay. And you don't have any --

A. -- well, I'm not prepared to answer that. I didn't --

Q. Did I ask you to speculate?

A. I'm more of a geologist. I'm more sticking to that.

Q. That's fine.

You pointed them out. I just wanted to see what your knowledge was about.

Then with respect to these wells, do you -- are you familiar with how they're producing?

A. Yes, sir. They're very good wells.

Q. Okay. So each of those wells --

A. The three of them are real dandies. I like the 3rd Bone Spring, yeah.

Q. Okay. And are any of these wells producing better than any of the others in Section 11 that you're aware of?

A. Yes, sir. Yes, sir.

I might tell you -- I don't want to tell you a story, but I believe this one, right here is -- I've got my --

Q. And you're -- you're -- you're talking about the well on the west half of the east half -- I'm sorry -- the east half of the west half?

A. Yes, I believe so. I'd have to make sure by checking my --

Q. I wouldn't want you to speculate. But in your view, there were some differences in the production of the wells?

A. Yes, sir. There's one really dandy, and there's two real good, and then one that's kind of -- pretty good.

Q. You're not sure whether that's because of completion techniques or --

A. Well, I think a portion of it -- if you -- I don't want to go there. It's a good area. It's a good spot.

Q. Okay. No other questions.

MR. STANGER: No questions.

MR. CASHON: No questions right now.

EXAMINER McMILLAN: I do.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. I'm just curious, going back on your cross section, it -- does COG -- how does the COG Likey [phonetic] compare to the Caza [phonetic] in the NMW Slick Mesa wells?

A. Just let me find -- I'm sorry. I'm looking at the cross section?

Q. Yeah. It looks like it landed in a slightly different interval.

A. Yeah, they did. They put one up there -- I think the primary -- the best spot would be at the basal portion of the 2nd Bone Spring. That's where you have your best reservoir quality. But I did -- they did put it there, and I did -- I did note it, but I think it was a relatively poor well.

Q. Okay. So I'm just curious. So it's not as good as the --

A. First one with a cross section is a great well. I mean, that's a two-mile lateral. It was -- but it's heading back towards the thick, but it's a little bit

downdip when you look at the structure map. So if you wanted to, on the first well, you would -- where I have that COG target, that's really where they drilled that two-mile lateral on the first well on the cross section.

The second well, what I did is put the five wells that are immediately in the section immediately north of where we're -- Section 34. And then anytime I had a horizontal well in close proximity to my datum here, I'd stick it on there and show you where everybody's -- where everybody else is putting the horizontal wells.

And I personally like the basal portion of the same place where COG is doing it there and same place that -- over here where Mewbourne is doing it. In other words, the best landing point is here where Mewbourne's doing it and that fat guy right there where COG is.

Q. Oh, here (indicating)?

A. Right in there (indicating), that's where -- usually -- a lot of that green color there.

EXAMINER JONES: What depth are you talking about, just for the court reporter?

THE WITNESS: It's so fine print, I can't see the --

EXAMINER JONES: Okay. What depth is it?

EXAMINER McMILLAN: Looks likes for the Devon well, the COG 11 --

(The court reporter requests clarification.)

EXAMINER McMILLAN: I'm sorry. 10,450 is showing where the COG landed.

THE WITNESS: Yes.

Q. (BY EXAMINER McMILLAN) And you're generally showing that the best zone would be -- looking at the Nearburg well, would be 10,400? Is that what you said?

A. Right. This is the third and fourth well on the cross section -- are wells that are on our acreage, and it would be -- that red spot right there and right there (indicating) would be where we would put the bit.

Q. Okay. Right here (indicating)?

A. Yes, those two guys.

Q. For purposes of the court reporter, we should probably be more specific in our identification. Nearburg producing Grama Ridge would be the best zone. That's what you said, right?

A. That's what I am thinking, yes. I can't see where that is. I can't see the --

Q. That's crudely right.

EXAMINER McMILLAN: Go ahead, Will.

CROSS-EXAMINATION

BY EXAMINER JONES:

Q. Looks like you're going -- they're proposing the zone at 11,200 on the --

A. We'd have to look at these, too, guys. I don't think there is a huge different in our geologic interpretation, other than their map was -- original map I saw was 8 percent porosity cutoff. This is using resistivity as another tool, and I just thought that that defined the production I saw out there a little better. That's why I used it. Although I don't think it's perfect, what I got is not perfect.

Q. Can you go in one more time and explain the relationship between the lower resistivity and the incidence of higher porosity? Is that what you've seen?

A. Yeah, usually if you have high porosities, it'll be a little wetter looking. And all I know is -- say you take the four township area and do a study the best map that I could come up with that would define why you have good wells and bad wells would be trying to use the resistivity, as opposed to the cutoff by using neutron density. That's not to say neutron density is not good to use. I don't think anything defines -- in these resource plays, there is not one thing that you can do. It's a combination of multiple things that you

do to define why you have better porosities areas and not better porosity areas.

Q. Is it also influenced by the amount of shale in the sands, the resistivity -- deeper resistivity?

A. Yeah. All I know is the better outstanding well except save couple of the examples they're going to have -- for example, Mewbourne's wells, I mean, the resistivity there, see, they're under ten. And that's normally what I'm seeing.

Having said that, you can get messed up there because as you get to the updip edge where we're at, you could get a high oil saturation and then resistivity is going to be higher than ten. And one of the best wells out here, probably COG's 3H Stratojet -- you-all probably heard that well here because it's like the all-star well. It's way over ten, but it's got a ton of neutron density cross-over and it's got, you know, all kinds of spread and maybe the resistivity curves that suggest it's not good reservoir quality.

So you can't nail anything on any particular map. But this gives you a general idea of where, you know -- I mean from an eye.

Q. Yeah.

A. As exploration geologist, that's the kind of thing I'm looking for. I've got to define -- I have to

define production so --

Q. Did you do the -- I'm going brain dead here -- the plot that actually shows you your institute water resistivity --

A. No, I didn't. I mean, I'm covering a lot -- big area over time.

Q. Okay. How does it vary up and down in the Bone Spring, the water resistivity?

A. From what we understand, what is good about this -- well, is that it has a lower -- has a higher oil saturation than a lot of areas. In other words, when you complete a horizontal well, it's going to have a higher oil cut than a lot of the areas that we're used to. So the good thing about being updip -- the bad thing is your zone is thinning. It's thinning. Even your gross zone is thinning. The good thing is kind of the pinching and higher oil saturation. Having said that, we just wanted to drill a single well before drilling a bunch.

Q. Is it the 10 ohms correlated to 8 percent --

A. No, sir. It's just completely --

Q. Okay. So it's just another indicator that you're using?

A. Yes, sir. Yes, sir.

Q. Okay. And are the density logs available?

A. Well, the best tool to use would be probably a neutron density that shows crossover. That's what I would prefer. However, you can't really do that in a regional basis because there's not that many -- a lot of these are Morrow wells, and they might not have ran neutron density across this area and come up with porosity logs. Once you start looking at mapping a four-township area, you're going to have to try and find something that you can understand the most wells as possible. So that's why I chose this.

Q. Is the lithology mainly sand, though? I mean, you're not talking carbonates here, right?

A. What you've got -- the two sands are separated by carbonate. The 3rd Bone Spring limestone separates the 3rd from the 2nd.

Q. Okay. But it's kind of a shaley-sand type situation?

A. Yes, sir.

Q. So density log would be -- probably be a good, if you had it --

A. The well has a big-time crossover, and the density crosses over the neutron. I mean, all kinds of separation in your resistivity logs. However, your -- your ohms are reading over 10. It was a rate of zero on mine. That's why I'm saying --

Q. Oh, I see.

A. -- this isn't perfect. It's good, but once you get up to the pinch-out line, you need to -- there are other things that need to come in. So --

Q. Do you, as a geologist, help your engineer determine where to perforate along your horizontal wells?

A. Yeah. We help choose a landing point.

Q. Landing point?

A. Yes, sir.

Q. So you track the well as it's drilled?

A. Yes.

Q. And you -- how do you tell if it's portioning up a little bit because, you know -- you just try to keep the same gamma ray reading; is that right?

A. How we solve that problem -- Mewbourne operates most of our wells, and they keep it steered in the right place, and we have fantastic luck with them. And I guess it's in who you do business with. It's nothing against anybody else. It's just --

Q. Okay. So the primary target here is the 3rd Bone Spring?

A. Well, we proposed both --

Q. Both.

A. -- both the 2nd and the 3rd. We wanted to just

drill one 2nd initially just to make sure because of the fact that it is standing some. And so the oil in place -- H, height, is one of the things oil in place counts, just to be safe. And we're not saying anybody else is wrong or anything. It's just different people think a little different.

Q. Are these the mostly deep Morrow wells that you get these logs off of?

A. Yes, most of them, right along this -- right along ridge, there are a lot of Morrow wells, and most of the activity is taken from the west so far.

Q. So you talked about crossover on your -- on your -- on your logs. I guess they're running a lime matrix.

A. Yes, sir. Yes, sir.

Q. So that would be gassy zones?

A. Yes. And plus the cleaner sands, you have a little more crossover.

Q. Okay.

A. But I didn't map on that because there is not enough for that.

Q. There's no core data?

A. No. There's no perfect way to look at these unconventional reservoirs.

Q. But you just try to stay consistent with

whatever method you're using, and then do your map that way?

A. Yes, sir.

Q. So there's no core data at all?

A. There might have been, but --

Q. Not available?

A. Yes, sir.

Q. I notice that there is some test on this well. Was that an old vertical well?

A. Right. That's going to be -- it's something I haven't actually -- to be honest with you, I hadn't paid much attention to because it's below what we're looking at right now.

Q. Would it have been based on mud-log show probably?

A. Yes, sir. And there are mud logs. I didn't put in any -- they put some in theirs.

Q. Okay. Thanks.

RECROSS EXAMINATION

BY EXAMINER McMILLAN:

Q. We need to see the different expiration ideas. I haven't seen anybody create a map based on the ohms, but it was a neat -- good idea.

A. The job is to find something that defines production. And even if it's -- you know, I don't -- if

you have a map and it doesn't define the production, it's really not showing you much. So you've got to try to generate a map, and it's hard to do in these unconventional reservoirs at times. So --

EXAMINER BROOKS: I don't think I have any questions for this witness.

MR. HALL: No further questions.

MR. McMILLAN: No further questions.

May the witness be excused?

EXAMINER McMILLAN: Yes.

MR. HALL: So at this time, Mr. Examiner, we would call David Scott to testify.

EXAMINER McMILLAN: Please proceed.

DAVID SCOTT,

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

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, state your name.

A. David Allen Scott.

Q. Mr. Scott, where do you live and by whom are you employed?

A. I'm employed by Advance Energy Partners, LLC out of Houston, Texas.

Q. All right. And in what capacity are you

employed by them?

A. The vice president of land for Advance.

Q. Okay. Now, I understand you have a land background, correct?

A. Yes.

Q. And I understand you've previously been sworn as a witness before the Oil Conservation Division and had your credentials as an expert petroleum landman accepted as a matter of record; is that so?

A. Yes. A while back.

Q. Been a while?

A. Yes.

Q. Why don't you give the Examiners a brief summary of your educational background and work experience?

A. Okay. Graduated in 1976 from West Texas State University with a BBA in marketing. Joined Conoco in 1985 for 21 years with them in various offices in the land capacity and also business development, staff level, and some first-line management positions.

In 2006 I joined Broad Oak Energy as a vice president of land, and in 2012 I joined Laredo Petroleum as VP of land. And then when we formed our company in 2014, I came on as vice president of land with Advance Energy Partners.

Q. And does your experience include Permian Basin?

A. Yes.

Q. Are you familiar with the applications that have been filed in these cases?

A. Yes.

Q. And are you familiar with the land matters that are involved here?

A. Yes.

MR. HALL: Are the witness's credentials acceptable?

MR. RANKIN: No objection.

MR. STANGER: No objection.

MR. CASHON: No objection.

EXAMINER McMILLAN: So qualified.

Q. (BY MR. HALL) Would you provide the Examiners with some background on Advance Energy Partners, its management and experience in-house?

A. Sure. So the company was formed in 2014, September of 2014, by four former Conoco colleagues. We each had 35-plus years of experience in the business. We had worked together in the Permian Basin at various times. Our CEO, Peter Lellis, was at Conoco for 30-plus years himself as a chief geophysicist and -- well, ranking -- going up through the ranks, of course.

Talked about myself.

David Harwell, who is here today, is our vice president of engineering. He was at Conoco for 30-plus years, and then he retired from Conoco and went over to a company he helped form called CIO C out of Houston.

Ed Harwell is our vice president of the geoscience. He's Conoco and Pioneer. What did I say -- Ed Caamano.

(The court reporter requests the spelling.)

A. C-A-A-M-A-N-O. And worked the Permian and overseas in a number of things for Conoco and for Pioneer.

We have a drilling engineer, Braden Harris, 12 years in the business -- petroleum manager -- excuse me. He's drilled wells with Centennial, EOG, Silverback. He's drilled over a hundred horizontal wells in the Delaware Basin.

Marcos Briceno, B-R-I-C-E-N-O. 15 years -- he's our completions manager primarily in his -- well, all with ConocoPhillips, and done a number of types of work in the engineering world with Conoco in the Permian Basin and elsewhere. But at his last job, before we got him, he was the completions manager for Conoco.

We've got 18 full-time employees and several contractors as well.

Q. All right. Would you just briefly provide an explanation of Advance Energy Partners' plans for operating -- acquiring acreage in New Mexico and specifically this immediate area.

And if you could turn to Exhibit 12, that would be helpful.

A. Yes. I put this Exhibit together, 12, just to show where our property is and the proximity to the property that Great Western and Chisholm, et al., own. You can see on the map, over to the right, Section 34's in red. The acreage in yellow represents acreage that we own. The red dots and the sticks coming out of those dots are the wells that we operate in the immediate area. There are six horizontal wells that we operate currently over there. We're within four to five miles of this property.

Q. Okay. Briefly explain the background on this deal with Great Western for Section 34.

A. Okay. We had bought other property from Great Western in the area, and we were made known -- we found out about this particular section, and Carter and I started talking about it back in July of this year. We didn't formally put an offer in front of them until December, but we had talked about it and we were working some other things and finally did put an offer in front

of them and they accepted our offer earlier this month.

Q. And when did you expect to close?

A. On or before February 1st of next year.

Q. All right. And have you had sufficient opportunity to review Great Western's drilling proposals and their AFEs?

A. Yes.

Q. And does AEP agree with them?

A. Yes.

Q. And does it intend to honor them?

A. Yes.

Q. Is AEP committed to drilling the 9H and 2H wells?

A. Yeah, if -- if we own the property, yes. We plan on having a drilling rig over to the property over here next year starting in March for the full year, and so we have the capability to do that.

Q. And taking on two additional wells is within your budget?

A. Yes. It wouldn't be difficult.

Q. And AEP seeks to be designated as operator of these two wells, correct?

A. That is correct.

Q. And does AEP have a rig available to it?

A. We don't -- we don't have a rig right now.

We're -- I'd say within our program, that will start in March. We will.

Q. And do you have a surface-use agreement in place with this surface owner out there?

A. We do on our property in the yellow.

Q. Is that Merchant?

A. Yes, the Merchant Livestock Company.

Q. All right. Has Advance made a comparative analysis of the Great Western-Advance proposed development and Chisholm's proposal for development?

A. Yes. We've seen both.

Q. Summarize what your company concludes about them?

A. Well, David Harwell will go into more detail on the cost side, but we felt like that the fracking design was less than optimal for this area, and so it would cost more money to complete these wells. So we felt like the Great Western wells demonstrated at least a greater frac poundage on the wells, and we like those better. We may ultimately want to go a little stronger on the completion than what Great Western has proposed. But David will go into that.

Q. All right. Do you have an opinion whether the Great Western-Advance plans for development would result in the recovery of additional hydrocarbon resources that

would go unrecovered if Chisholm's plans went forward?

MR. RANKIN: Object to no expertise.

MR. HALL: I'm not asking him to quantify, just whether he has an --

THE WITNESS: Yes. I believe our plan to complete drilling and complete these wells will capture more reserves than Chisholm's.

Q. (BY MR. HALL) Are you asking the Division to grant Great Western's application and deny the Chisholm applications?

A. Yes, I am.

Q. And in your opinion, would granting Great Western's applications and the denial of Chisholm's applications be in the interest of conservation and preventative of waste and the protection of correlative rights?

A. Yes.

Q. Was Exhibit 12 prepared by you or at your direction?

A. Yes. Yes, it was.

Q. That concludes my direct. Move the admission of the Exhibit 12.

MR. RANKIN: No objection.

MR. CASHON: No objection. I do have questions, though.

MR. STANGER: No objection.

EXAMINER McMILLAN: Okay. Exhibit 12 may now be accepted as part of the record.

(Great Western Exhibit Number 12 is offered and admitted into evidence.)

EXAMINER McMILLAN: Cross?

CROSS-EXAMINATION

BY MR. RANKIN:

Q. Mr. Williamson -- I got your name all wrong.

A. Scott, Scott.

Q. Sorry about that.

So to date, looking at Exhibit 12, AEP operates six more horizontal wells in the Permian Basin in New Mexico?

A. Correct.

Q. Has AEP drilled any horizontal wells to date in New Mexico?

A. We've drilled the furthest east well.

Q. Okay. That's the well that's identified in Exhibit 12, going from Section 35 --

A. Oh, yes.

Q. -- to 2; is that correct?

A. That is correct.

Q. Okay. And when was that well drilled?

A. It was drilled in October of this year.

Q. October of this year?

A. Yes.

Q. Has that well been completed yet?

A. No. We're scheduled to complete that in January.

Q. Okay. Are you familiar with the completion plans for that well?

A. Not enough to -- I mean -- I mean, you just mentioned earlier, I wasn't qualified to --

Q. Right. I'm just wondering if you're familiar --

A. It's a strong completion, over 2,000 pounds per foot.

Q. So the next witness, Mr. --

A. Harwell.

Q. -- will be able to answer that question?

A. Yes.

Q. Okay. And are you familiar with the AFE -- I mean, was there an AFE at that well? Was that well pooled?

A. Yeah. Well, it is -- it is included within the Merchant state unit, so it was already part of the existing unit from that vertical well shown on the map.

Q. I see.

Are you familiar with the well costs that

incurred to drill that well?

A. You would need to address that with Mr. Harwell.

Q. Okay. And how many rigs -- you mentioned that there are no rigs running currently. But do you have plans to run rigs in 2018?

A. Yeah. We'll have one rig, maybe two for a short period of time, because we have some Texas assets.

Q. So between New Mexico and Texas, you'll have one rig operating in 2018, maybe two?

A. Well, again, maybe two. Yeah.

Q. And you indicated that you were -- I think, looking at Exhibit 12, you said that AEP was looking at obtaining some more property in that area, in the area of Great Western's Section 34; is that right?

A. We're looking at acreage all throughout Lea County and Eddy County, and so we have -- I mean, we're constantly adding to our acreage within New Mexico and Texas as well. So specifically right beside this property, we don't have any -- anything as yet right beside it. We're four miles away.

Q. All right. And I just want to go back to your expertise. You testified about the costs and the frac and completion program that Chisholm's proposing, correct? Have you testified about whether or not you

thought it was an adequate or appropriate frac or completion proposal?

A. Well, based on the information that I've received from our engineering VP, the fracs that they were planning on using seem to be not current with what most people are using. It's starting to evolve.

Q. Okay. But you don't have any expertise in that area?

A. No, I don't.

Q. You're not an engineer or a petroleum engineer or a completions engineer?

A. No.

Q. Let's talk about the deal with Great Western to acquire the interest.

A. Uh-huh.

Q. Looking at Exhibit 7, on the letter agreement dated December 6th, if you look at paragraph seven, the second page, in that first sentence where it says "Final Agreement" --

A. Uh-huh.

Q. -- I'll read it to you so we have it on the record. "The parties shall undertake the negotiation of mutually agreeable closing documents which will include, but not be limited to, the terms and conditions contained herein, as well as other terms and conditions,

representations, warranties and indemnities," and so on. Did I read that correctly, the part that I read?

A. Yes. Uh-huh.

Q. What are the other conditions that would -- that are required for the closing to occur?

A. Well, an acceptable form of assignment.

Q. Okay.

A. I don't know that we're going to have a formal purchase-and-sale agreement in this case. We've done it numerous ways. We've been buying property here in the area. So probably it would be -- I mean, if we run through our due diligence and everything looks the way we believe it is, then we'll move forward just with assignments, you know, that we would accept and have to -- you know, there are state leases, so we'd have to have the State approve those.

Q. Now, is one of the conditions that AEP be operator of the Section 34?

A. No. We didn't include that.

Q. All right. So if Chisholm is determined to be the operator through the course of this proceeding, that wouldn't impact -- that's not a condition of your purchase?

A. Of purchase? No.

MR. RANKIN: No other questions.

CROSS-EXAMINATION

BY MR. CASHON:

Q. So looking on Exhibit 12, I think you said the only well AEP has drilled on that exhibit is the horizontal lateral in 35 and 2?

A. Correct.

Q. And then there were other horizontals drilled on the west side of the acreage. Who were those wells drilled by?

A. Those were drilled by Amtex.

Q. And what -- the vintage of those wells, what are those?

A. The well that traverses from 30 -- let's see -- Section 30 up into Section 15 was a 2016 -- late 2016 well, 2nd Bone. And the wells that were drilled down in Section 6 and Section 31 were -- ask Mr. Harwell that question. They're three years old, maybe.

Q. Okay. So right now -- as Mr. Hall pointed out, right now you have the budget to drill two wells in 2018 if you're granted operatorship of these wells; is that correct?

A. We have the budget to drill many more wells than that. We have a rig to be running all year long. So --

Q. In Section 34?

A. In this -- well, yeah. We have an overall company budget of drilling dollars to spend for the year. I'm not at liberty to share how much that is, but the plan was to pick up a rig in March and drill through the end of the year. And so we would probably substitute a well or two to take -- you know, these two wells here to take the place of those wells.

Q. So your testimony and by the testimony of the land manager for Great Western, you-all are taking a prudent approach, right, to drilling Section 34? You want to drill one 2nd Bone Spring, one 3rd Bone Spring, and watch the performance in those two wells?

A. Correct.

Q. Now, I'm just kind of spitballing here by looking at the Web site. Your Web site says that you-all plan on exiting in late 2018. So if you don't drill the wells until summer and get completed until fall, that's about the time you guys will be gearing up to divest. So I'm just going by what's on your Web site.

A. Uh-huh. So what's your question?

Q. My question is: How long do you have to watch them perform if y'all are planning to divest in late 2018 like your Web site says? Two months? A month?

A. How long do we need to -- as far as -- how that

will affect the drilling program, or --

Q. In 34?

A. -- are you asking about our divest --

Q. I'm not concerned with anything else you've got. I'm just concerned about 34.

A. Uh-huh. Okay.

Q. So how many months' production do you need to see to justify perhaps drilling additional wells?

A. Beyond the two that we're talking about?

Q. Yes.

A. Yeah, that would probably be a better question for our engineer --

Q. Very well.

A. -- to answer.

Q. Okay. That's all I have.

MR. STANGER: I don't have any questions.

MR. HALL: May the witness be excused?

MR. RANKIN: I have one follow-up, if I might.

MR. HALL: I'm sorry.

MR. RANKIN: That's all right.

RECROSS EXAMINATION

BY MR. RANKIN:

Q. Mr. Scott, is it correct that AEP's plan is to sell the New Mexico assets around the end of 2018?

A. We -- there's nothing set in stone on that. It could be earlier. It could be later. I mean, it all depends on market conditions and other things, but we're committed to having a rig and drilling and trying to, you know, enhance the properties we own.

Q. And by "enhancing," would that include looking for additional commercial resources within the spacing units that you're acquiring?

A. You mean maybe drilling wells in other formations?

Q. Uh-huh. For fully developing the section.

A. Well, we believe over here -- Mr. Harwell will address this better. But, you know, a 2nd Bone test and 3rd Bone test is prudent, and we'll look at it and see what it looks like. We may not divest in 2018. So we may be around a long time.

Q. And even though it may be more expensive to drill each well that way, because of the cost savings that would be realized by drilling them all at once, you think it's more prudent to wait and spend more money on each well, drilling them out over time?

A. Well, if you're going to recover fewer reserves by pounding it all out early and you save a few dollars for that, we feel like it's better to -- to get the most reserves that you can out of the ground as a reasonably

prudent operator would do even at the cost of a little bit more money -- spending a little bit more money, you know, for some logistical things like moebing [sic; phonetic] and whatnot, you know, bringing a rig and moving it out versus having a rig there that drills two wells and then skids, which I think is Chisholm's plan. So --

Q. Okay. No further questions.

EXAMINER JONES: I don't have any questions, unless David does.

EXAMINER BROOKS: I have no questions.

EXAMINER McMILLAN: Thank you very much. You may be excused.

MR. McMILLAN: Mr. Examiner, we call Dave Harwell.

DAVID C. HARWELL,

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

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, please state your name.

A. David Harwell -- David Craig Harwell.

Q. Where do you live and by whom are you employed?

A. I live in Fulshear, Texas, and employed by Advance Energy Partners.

Q. In what capacity?

A. I'm vice president of engineering and operations.

Q. Okay. Have you previously testified before the Division and had your credentials as an engineer -- expert engineer accepted as a --

A. No, I have not.

Q. Would you give the Hearing Examiners a brief summary of your educational background and work experience?

A. Bachelor of science in petroleum engineering from LSU, graduated in '82, went to work for ConocoPhillips -- Conoco then, worked 29 years for Conoco and ConocoPhillips, retired. Worked a start-up, Canadian International Oil, and was the vice president of engineering there, started their Calgary operations and ran the Calgary office.

Q. Are you familiar with the applications that have been filed in these cases?

A. Yes.

Q. And you're familiar with the lands of the subject application?

A. Yes, I am.

MR. HALL: At this point, Mr. Examiner, we offer Mr. Harwell as a qualified expert petroleum

engineer.

MR. RANKIN: No objection.

MR. CASHON: No objection.

MR. STANGER: No objection.

EXAMINER McMILLAN: So qualified.

Q. (BY MR. HALL) You are familiar with Chisholm's proposal to develop Section 34 with four to eight back-to-back wells?

A. Yes.

Q. These wells apparently will be drilled in rapid succession?

A. As I understand, yes.

Q. Do you have an opinion whether developing Section 34 in such a manner is prudent?

A. Yes, I do.

Q. What's that opinion?

A. As a purchaser, we want to see the property developed, but as a prudent operator, we believe that drilling a single 2nd Bone and a single 3rd Bone well and waiting for production results is a better plan.

Q. Okay. And have you reviewed the Great Western AFEs, which are our Exhibit 4, and the Chisholm AFEs, which are our Exhibit 9?

A. Yes, I have.

Q. Are the Chisholm AFEs in line?

A. The Chisholm AFEs, for the most part, are in line with what I normally see on AFEs with the exception of completion section where they appeared to be light.

Q. All right. Have you reviewed Chisholm's JOA?

A. I have not reviewed their JOA in totality, no.

Q. Okay. Are you aware of their plans for installation of any infrastructure in Section 34?

A. Just from being in the area, I know some of the infrastructure going in and who is putting infrastructure in. Yes.

Q. Do you have an opinion whether Chisholm's development plans is prudent and advisable?

A. I think their plan is, as far as the two pads and the batteries makes sense. Their development plan, as I see it, with the exception of the small frac and the rapid drilling of the wells, except for those two things, I think it's prudent.

Q. All right. And have you formed an opinion whether Chisholm's plans would result in reduced EURs?

A. Yes, I have an opinion.

Q. What is that opinion?

A. That as proposed with the fracs of the 1,500 pounds per foot that the four wells drilled, basically four wells across the section at 1,500 pounds per foot will leave significant oil behind.

Q. All right. Let's turn to Exhibit 13.

MR. HALL: And I'll note for the Examiners, these pages in Exhibit 13 are numbered at the lower right-hand corner, 1 through 6. And we'll be skipping around in them just a little bit. So we'll keep you on track here.

Q. (BY MR. HALL) Let's look at page number 2. Will you explain that to us?

A. Page number 2 is an internal study that we've done showing the effect of frac intensity versus expected ultimate recovery on wells in Lea County. Particularly, this -- as shown here, the diagram is set up to show results from several operators: Concho, EOG, Centennial, Marathon, Chisholm, and Advance Energy.

The map on the left shows the wells that we have in the study area. Their wells are color-coded by 2nd Bone, 3rd Bone or what we see as the interface of 3rd Bone and Upper Wolfcamp A. So they're color-coded. The study is only with using horizontal wells in the area, and we estimate -- estimate -- we estimate ultimate recovery for each of these wells. We also have a database with public information on frac intensity on the lateral length of the wells, and we use that to determine the efficiency of the fracs.

The plot on the upper right-hand side is a

plot of frac intensity on the x-axis going from 400 to 3,400 pounds per foot, and the y-axis shows EUR and BOE at 15 to 1 normalized on per thousand foot of lateral. So we take a well that maybe is 10,000 foot long. We'll take the BOE EUR for that 10,000 foot well, we'll divide it by 10, and we'll get a number here that we'll use in the plot.

The frac intensity is the sand used in the completion divided by the lateral length -- the perforated length of the lateral of the wells.

As you see in this plot, the wells in the lower left corner have a reduced recovery per 1,000 feet than the wells in the upper right-hand corner. The wells in the upper right-hand corner are fracked with higher intensity. You can see, at least for the red dots, mostly in the upper right are EOG wells where those are currently being fracked from 2,000 to 3,000 pounds per foot and showing significant results.

Generally, the smaller fracs are ending up with less recovery in the area of 100- to 125,000 -- 125 MBOE per thousand for the lateral.

So you can see for the study area that the higher frac intensities are having results and that on a footage basis, that they're recovering more oil per foot of lateral.

The plot on the bottom right is a chronological plot for these wells showing frac intensity on the y-axis going for 400 to 3400 and the dates going from -- on the bottom -- from January of 2012 up through 2017. It shows that the industry has gone from fracs of the 600 to 800 pounds per foot, that were customary in 2013, '14 and some of '15, that now we're seeing customarily fracs in the 2,000 to 3,000 pounds per foot.

So what we conclude from this is that the wells currently being fracked are being done with, say, 2,000 to 3,000 pounds per foot, and we're seeing significantly better results from those wells than we saw from wells in the past -- even last year, we're seeing much better results.

Q. Okay. Let's turn to page 3. Explain that -- what that shows.

A. Page 3 takes the same study area and then bends the wells on the map. Where the gray is are wells fracked with less than 1,000 pounds per foot and so on, 1,000 to 1,500, 1,500 to 2,000. And above 2,000 pounds per foot are shown in green.

We show in the study area that, one -- the study area -- it covers quite a bit of the area. Two, that we have quite a diversity over the area, where it's

not just one area that is being fracked with a better -- with a bigger fracs. The whole area is seeing wells that are -- that are having higher frac intensity.

If you look at the plot on the top right corner, it shows the bending of the wells and the cum oil per thousand foot of lateral. So the wells that are recovering much more are in green. The ones that are having much less recovery are in red, and even lower, in orange. And so from this, at least on an average basis, we clearly see an improvement as we are getting higher intensities.

You say, well, maybe it's not so much in -- we're taking a few good wells and we're looking at it -- whitewashing it and not showing the whole picture. So I show on the bottom right corner plot all of the wells in the study area with cumulative recovery over time. You see the older wells are in gray. Those are the ones with smaller fracs. The gray wells, in general, plot less than the red. The red, in general, plot less than the green. And it's consistent with the graph we use on the top showing that the recent fracs are of 2,000 to 3,000 pounds per foot are showing quite a bit of results.

Q. Let's skip now to page 5. And what did you do here? What is this showing?

A. Well, we've seen AFEs from several different companies, and we've just gone back in and summarized the -- what we see as the Great Western AFEs and the Chisholm AFEs. And from my standpoint, you know, looking at this as an engineer in the area, we work with a lot of operators. We see a lot of AFEs. I'm comfortable with the difference in the Great Western and Chisholm's numbers. You know, for the pad drilling, Chisholm is making some headway. It makes sense -- you know, there's money on sharing location costs. They're sharing, you know, some of the rig move costs. So the lower numbers for the Chisholm drilling costs make sense to me. They're in line with what we see in pad drilling versus the Great Western, which are two one-off wells.

The part that bothers us, looking at this, is the number for the stimulation, where we're looking at 860,000 for a stimulation. We think that's light. We're -- we're active with the vendors now. For a 10,000-foot well, we'll spend 5.3 million in this category. Now, that's a 10,000-foot well. You say, Well, what's the difference? We're going to run 2,500-pounds-per-foot frac. We're going to use a lot more sand. But even if I scale it down and say -- you know, based on what I would expect, I would expect a number of 1.4 million per 1,500-pounds-per-foot frac.

These are being done in the area. We have other operators that are running 1,500 pounds per foot, and we're seeing the 1.4 million on the stimulation cost.

The Great Western numbers at 2.2, 1.8, I think were probably current when they ran these numbers. I'm seeing a little bit higher numbers now just with the inflation and with the stimulation cost. I think they're close. They were designed for 2,000 pounds per foot. I still think that's light. I think it's going to leave oil behind, and I think if we came back and had a chance to revise this, as the operator, we would probably push it up towards 2.4 million.

Q. All right. Let's go back to page 4.

A. Okay.

Q. And explain to us what this exhibit shows?

A. Page 4 gives our estimate on recovery's type curve numbers for a 2nd Bone Spring well with 1,500 pounds per foot, 2,000 pounds per foot and 2,500 pounds per foot. And then we also give estimated recoveries for a 3rd Bone Spring Sand under the same conditions. I think -- if you look at the numbers, our number for EUR based on a 6-to-1 gas-oil ratio, the BOE number would be 581 for a 1,500-pound-per-foot frac. We think the BOE would be 872 with 2,500 pounds per foot.

How did we get there? Well, you can go

back to the trends on page 2 of EUR per foot based on the frac intensity, and we can draw a line -- you can draw a line through there. We clearly see a trend on the lower end. We see a trend on the upper end, which gives us a trend line through the area. There's a lot of the geology in this plot, but given the trend going from 1,500 to 2,500, we think, at least on an oil basis for the 2nd Bone, we can recover another 230,000 barrels with a 2,500-pound-per-foot frac. So, you know, how does that affect things? Well, obviously, there is a higher recovery.

But from our standpoint, coming into a position like this, where we have an operator that wants to do a 1,500-pounds-per-foot frac and we're looking at -- we think they can do something more, they can recover more, to us coming in, it's somebody that would -- can go forward with the 1,500-pounds-per-foot frac, and we would not be able to recover reserves in the future from that. We can't go back in and re-frac an old well. We can, but we'd never get the original conditions where we could additionally frac it. Maybe we can get in small incremental by doing something else, but we could never get back to the early position that we are in now.

We have a choice. We can frac 1,500. We

can frac 2,000. We can frac 2,500. And so to us, it's imperative that the decision's made early to frac it with the highest intensity. That makes sense to us. And from the industry, we're seeing sort of 2,500 pounds per foot, and that makes sense.

Q. So is it your opinion that development as AEP proposes will result in the recovery of additional hydrocarbon reserves that might otherwise go unrecovered under Chisholm's?

A. We think each individual well stands a chance of recovering at least 200,000 barrels additional with our plan. And, you know, given that, it would state a position of about 15 percent royalties. You're talking about $1.5 million difference to the State for each well between the two plans. So it's an incremental 1.5 million, I think, from the State side that is at risk. And you say, Well, does the State ever come in and tell us what to do, how to frac a well? The answer is no. But I think it's imperative that we let you know what our opinion is, what we think is at stake, and then we're not just at risk. I think the State is at risk as well.

Q. All right. Let's turn to page 6 now, and if you could just quickly address possibilities for further development of the Section 34?

A. We're active in 21 South, 33 East. As David said, I think he probably gave an acreage number, but we have maybe 6,500 acres in the area there that we're operating net. We have 15 wells. We have an active program. We're looking at all zones from the Delaware Sands through the Avalon. We are very active in both acquiring acreage and evaluating offset operators. So we've looked at and evaluated the zones. We know what our target zones are, which are the 2nd Bone primarily, 3rd Bone -- 2nd Bone and 3rd Bone Sandstones.

And in addition to that, we have Avalon. We have 1st Bone Spring Sand that is being developed in some of the area. We have some sections within the 3rd Bone Carbonate that are being looked at and then, of course, the Wolfcamp A.

So for us, we look at a gun-barrel view that looks like this, where we're starting a development. The end result is something that looks like all of those dots at a gun-barrel view. And then where we're starting is with two wells, the 9H in the 2nd Bone and the 2H in the 3rd Bone.

Q. All right. Mr. Harwell, in your opinion, would the granting of the Great Western applications and the denial of the Chisholm applications serve the best interests of conservation, the prevention of waste, and

the protection of correlative rights?

A. Yes.

Q. And did you create Exhibit 13?

A. Yes.

MR. HALL: That concludes my direct of this witness.

We'd move the admission of the Exhibit 13.

MR. RANKIN: No objection.

MR. CASHON: No objection.

MR. STANGER: No objection.

EXAMINER McMILLAN: Exhibit 13 may now be accepted as part of the record.

(Great Western Exhibit Number 13 is offered and admitted into evidence.)

EXAMINER McMILLAN: Let's take a ten-minute break.

MR. RANKIN: That's fine.

(Recess, 3:12 p.m. to 3:29 p.m.)

EXAMINER McMILLAN: Let's just get started and if we have any legal questions, we'll stop and wait for him.

This case shall be called back to order. Please proceed.

MR. HALL: Before I pass the witness for cross, I'd like to move the admission of the Exhibits 14

and 15. They are our notice affidavit with letters to the working interest owners and the offset operators. We got green cards back for all of them except from Chisholm in Case 15876 for some reason. But they're here. So we move their admission.

MR. RANKIN: No objection.

MR. CASHON: No objection.

MR. STANGER: No objection.

EXAMINER McMILLAN: Exhibits 14 and 15 may now be accepted as part of the record.

(Great Western Exhibit Numbers 14 and 15 are offered and admitted into evidence.)

MR. HALL: And we will pass the witness.

EXAMINER McMILLAN: Please proceed.

CROSS-EXAMINATION

BY MR. RANKIN:

Q. Mr. Harwell, good afternoon. I'd like to turn your attention to Exhibit 13, page number 2. It's the first page that you addressed in your testimony. Will you please recount for me what the source or how you arrived at your EUR estimates for the information on this page?

A. We -- we go through all horizontal wells in the Delaware Basin monthly and do EUR estimates on all horizontal wells by decline curve analysis.

Q. Okay. And did you do that unless or --

A. I have a staff person that does it. I've actually probably done 4,000 a month for 18 months, but now I have staff person that does it for me.

Q. Are you familiar with the assumptions that were employed to come up with decline curves?

A. I am.

Q. And generally, what were they? How were they done? How were they calculated?

A. Well, we take an individual well's production from IHS and put them in PHDWin. It's typically what we use. We'll run a decline with a default B-factor of 1.4. We'll use a tail of 6 percent. If the well appears to be, you know, showing something or has more history, shows something different than that, we'll use something different. But, in general, we'll take a decline curve and we'll use square stick [sic] and make an estimate.

Q. So to your knowledge, the B-factor that was used for these wells was the same for all the wells, or do you know if there are different B-factors applied to different wells?

A. The -- the -- the B-factor could be less if the well is showing much more of an exponential decline. It may be much -- much less than 1.4. We don't go more

than 1.4.

Q. Okay. And how about on terminal decline? Are the -- are the values for terminal decline applied the same for each of these estimates?

A. Most of these horizontal wells are way before any terminal decline.

Q. Uh-huh.

A. And in some of the early wells, 2012, might be seeing some kind of terminal decline. But, in general, we'll take 6 percent as a default.

Q. Okay. Gotcha.

Now, for this analysis, you -- I think you testified you used all wells in the area of review?

A. We use all wells, as far as our database that we're looking at. We can do a subset. This is a subset of all wells using specific operators that use Concho, EOG, Centennial, Marathon, Chisholm and Advance.

Q. Okay. So the database doesn't include. This exhibit is not all wells in the area. It's just the wells -- a subset of the wells?

A. It is a subset of wells. But all that said, it's a very big portion of the subset of wells just shown by the number of wells represented here.

Q. Okay. So all the wells -- so on the legend -- on the key in the top right corner of page 2, does this

data represent all wells for each of those operators identified in that --

A. It does in this area where we have data for them. In about the past six months, we have data for wells.

Q. Okay. But you left off Mewbourne. Was that intentional, or did you decide not to use their data?

A. We have not -- we don't -- as far as watching Mewbourne, we don't like some of the results of Mewbourne's work. We think some of their practices are -- are not up-to-date to some of the other operators. The most up-to-date operators seem to be Concho and EOG, although -- although all the operators are testing jobs up to 2,500 pounds per foot.

Q. Okay. Are operators -- in addition to increasing the pounds per foot or the fracking intensity, are they making other adjustments to their well completions and production that might impact the OP EUR?

A. Yes, they are.

Q. Okay. So there are other variables that will go into these more recent EUR results you are looking at?

A. There are other elements of completion other than frac intensity.

Q. Not just completion, but production as well?

A. I don't understand your question.

Q. Well, I mean, in other words, might there be artificial lift that might impact the ultimate EUR?

A. That's true. But most of us are not in the business to not make oil.

Q. Absolutely, right? Everyone's here to make oil and as much as they can, correct?

A. That's correct.

Q. So in addition to the frac intensity, what other factors are operators changing more recently to get better results?

A. They're changing stage spacing is one. They're changing cluster spacing. They're changing number of holes per stage or per cluster. Most of that is proprietary from each operator. We know from vendors a little bit about what's going on. We have some, you know, indications, but there is a secret recipe that goes along with this. Yes.

Q. Okay. So all of those that you just -- all those factors you just recited could play a role in increasing or decreasing an estimated EUR for any given well?

A. In some ways, most of those factors have an effect on being able to keep sand within a well spacing,

as opposed to older frac methods that might have a wing length that goes out 1,200 feet. The "secret sauce," now, is to have a big frac but not get it out farther than your well spacing.

Q. Okay.

A. So in some ways, I say the frac intensity itself, as shown here, is conclusive to me. The other elements of the frac that really affect it -- or have an effect on the total recovery in the section, not necessarily one well. It's easy to go in and frac one well 3,000 pounds per foot, and you'll get a good result as long as you don't frac into something else, to water or something else that's in the area. But the secret sauce that each operator is using is allowing them to place wells, either four or six or eight wells per section, and get the ultimate recovery that they expect.

Q. Okay. I want to continue on that vein a little bit. But before I do, I want to ask you, going back to the EURs here: Why did you decide to use EURs in this presentation as opposed to IP numbers, initial production? Why did you choose to use an estimate based on a calculation or assumptions rather than just use actual data?

A. IP, in itself, is -- it's a worse number than an EUR in its ability to gauge the performance of a

well. IP is subjected to what's going on with other wells on the lease. It's subject to how the well was fracked. It's subject to -- at what point in the well flowback period that you're actually taking an IP. Is it ten days after you frac? Is it 15? Is it 16? Is it 30 days? Is it a 30-day IP? And if you say, well, okay, fine, I'll give it a 30-day IP, what does that mean? How many days are in the month? Was it -- did it flow for 15 days in the first month and then a full month the following month? Or did it flow 29 days the first month and then, you know, a full month the following month?

So the IP itself is an interesting number. We use it when we don't have anything else, but it is terrible at giving a -- an indication of what the well performance is going to do.

Q. Okay. But to the same point, isn't an EUR subject to whatever your assumptions are that go into the estimate?

A. An EUR -- you know, if you have six months of production, it's always -- you know, you make assumptions in everything. But as far as getting a trend line on the vast majority of these wells that we see in the basin, once you get a trend line on those wells for a number of months, that number is vastly

superior in predicting performance of the well than an IP is.

Q. Okay. Well, let me ask you a little bit about these factors that you identified as influencing ultimate -- or estimated recoveries -- estimating ultimate recoveries. You mentioned stage spacing, cluster fracking, numbers of holes per stage and -- did I recount those correctly in terms of other -- other completion factors that would --

A. I did -- I did mention stage spacing. I did mention number of clusters per stage, and I did mention number of holes per stage. Yes.

Q. Okay. And in your -- in this analysis, those are unaccounted for; is that correct?

A. These are single well numbers, and so you are correct in that those components in themselves are not in these numbers. But I will say that we've looked at what the effect of those are as far as performance goes. And the operators that are optimizing those components seem to be getting about 10 percent, maybe 15 percent, in addition to what we're seeing on, you know, our normal predictions. And I say our "normal predictions" being an average of well performance in an area.

Q. So that 10 percent increase is relevant to the stage space and cluster per stage and number of holes

per stage. Is that what you're saying?

A. I think that's right.

Q. That would optimize --

A. 10 percent, yes.

Q. Now, looking at your graph here on page 2 of Exhibit 13, it depicts a cluster of frac -- staged -- frac intensity on the x-axis going left to right, right?

A. Yes.

Q. For each -- any given frac intensity, there is a wide range of EURs.

A. There is.

Q. In fact, if you look at 1,500, 1,600 frac intensity, it ranges anywhere from 50 EUR up to 350 EUR, which is comparable to a frac intensity of, what, 2,800 and up to 3,000? Is that a fair reading of the -- of your graph there?

A. I wouldn't -- I wouldn't read it the same way, but if you want to read it that way, that's up to you.

Q. But I mean the numbers are there, right? I mean that number for 1,600 frac intensity is at 350 EUR, right? That's not a subjective reading.

A. This -- the range that goes from the lower side of the cluster, call it 1,500 to 1,600, any kind of binning that you want to look at, there is a range going from poorer wells to better wells as you go along the

graph and bin it. So you can bin. And so we use binning and then we take an analysis like that and we try to say, well, I can't understand what the binning is on this graph. So we go to another graph and the graph on page 3 on the upper right is a binning of the performance based on, you know, the different binning of the frac intensities. And given that graph, the conclusion's the same, that the higher frac intensity for the wells that we're looking at here in this basin, in this county, show better performance above 2,000 pounds per foot than the wells that are fracked at 1,000 to 1,500 pounds.

Q. Okay. We'll talk about the next graph in just a bit.

But on page 2, the variability in each of those -- we'll just call them "bins," to use your language for each of these different frac intensity examples. You can't, sitting here today, tell me what the basis for that variability is based on your analysis?

A. We know from -- that there are lots of studies out on the fact of what is affecting EURs. And primarily, it's geology. It's rock, and number one, that affects the performance of a well. You can't drill a well in cement and get very good recovery. It depends

where you drill it. So these are in the area that, you know, of interest. These wells are in the basin, in the area of close to Section 34 that we're talking about, you know, in this discussion.

The variance that goes even within the -- the binning, typically, we account for as geology, better rock. It gives you better results. Worse rock gives you worse results. But the conclusion we come to at the end of that is that even on poor rocks, we get better recovery if we frac with a higher intensity. So we agree that there is plenty of variability here, but for areas especially like Section 34, where there is some questions on geology how well -- how good are the wells going to produce, we want to frac them with the best chance that we can. And so even for the wells that are in the lower portion of these bins, you can see as you move from 1500 up to 2,000 up to 3,000 pounds per foot, the lower end of these groupings continues to get better.

Q. But no well on your chart with a frac intensity greater than 200 -- greater than 2,200 pounds has an EUR higher than any of the wells -- the highest wells with a frac intensity of 2,000 pounds?

A. That's correct.

Q. So it's not always true that a greater, larger

intensity frac results in a better EUR?

A. Well, we didn't frac that same well with 2,500 or 3,000 pounds per foot. So you can come to that assertion. I would not because --

Q. But because of the rock.

A. -- because when I look at this grouping of points, the grouping continues to move upward as the frac intensity goes -- gets higher.

Q. But you agree with Chisholm's approach, which is to identify the very best targets within the rock as the best means, the principal means of getting a higher EUR?

A. That's exactly what we do. Yes. I do agree with that.

Q. Okay. And based on this chart, you can't say, again, whether any of those other factors you identified contributed to the higher EURs on any one of these bins that you've discussed?

A. No. This is -- I mean, there's no one chart that's going to tell you everything, right? We're trying to look at the effect of frac intensity, and we believe that that chart gives us a good indication of what the effect is of the --

Q. No, I understand. But you looked at this chart for frac intensity, but you didn't look at any other

charts for stage spacing, cluster spacing, number of holes per stage or quality of rock?

A. It's not public data.

Q. Gotcha. Gotcha.

Okay. Looking at this graph again, you've included Chisholm as one of the operators in your data point, correct?

A. Chisholm is the operator on those wells although they're Mewbourne wells. So it is not fair to say that those are current to -- to Chisholm.

Q. All right. And when you say that, you mean that those are wells that were drilled by Mewbourne, not Chisholm?

A. Correct.

Q. Okay. And those are the -- Chisholm wells are the wells that are kind of in the beige circle color?

A. They are.

Q. And I don't see any -- I only see Chisholm's wells basically to the left of 800-pound frac intensity; is that right?

A. That's what I show here, yes.

Q. So I guess my question is: Are you aware that Chisholm, for all its recent wells, is using a frac intensity of 1,500 pounds per foot?

A. No, I'm not aware.

Q. Okay. So my next question --

A. Can I add?

Q. Yeah.

A. I will add that Chisholm hasn't reported in FracFocus. They haven't reported any intensities to the State. They haven't reported any of their completion information in any of the normal sites.

Q. Okay.

A. So, no, I don't have access to them.

Q. Okay. All right. That was one of my questions I should have asked first, the source of this frac intensity data. You mentioned public sites. So what are those?

A. FracFocus is one. IHS is one. The State reporting site, the OCD is one. Drillinginfo is one. And then we also have meeting rooms that we attend. We have partners that we work with. So it's both individual companies' information and -- but the primary source is IHS, which gets most of their information from FracFocus.

Q. Okay. All right. So just to be clear again, this chart does not include all wells in the study area. It just includes the ones that you chose, so it doesn't have all operators, correct?

A. It does not have all operators. It has all the

wells for these operators.

Q. So we don't know if there are other wells that used a frac intensity of less than 2,000 and higher EUR based on this study. We have no idea.

A. Not from this chart. No, you don't.

Q. And you excluded those, so we don't know whether you selectively excluded the higher EURs from this chart. We have no way of knowing.

A. No, you don't know that, except I could tell you that they don't show up up there.

Q. Okay. All right. I think the same goes for the chart on the bottom right. The data that you used for this chart is -- it's only -- it's good to the extent you were able to obtain it from a public site.

A. We're very efficient. We find all wells, you know, within the system with the exception of 20 wells, 30 wells that we don't find. We do a good job at findings wells. What you will see is, you know, the data here represented on the map, and it -- there is a vast amount of data in the area that we're talking about here.

Q. I just want to talk a little bit about AEP's drilling plans since my other questions were deferred from Mr. Scott. Does AEP have any plans over the next year to drill more than one well per spacing unit in any

of the acreage that it holds at one time? In other words, to do what Chisholm is proposing to do which is to drill back-to-back wells?

A. We're going to drill back-to-back wells on multiple pads -- on a single pad in a number of areas. Now, are those multiple wells in the 2nd Bone Spring in, you know, four wells across or six wells across? No. But we were doing pad drilling with multiple wells in multiple zones.

Q. Okay. And in those locations, are you doing that back-to-back drilling in order to save costs as a prudent operator?

A. Yes.

Q. Okay. So you're going to be drilling those wells back-to-back without waiting to see what the results are from the first well you drilled? You'll complete both wells at the same time before you know what the results are?

A. The 2nd Bone Spring well and the 3rd Bone Spring well -- we'll -- the effect of the 2nd Bone Spring is not going to affect the 3rd Bone Spring. And so, yes, we'll complete them at the same time and move forward.

Q. On page 3 of your Exhibit 13, there is a chart showing cumulative BOE per -- as I understood it, you

normalized the data to 1,000-foot lateral?

A. Yes, per thousand foot of the lateral.

Q. Okay. Versus cumulative BOE, right?

A. Yes.

Q. But we don't know -- are these the same wells, the same data that you used in the scatter plots on page 2?

A. It is.

Q. So the exact same data, same wells?

A. Yes. The wells plotted here should be the same wells that show up here (indicating) on the map, so the binning here for these wells is reflected in these plots.

Q. Okay. So you're saying with respect to this chart, the same issue as that -- and, you know, whether or not the data was public and you had access to it, this data set excludes Chisholm's completions at 1,500 pounds per foot?

A. It does, yes. I would be happy to add it if they would post the data.

Q. Yeah. I'm sure. I'm sure.

All right. And then on the chart below, this looks like -- I think it's a cumulative BOE using that same 1,000-foot lateral by month of production; is that right?

A. That's correct. Yes.

Q. Okay. On the x-axis.

I know that there are a lot of wells and a lot of data in here, but it does seem a little bit confusing because the well lines in green -- which are the wells that completed with greater than 2,000-pounds-per-foot frac intensity, right?

A. Yes.

Q. -- they appear to be -- I mean, it's hard to tell, but looks like they're covering up a lot of wells in the 1,500 to 2,000 range. Is that -- I mean, I can't tell how many other wells were -- that are colored red in the 1,500 to 2,000 range that have cumulative BOE that was over -- you know, that would cover over some of those green lines. Do you understand what I'm saying?

A. I don't have any problems understanding this plot.

Q. Okay.

A. Are you asking me whether I understand the plot?

Q. No. I'm asking you -- it seems to me that some of those green lines --

A. I can see green lines.

MR. HALL: Do you understand his question?

Q. (BY MR. RANKIN) Yes. Do you understand my

question?

A. I guess I don't. I don't know where you're going with this.

Q. Okay. Well, I'm trying to understand. It just seems like the green lines, which represent the higher intensity fracs, right?

A. Are you asking: Are they covering up the red lines?

Q. Yeah.

A. To me, no. I see green lines, you know, up the upper side. I don't see any, you know, peeking through except a couple, maybe two or three, green lines underneath the red. But the red is posted on top of the green, so the red has preference here. So --

Q. Okay. Well, I guess we'll just leave that as it is. It's a confusing plot and does not --

A. It's a plot reservoir engineers use all the time. So --

Q. Okay.

And so as with the first page of your exhibit, page 2, this page also does not account for other factors you identified: the quality of the rock, the location of the lateral, the clustering of the frac stages or the spacing of the frac holes and so forth.

A. This is raw data just showing the effect of the

frac intensity.

Q. And also on the top right on page 3, you don't know whether or not there was artificial lift applied to any of these wells that would account for the difference in the BOE numbers?

A. I don't know the lifting methods of individual wells. I know the standard pattern of moving wells from test to early testing to early lift with, you know, ESP or gas lift. The operators that we've talked to that are involved here, my work in the field -- I'll work either with Concho other EOG. They immediately moved to -- after they flow for several months -- they moved the gas lift and ESP and then moved to rod pump, which is consistent with wells that Concho, EOG and Centennial and Marathon operate.

Q. And if some of these wells were on an artificial lift from the beginning of production, would that result in significant change in what the cumulative BOE is on this chart?

A. No. No? It makes -- it makes the forecast easier.

Q. Okay. Sorry. Lastly -- couple more questions, Mr. Harwell.

Looking at page 4 of your Exhibit 13, are you looking at the section -- the township map down

there -- in where you've identified Section 34 in blue, if you go south into the next township, do you see Section 11? I believe Mr. Williamson testified that -- if I'm not mistaken, that those were Mewbourne wells in that section there. Do you see that on the map?

A. I see the block. Yes.

Q. Are you familiar with the EURs for those Mewbourne wells? I know that you told me that Mewbourne was not included in your prior data set on the EURs, but have you looked at both wells?

A. I have.

Q. Are you familiar with each of the wells?

A. I'm not familiar with -- you know, typically, I would have a list of wells in front of me with EURs to give you the details, and I don't have that in front of me.

Q. So you've looked at it, but you -- did anything stand out to you based on your study of those wells that Mewbourne drilled?

A. Only that they appear to be in the basal part of the 3rd Bone or the upper part of the Wolfcamp A and that there is significant variability in the wells.

Q. Significant variability in the EURs of those wells?

A. Yes.

Q. And are you familiar with how Mewbourne completed those wells?

A. I know that they had some completions up to 2200 pounds per foot. They had some that were much smaller.

Q. Did you see any correlation between the EUR -- higher EURs with the higher frac intensity completions?

A. I don't know the numbers themselves right now.

Q. All right. Now, on page 5, I just wanted to ask you this, and I'm not an engineer, so I'm not familiar myself, but I wanted to know if you could tell me about it.

The Hubbert & Willis Equation, are you familiar with that --

A. No.

Q. -- equation? No? Okay. I'm not either.

MR. RANKIN: I have no further questions, Mr. Examiner. I pass the witness.

Appreciate your time. Thank you.

MR. STANGER: I have a couple of questions.

CROSS-EXAMINATION

BY MR. STANGER:

Q. You talk a little bit on page 2, the charts, and you said you probably thought they were influenced by some geological factors. Did you -- did you make an

attempt to try to normalize it for thickness of the Bone Spring for any of those completions?

A. We've tried and couldn't find a correlation.

Q. So it was just kind of a scatter plot? You didn't really see any kind of --

A. We didn't find a correlation.

Q. Okay. And then how about as far as depth in the basin or anything like that, completion depth?

A. We don't have correlation.

Q. You didn't have any correlation there? Okay.

A. We did look at it. So, yes, we did look at it. No, we didn't have a correlation.

Q. Okay. How about on page 3, did you observe any relationships in regard to location? I look at the map there and it looks like a predominant number of those blue -- the blue dots -- the blue wells are in the southern part of that map, it appears to me, and fewer of them in the northern part. And I was just curious if you tried to look at these same plots that are on page 3 by looking at -- comparing wells in the southern areas compared to the wells in the northern areas at all?

A. We have. We've looked at, you know, trend areas where primarily you have a 3rd Bone trend in the north; you have a 2nd Bone trend in the south. But as far as frac intensity, you know, the binning that we

show on page 3 -- was your question about page 3?

Q. Yeah. Like, if you just, say, took the wells up in the northern area --

A. Right.

Q. -- as a group and did these two charts on the side and then took the wells in Canada Southern area and did these two charts on the side, did you make an attempt of that and would it kind of give the same indication that the -- higher frac intensity?

A. We do get the same -- the cluster of. If you if you take the map on page 3 and cut it in half, look at the southern area separately from the northern area, you get the same trend. Now, the difference that -- you know, the gray -- the gray, low-intensity wells are more about when the area was developed. Was that area being developed in 2012, or is it farther out from the early development? And it is either getting infill, or is it getting extension? And with newer wells -- and the newer wells always seem to be higher frac intensity than the older wells.

Q. Okay. And then the only other question I had was: You had on page 6, you had that chart of what you-all had identified as opportunities to drill in this section?

A. Yes.

Q. Do you have an idea how much of this you expect to develop or plan to develop before your stated exit of late 2018?

A. I can address the budget year of 2018 that we would be prepared to drill, you know, the two wells. Would we be prepared to drill additional wells, we'll continue our study. If it looks like we should do an appraisal, either for our evaluation or if it looks like we can raise the property value, we'll continue to do those evaluations in these other zones in 2018.

So what we're talking about is a commitment on two wells and evaluating all zones.

Q. So do you believe that you'll be the operator that would be developing these wells that are on here on chart --

A. We think --

Q. -- on page 6? I don't quite understand the significance of it if you-all are exiting in late 2018?

MR. HALL: I'm going to object.

THE WITNESS: Should I answer that?

MR. HALL: It assumes evidence not in the record.

But go ahead.

THE WITNESS: For our work, as we move forward and we try to put value on property, and say

we're looking at an exit -- just assume we're looking at an exit in 2018, we're not going to sell to 10,000 an acre. We're going to sell for something significantly more than that.

The companies that are looking to come in and put high value on property are going to come with the idea that they're going to develop. They can't come in and sit and preserve their value. So for us, we want to move reserves to PDP as a company. For the companies that we see coming in, buying private-equity companies like us or Chisholm or any of the private equity companies, we see those companies coming in with a rather large development plan, with a number of rigs, and they're going to move through and they're going to go through with the development.

Our plan ahead of that is to prove up zones so that it is ready for them to move in with a large development program. Now, if we don't get out in 2018, we will continue to move production -- move reserves into PDP. We'll drill wells and we'll turn them on. We make money at doing that. We're happy doing it. We've got EnCap as a backing. They're happy doing it. We have plenty of support.

Q. (BY MR. STANGER) But so far as it goes, you only have plans for two wells in 2018?

A. Two wells in 2018.

Q. And you don't really know about 2019 because you don't know what the status of the company will be after that.

A. I'll say I don't know about 2019 because we haven't worked on budget for 2019.

Q. Okay. All right. Thank you.

MR. CASHON: I do have one question.

CROSS-EXAMINATION

BY MR. CASHON:

Q. Back to page 3 on your exhibit, the influence of extended lateral being the two-mile lateral versus a one-mile lateral, I assume in this chart you're combining all --

A. We are, yes.

Q. -- lateral lengths, correct?

Is there any relevance to lateral length -- and given these different frac jobs and this graph, in other words, if you just took that subset out and just compared the sectional lateral, how would that affect that graph?

A. We used to think we saw a 15 percent -- 10 or 15 percent reduction on the end of the well if we had a 10,000 foot lateral. So the overall well might be 5 percent less than a full-mile lateral. The wells that

we're looking at now, maybe -- maybe it's masked by the high EURs that we're seeing and the frac intensity going up, and it's overwhelming. The deduct that we might see on the long lateral, we're not seeing the deduct like we did before. So it goes 5 percent -- I can't tell you I see 5 percent in a reduction in EURs on 10,000-foot laterals like maybe we did two or three years ago.

Q. Given all the other variables with cluster shots?

A. Right.

Q. Thank you.

CROSS-EXAMINATION

BY EXAMINER JONES:

Q. Good afternoon, Mr. Harwell. I'm at a bit of a disadvantage here because I wasn't here for the previous testimony. So I'll just try to continue building -- building a transcript and the Examiner can do what he does.

So your design of your frac jobs, you guys have a preferred vendor as far as service companies?

A. No, we don't.

Q. But --

A. We're -- at this point, I say a taker. We look at four or five companies. We are takers at their timing. We, typically, once we get to a frac timing

where we're bringing somebody in, we may have one or two that can handle that date and what we're --

Q. Who will be the -- who will sit on your job after their -- to run your job? I mean, do you have in-house people?

A. We have in-house people combined with -- with consultants that we use.

Q. Like IPT or somebody -- just throwing out a name here?

A. I have a consultant Chris Hansen. He's fracked probably 200 wells. He has good experience. He's with Capital Petroleum Consultants. He works with us. My engineering manager, Marcus Bersenue [phonetic], has fracked a lot of wells in his career with Conoco. So I've got two that are either consultant or in-house that work with us.

Q. Okay. And can you just describe -- just one of the stages of the job? I assume they're pretty much identical as you move from the end of the well to the heel of the well. So --

A. With the only difference being that the toe is typically more conservative. We don't want to sand out anything at the toe. We may be more conservative with how much sand we put in the toe.

Q. Okay. But do you pump a little pad and shut in

and get your closer pressures, and then you -- do you design your frac on the fly there? Is that --

A. We have the ability to change the frac, but obviously, it goes with the schedule. You know, we pump 25 million pounds of the sand on a 10,000 foot well.

Q. Okay.

A. It's my schedule. Everything's -- everything's worked out. We know the days, what's happening when. We ramp up -- we start pumping water. We'll ramp up rate. We'll -- we'll ramp up concentration on 100 mesh. We'll then switch over to 47. We'll ramp up concentration on 47.

Q. Okay. So you don't get any larger than 40/70?

A. No.

Q. And do you put any sand control in?

A. No, we don't.

Q. Okay. You don't have trouble -- you don't anticipate trouble with that?

A. We haven't seen it in the wells that we operate with Amtex. The last well that we worked with Amtex to frac was the Dagger State 504. It was about 3,000 pounds per foot. It's still making good oil at about 1,900 barrels of fluid per day after eight months of production.

Q. Okay. Yeah. You saw a Dagger 504H.

A. Yes.

Q. It's a really good well.

A. It's a good well. Uh-huh.

Q. And that one was high, 3 -- 3,400 pounds per foot?

A. Yes.

Q. Just average size. That's -- is that mostly 100 mesh, or is that just a --

A. It's a combination --

Q. Combination?

A. -- of 100 mesh and --

Q. But you don't go less size than 100 mesh? Not 200 mesh?

A. No, we don't.

Q. The perfs -- you're using half-inch perfs?

A. Yes.

Q. So in order to get that much sand in your -- do you have to gel up any, or you just increase your rate?

A. No. We increase the rate.

Q. Where do you get your sand nowadays? You getting it from Kermit, Texas, like they're talking about in the paper?

A. Wherever we can get it from.

Q. Wherever. Okay.

A. Right. We're a little bit at the mercy of the

vendors.

Q. Are you happy with the grade of the sand or the quality of --

A. We have --

Q. -- the sand?

(The court reporter requested the parties speak one at a time.)

(Laughter.)

Q. Are you happy with the quality of the sand they bring to you?

A. Yeah.

Q. So what gel loading --

A. Now, when I say that, it's in reference to the Amtex well, that we work with Amtex on, the 504. We're still waiting. We haven't seen our sand on Merchant State, which we're getting ready to frac in January.

EXAMINER BROOKS: Excuse me, sir. Just to keep the court reporter happy, don't start your answer until Mr. Jones finishes his question.

EXAMINER JONES: And Mr. Jones will try to not start his question before the answer.

Q. (BY EXAMINER JONES) Okay. Would you like to finish what you were saying on the sand quality?

A. We're happy with the sand quality that we've seen, but then as far as what have we seen, it's

primarily been the 504. And the sand quality we haven't seen yet is the Merchant State, which will be coming up in January.

Q. So what gel loading do you use? What kind of gel is it? 30-pound bore gel type system?

A. It hasn't been -- it hasn't been that. It's been more of a 15-pound -- the job that's getting designed now will be straight slick water on the Merchant State.

Q. Definitely not crosslinked?

A. No, not crosslinked.

Q. So are you worried about any gel being left in the -- in the tiny little --

A. No.

Q. And you're happy with the drill direction out here? Was there a controversy about the direction of the drill --

A. As a --

Q. -- of a well?

A. -- in regard to the discussion with Great Western and Chisholm of the north-south, that's the preferable orientation in the area.

Q. Do you know -- do you know anything about the actual stress direction?

A. We do have some data, yes.

Q. Is that from, like, dipole-array sonics, they call them nowadays?

A. We have an array sonic in several of the Amtex wells just off to the west. We have also seen studies in the area that are consistent with that trend.

Q. And the trend is not exactly east-west, is it?

A. No, it's not.

Q. But you're happy with drilling north-south wells?

A. Yes, right. The wells running north-south seem to have better performance than the wells running east-west.

Q. You keep the land people happy and --

A. Yes.

Q. -- make an engineering adjustment.

Did you bring in any other knowledge from any other basins, as far as your trend on improving your fracs, or is it totally empirical from this Bone Spring trend?

A. The industry itself has been changing since, you know, 2008, 2009. I've watched that in a number of different basins. We haven't had the data set until recently with the activity in the Delaware Basin, the increased activity, and the increase frac intensity. So I'd say only recently have we had the data set in good

enough shape where we can put trends -- put a plot like these together showing trends. Right.

Q. Okay. And so now you can go design your size -- strength of your casing and your wellhead so you can get this frac off with more sand per foot?

A. Yes.

Q. Do you use a 10,000-pound wellhead or no well protector on your -- when you frac? Do you use a well protectant?

A. I don't know.

Q. Okay.

A. I don't know what they're running.

Q. Let me ask you about the end of the well. You know, horizontal wells being -- laying the pipe in a hole that's -- the pipe kind of falls in the bottom of the hole, and I assume it still does, even though centralizers might be in there.

A. Uh-huh.

Q. When you cement it, are you actually isolating the toe of the well adequately to keep your -- your initial frac where you intend it to be?

A. We think we are. The only data that I have is data from data rooms that we attend where we're seeing microseismic data showing fracs -- frac performance with something consistent in orientation and in general

nothing crossing into other perforations.

Q. Do you see any difference in your net pressure plot on your -- on your initial frac versus the one as you keep coming up the hole measured depth?

A. Not significant, no.

Q. You don't see it breaking into -- breaking down on you or anything?

A. No, we don't.

Q. Okay. Just to continue the discussion brought up in earlier questioning, you mentioned that you would switch the well from flowing to maybe a submersible pump to gas lift to maybe a pumping unit. That's a lot of changes in the -- is that standard in the industry with these horizontal wells?

A. Standard is to flow for a period of time and then either go to gas lift or submersible pump and then play that out until it's economic to go to a rod pump.

Q. And is there a risk of losing your submersible pump in the hole with all that cable?

A. There is always a risk. Of the wells that we've been watching, out of -- I don't know -- 100 horizontals that we have direct contact with, I've seen where they've lost a submersible pump once.

Q. Okay. That's not bad.

A. No. I say "lost" as in lost, where they had to

go in and fish it out, not where submersible pump stopped working, but when they physically shorted it out and lost it in the well. They had to go fish it.

Q. The economic limit of these wells, are you -- do you have any idea on the pressure limit that you could get this reservoir down to or even the rate limit as far as total -- total liquids?

A. No. We pump these down to just above the perforations --

Q. Okay.

A. -- with rod pump. So by the end of the well, we do keep them pumped off. And so -- is it a question: Do horizontal wells cost more to produce? The answer is yes. Is it a question about pressure? We do have the ability as long as the well's straight, you know, that we can -- we can rod pump to near -- near the perforations.

Q. So your pump would be actually down in the curve?

A. No. Typically, we'll pump above -- above that. We can put it in the curve if we need to a little bit, but it's not where we want to pump from. We'll lose more pumps than we'll gain on getting additional .5 psi drawn out.

Q. Okay. And the additional water that -- is

it -- do you make more water with these higher sand concentrations in these wells?

A. We do not make higher water cuts in wells with the higher sand concentrations that we've seen. Now, do we make more fluid? Yes, we do make more fluid. It leads to more recovery. But is it a higher water cut? We haven't seen it as a higher water cut.

Q. Okay. Thank you very much.

MR. RANKIN: Mr. Examiner, based on your questions and his responses, I have a couple questions on follow-up.

EXAMINER McMILLAN: Okay.

MR. RANKIN: I'm sorry.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. Mr. Harwell, what's the spacing going to be on these wells?

A. The State spacing? We're planning four wells across on -- on development of the 2nd Bone Spring -- and perhaps moving to six wells across.

Q. And how many clusters -- what is the cluster spacing going to be for these wells?

A. The cluster spacing --

MR. HALL: He's divulging proprietary information here. That's what I need to know.

THE WITNESS: As far as cluster spacing, we won't say. But as far as well spacing, we can talk well spacing, but we're into proprietary design at that point on cluster spacing.

MR. HALL: We would have to follow the protocols for providing you with proprietary confidential data.

EXAMINER BROOKS: We don't want that if it's not critical. If it's critical -- let's slide over it.

EXAMINER McMILLAN: Let's move on.

Okay. Go ahead.

MR. RANKIN: Thanks, Mr. Examiner. I just have a couple of questions to follow up on.

RECROSS EXAMINATION

BY MR. RANKIN:

Q. You mentioned that AEP was involved in the frac end of the drilling and completion of the Dagger State 504?

A. We were involved in the completion but not the drilling.

Q. Okay. Are you familiar with -- are you familiar with what went on during the drilling of that well? I mean, you're familiar with the background?

A. On the drill or the completion?

Q. On the drilling?

A. The drilling is before my time. I am familiar with reports of what went on with the Dagger 504, but as far as completion, I know more.

Q. Okay. So on the completion side, was that well -- you talked about cementing the toe -- was that well cemented at the toe?

A. It was not.

Q. And do you know why it wasn't?

A. They stuck casing about 1,000, 1,200 foot off bottom.

Q. Okay. So that lateral wasn't cased at all?

A. No, it was not.

Q. And it wasn't cemented at all?

A. No, it was not.

Q. And stilled fracked?

A. Yes.

Q. Is that -- could that account -- account for the difference in the production from that well?

A. I don't think it would. And my opinion might hurt more than help. I think fracking uncontrolled in an open-hole section is problematic.

Q. Okay. So why did they decide to frac it if they got the casing stuck?

A. They decided that 1,200 foot of open hole was

too much to bypass, and so they opened it up and fracked it in a single stage.

Q. Okay. Okay.

MR. RANKIN: That's it. No more questions from me.

EXAMINER BROOKS: I've got a question, just for my own education.

CROSS-EXAMINATION

BY EXAMINER BROOKS:

Q. You said something about comparing initial production IP on wells. Is there a -- in the trade, is there a rigorous definition of what IP is?

A. We call -- we use terms, as in 24-hour IP, 30-day IP, 90-day IP.

Q. Yeah?

A. And those are -- the 30-day IP is the reported highest 30 days of production.

Is there a definition that's a standard definition?

Q. Yeah?

A. The 90 days is the -- is the production over the peak three months that is reported, so that's a 90-day IP. You can have a 180-day. You can have a 365. But as far as a 24-hour IP, there's no standard of what it means.

Q. Do you have any expertise in these fields indicating if you want to compare wells? I've used the rule of thumb of saying -- because I'm usually looking at the OCD's records that say the first full month that you've got 30 days' reporting production. Do you use that datum to compare wells?

A. The 30-day IP is not as good as a 90-day IP, as far as being able to tell performance. But if you only have a 30-day IP, that's what we use. And we use correlations to try to get us to do something that we think is going to happen in a well.

Q. Of course, when you're comparing wells, you're often comparing ones that have been on production for different lengths of time.

A. Yes. Right.

Q. So you have to use a standard length of comparison.

Thank you.

MR. HALL: That concludes our direct case.

MR. RANKIN: Mr. Examiner, no further questions of their witness.

I would like to request we be permitted to put on a rebuttal witness. Coming into this case, we were under the impression that the issues Great Western had with our proposals were related to the geology and

the development of the 2nd Bone Spring. And so we did not understand, based on our correspondence with Great Western, that the issues were really related to completions more than anything. So we did not anticipate that completions were going to be such an issue in this case. So we would like to put on a rebuttal witness to address the exhibits that Mr. Harwell put together here so we can just run through and make that a part of the record.

EXAMINER McMILLAN: Okay.

MR. RANKIN: Okay. Thank you.

EXAMINER BROOKS: Do the Examiners all agree?

EXAMINER McMILLAN: Yes.

EXAMINER BROOKS: I think he has a right to rebuttal anyway.

MR. HALL: The rules allow it.

EXAMINER BROOKS: Taking into consideration it's 4:30 in the afternoon.

But rebuttal, you have a right to.

MR. McMILLAN: May this witness be dismissed?

EXAMINER McMILLAN: Yes.

Thank you.

MR. RANKIN: Mr. Examiner, I'd like to call

Mr. James Huling as our witness.

JAMES HULING,

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

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Huling, will you please state your full name for the record?

A. James Huling, H-U-L-I-N-G.

Q. Have you previously been sworn in today?

A. I was sworn in today and I've previously testified and been qualified in the state of New Mexico.

Q. Okay. And in what capacity were you qualified as an expert witness?

A. As an expert witness in petroleum engineering.

Q. Okay. And just for the benefit of the audience, would you mind just reviewing for the Examiners your educational and work background in petroleum engineering?

A. I graduated with a degree in petroleum engineering in 1985 from the University of Oklahoma. I worked for -- I interned with Kerr-McGee Corporation and worked with Kerr-McGee a total of ten years. I subsequently went to work for Riata Energy, was an engineering manager for a couple of years during there.

Through the sale of their Pakenham field, Val Verde Basin.

I should back up. My experience with Kerr-McGee was in the Permian Basin. In my time with Kerr-McGee, I worked in Midland part of that time, as well as Amarillo and the Anadarko Basin.

After leaving Riata, I went to -- moved to Fort Worth, Texas. I worked for Range Resources, worked the Permian Basin. I then went to work for Encore Acquisition Company as a start-up, which is a Warburg Pincus NGP sponsor company that --

(The court reporter requested the witness repeat the company name.)

A. An NGP-backed company that we took public through an IPO and worked there. I worked in the Williston Basin in the Permian Basin there as a reservoir engineer and then, briefly, reservoir engineering manager. And then I left and did two deals with EnCap Investments, sold out of the second one in 2007, and have mostly been on my own since 2007 as an independent and consulting petroleum engineer.

I started with Chisholm Energy in May of 2016 -- before they actually formed, and I run all of their reserves.

Q. When you say you "run their reserves," what do

you mean by that?

A. I'm their -- overall, their reservoir engineer.

Q. Okay. And your responsibilities, obligations at Chisholm, do they relate to its interest in the Permian Basin in New Mexico?

A. Yes, sir.

MR. RANKIN: Mr. Examiner, with that, I would tender Mr. Huling as an expert in petroleum engineering.

MR. McMILLAN: No objection.

EXAMINER McMILLAN: So qualified.

Q. (BY MR. RANKIN) Mr. Huling, you were present for the Great Western's testimony from Mr. Muire today?

A. Yes.

Q. And you heard him testify that they were -- I'll paraphrase -- dissatisfied with Chisholm's experience and reputation in the Permian Basin. Is that your understanding of his testimony?

A. In general, that was his testimony. Yes.

Q. Okay. Is it your understanding that Chisholm offered to meet with Great Western to review your management teams and your experience in the Permian?

A. Yes.

Q. And is it your understanding that they didn't want to meet with you to discuss that?

A. Yes.

Q. And is it your understanding that you also -- Chisholm also made an offer to meet with Great Western to review the technical approach that Chisholm had developed to produce from the Section 34?

A. Yes, sir.

Q. Okay. And is it your understanding that they also did not want to meet and discuss that issue?

A. That is correct.

Q. Now, you also were present for the testimony from Mr. Harwell just a moment ago?

A. Yes.

Q. And do you have a copy of the exhibits that Mr. Harwell -- Harwell, I'm sorry -- Harwell prepared?

A. Yes, yes.

Q. Will you please turn to that Exhibit Number 13?

A. Yes.

Q. And I'm just going to ask you, Mr. Huling, did you have an opportunity to review the information that was represented in these exhibits starting at page 2?

A. I did. Right before lunch, we were handed two copies -- I guess you had a copy and we had a second copy to look at.

Q. Before lunch?

A. I'm sorry. After lunch. Thank you. I stand

corrected.

Q. After lunch. Okay.

And looking at this page 2, what are your -- what is your evaluation of the information he's presented here and the conclusions that he's drawn based on the data?

A. Well, one of the things that stands out to me is the -- we have specific operators included here and not necessarily all the operators. We also are lacking some of the operators kind of in the immediate area that drilled wells that I would say are relevant and pertinent to recent practices and results in and around the Grama Ridge section here.

Q. Okay. And so included among those wells that are excluded are some of the more recent wells drilled by Chisholm using 1,300 -- 1,500-pounds-per-foot frac intensity; is that right?

A. That is correct.

Q. Okay. And Mr. Harwell testified that the data that he used was based on the publicly available data and the data for those wells that shows Chisholm had produced with the higher frac intensity weren't available?

A. That was his testimony, yes.

Q. Now, do you have a sense for where your wells

would fall on this graph if you had bought them with the 1,500-pounds-per-square-foot frac intensity?

A. Yes.

Q. And if you would for the Examiners explain to them where, based on your data and your evaluation of the quality of those wells, they would fall?

A. They would fall, again, as Mr. Burke testified this morning, we see clusters, which I agree with Mr. Harwell, there are definite clusters. We have the cluster, as he has depicted here, between 6- and 800 pounds, we have another cluster here that's around 1,500 pounds, and then we're starting to see a cluster at 2,000 pounds.

The wells that Chisholm Energy have drilled would be in the 1,500 pound, which would be on the x-axis, and on the y-axis are going to be definitely at the upper end of EURs per thousand foot.

And I would say that -- I can also say that if -- we did not -- or we did prepare some other relevant data in looking at all of this with EURs with respect to proppant concentration for all the wells in the area and really try specifically tie some of the more recent completions in the 2nd and 3rd Bone Spring, including all operators, not just the selected ones that are represented here in Mr. Harwell's exhibit.

Q. Mr. Huling, I'm going to pass to you what's been marked as Exhibit Number 24. And I'll -- I think this may be what you're talking about.

A. Yes, sir.

MR. RANKIN: I hope I have enough for everybody.

Q. (BY MR. RANKIN) Go ahead and review for the Examiners. This is marked as Exhibit Number 24 and explain what this depicts.

A. Okay. Very similar to what Mr. Harwell does, we also maintain the database of 4,500 wells. EURs, we update every month. We have frac parameters. We have a significant amount of the proprietary data that we have received working closely, trading with other operators. And, you know, with that data, we have come to the conclusion that we're seeing some not necessarily improved results above 2,000 pounds. We're seeing some diminishing returns above 1,500 pounds per foot. We think there are other variables that definitely play into this. Some of this, I think -- I don't want to get into the exact specifics.

But very, very relevant to the results are cluster spacing, stage spacing, and the proppant design and placement. And, you know, again, go back to the results of the Lea South well, which Mr. Burke and Mr.

Francis testified on this morning, and look at the rates that we're seeing and the early EURs that we have projected on that well that are far exceeding the older wells in that section.

You know, again, we're very confident that the 1,500 foot -- or 1,500-pound-per-foot concentration is very -- maximizes net present value and in the results of these wells.

Q. Okay. And so this chart here is for the 2nd Bone Spring?

A. That is correct.

Q. Okay. And what this reflects is, in fact, 1,500, 2,000 is, at least in terms of your analysis, is at least good or better than the higher frac intensities?

A. Yes. I think we're splitting hairs between 1,500 and 2,000. I think 1,500 is very -- is necessary. Above 2,000, I think we're definitely diminishing returns, and we would probably just add cost to the well by increasing much above or above 1,500 pounds.

Q. Okay. You also represented other factors that go into these higher EUR values. In addition to the ones you just enumerated, would you also include the quality on the rock and the reservoir?

A. Absolutely. You know, Chisholm, a little bit

about Chisholm Energy that wasn't really discussed this morning, Chisholm Energy is primarily the management team primarily came out of Range Resources. Most of the guys are 30 to 40 years' experience. The chief operating officer is Mike Middlebrook. Mike has published many papers on stimulation, was one of the original parties at IPT. He worked extensively with Fracpro and some of the early developments and modifications of Fracpro. I know he's supervised hundreds of frac jobs, and I know when Range was involved with the Barnett Shale, there were many operators that had underperforming wells. If you look at the wells that Range drilled by improving the stimulation techniques, not necessarily size of jobs or proppant, but some of the other nuances -- perforating scenarios and stage selection and specifically geosteering and selecting intervals, they had wells that performed in the upper portile [phonetic]. They took that same approach to the Marcellus Shale and had very good results early on developing there.

So one of the other individuals also is Andrew Tullis, who runs engineering for Chisholm. He had worked for Halliburton, worked for Matador extensively in this area years ago, has drilled, completed many wells out here. Again, he's been very

involved with the evolution of the frac technology here.

Thirdly, the manager of the geosciences is a gentleman named Martin Emery, who has drilled many wells in this area. In fact, you'll find mud logs and open-hole logs with Martin Emery's name on it in this township. So I digress.

Q. No, it's all very helpful.

Now, with some -- just so I'm clear -- I can't remember if you specified or not, the data that was used to create this graph, it comes from where?

A. The data from this graph -- the EURs are projected using IHS data, and then we also pulled data from the OCD site to get updated production.

Q. Okay. And what wells are represented here?

A. These are wells -- and unfortunately, I don't recall the exact area, but it's going to be roughly a 15-section area around section -- around the Grama Ridge section here.

Q. Okay. So these are -- and were these wells selected or --

A. Go ahead.

Q. -- my question -- so this 15-section area around Section 34?

A. Yes.

Q. Which is the subject section for these

applications?

A. Correct.

Q. And were there -- were these wells selectively chosen or was it all?

A. Yes. Yes.

What we do is with every horizontal well, we pulled a depth that the wells were completed -- whatever data we can on the steering. And we have very tight correlations from the 2nd Bone Spring, 3rd Bone Spring, 1st Bone Spring, and we delineate those. So all of these wells have been very specific to the cross sections that Mr. Francis testified on this morning when he was explaining, you know, where his picks are on the 2nd Bone Spring and 3rd Bone Spring. So these are very specific to those intervals.

Q. So in other words, you picked wells that you think represent the best rock. So this type of graph that you presented here is reflective of some of the other factors that you think reflects higher EURs?

A. I wouldn't say "best rock." I would say that these are specific -- these are very similar analogous wells and stratigraphically equivalent rock.

Q. Okay. So the wells that are being proposed by Chisholm in this case?

A. Correct.

Q. Okay. Thank you. That's what I wanted to clarify.

For purposes I'm going to circulate -- for completion -- to circulate another graph you prepared on the 3rd Bone Spring, similar analysis. As I'm finishing this, will you please review for the Examiners what this chart depicts?

A. This -- this chart depicts on the y-axis the EURs. These are calibrated per thousand lateral length or gross perfs. And then proppant on the x-axis and this is, again, for the 3rd Bone Spring. And these are specific to the stratigraphic intervals as delineated in the cross sections that Mr. Francis testified this morning.

Q. Okay. So are these the same wells that are reflected in the -- not necessarily the same wells reflected on the prior chart in the 2nd Bone Spring?

A. They are not the same wells. They are in the same general area -- but 3rd Bone Spring versus 2nd.

Q. And so you chose these wells again because they are representative of the same zone -- target zone -- you're targeting with the wells you're proposing today?

A. Yes, correct.

Q. And based on your assessment analysis of the target intervals that you're targeting in this case and

with the proposed completion techniques that you're proposing, do you have an opinion about the quality of the well that you're looking to produce here in terms of the ability to recover all of the reserves in place?

A. Well, again, we are -- you know, if you look at this 3rd Bone Spring plot of proppant concentration, they're definitely on the low side. I could say that we are drawing practices that we have found successful in the nine previous completions that we have in the Northern Delaware Basin, as well as pulling from other basins, other areas, and feel that that is the most efficient way to develop and complete the 3rd Bone Spring.

Q. Now, in your role as managing or reviewing reserves for Chisholm, do you regularly track wells that are drilled and produced in the area?

A. Absolutely. Yes.

Q. Can you reflect a little -- explain it to us a little bit about what you do and what you track?

A. Very similar to what Mr. Harwell testified. We include, you know, completion date. We have a maximum 30-day rate, a maximum 90-day rate. We record the IP rate, as provided by the State. We record proppant. We record lateral length. We take -- spend a significant amount of the time on the mapping as Mr. Francis

testified. We have made extensive maps looking -- trying to high-grade the 2nd and 3rd Bone Spring. We have flagged in our database where we think the better areas are to exploit and potentially go after. We look at total fluid volume. We look at, you know, water recovery, GOR rates, so on and so forth.

Q. Okay. Now, based on your tracking of all that data, have you drawn -- you've done studies about what the impacts or how those play into the overall production of a well, correct?

A. Yes.

Q. And based on your evaluation of that, do you have an opinion on whether your proposal is a prudent proposal?

A. Yes, sir.

Q. And what is that opinion?

A. That 1,500 pounds, we believe, per foot is an optimum or very reasonable number. You could argue it could be a little less. I can certainly point to cases where some of the better wells were fracture-stimulated with less than 1,000 pounds and wells that were fracture-stimulated with over 2,000 pounds in this immediate area didn't perform as well. But I still feel like 1,500 pounds is a very reasonable number. Above 2,000, I think we're getting to the point on the

diminishing data I see in this area.

Q. So I think you heard in Mr. Harwell's testimony that you did not include the Mewbourne wells in Section 11 Township to the south. Did you hear that testimony?

A. Yes, sir, I did.

Q. Okay. And you heard the testimony of Mr. Williamson, the geologist for Great Western, testify that he thought wells in Section 11 were very good wells. Did you hear that testimony?

A. Yes.

Q. Okay. And have you reviewed those wells?

A. Yes, sir.

Q. And the completions that were employed for each of those wells?

A. Yes, sir.

Q. Are you familiar with the way those wells have produced?

A. Yes, sir. Yes.

Q. I'm going to pass out an exhibit that I think will help you review your knowledge on those wells. This is marked as Exhibit Number 26.

Will you please review for the Examiners just what this shows in relation to Chisholm's levels for Section 34?

A. Okay. As Mr. Francis had laid out this morning

in his testimony and as originally presented in well proposals, ideally, we like to drill wells as soon as we can back-to-back in a section. That's why four wells were initially proposed in a section. And this is technology, an idea that has been and results been drawn from other areas. If you go and look at case studies in the Barnett Shale in the Marcellus Shale, when you drill a well, you come back later and you drill an offset, many times there is lower pressure -- lower frac pressure that could be communication. And the subsequent well, even with a more robust stimulation, may not perform as well. I'm not going to say in all cases, but I'm going to say, in general, that's a trend.

So as a practice, we have seen very successful implementation of drilling multiple wells maximize recovery and minimize waste by completing the wells close together so that the pore pressure is not drawn down. And to this point, if you look down at Section 11, which Mewbourne operates -- and, again, this was not included in the presentation that Mr. Harwell had. If you look at the wells there in Section 11, you'll see at the top there's oil and gas peak rates for the -- these are going to be the highest 30-day rate in the first 90 days. Oil is on top. And you'll see that the most current well we wrote the data in this morning,

which 30,458 barrels of oil would be the peak for that well, which we would call slot one, which would be the most western location. The gas would be 36,129. Again, that's the last well drilled. That well, if you look right above it, you'll see a number that says 2,057. That is the pounds per foot that well was stimulated with. That is the largest stimulation of the four wells that were fracked in that -- or completed in that section. If you move over, you'll see the well in what we would call slot 2 has had a peak oil rate of 66,000; and then you'll see the next well to the east, 32,780; and then last well in the far east, 14,000.

And the -- one of the key things here is the well that was completed with the smallest stimulation, 655 pounds per foot, is -- had a higher rate and potentially it's still very, very early data but looks like may have a higher IP than the last well drilled with the largest stimulation.

Q. So based on your -- based on this one section, I mean it's not -- it's a one-section representative, but it's a -- within a mile approximately of your proposed location?

A. Correct.

Q. It indicates that at least with respect to frac intensity, it's not a foregone conclusion that a larger

stimulation will result in a higher initial production?

A. Correct. I would say -- I'll caveat this -- if all of these wells were drilled at the same time, it might be different. I do think that there is an impact on the -- on the depletion and frac gradient. And if you have similar stresses on all of the wells, I think you've have a more effective stimulation. And when you come back a year or two years later, even though you don't see material drainage, you do see an impact on the frac gradient. If you go back and you look at petroleum engineering, we commonly look at a correlation of the minimum stress plus two times the pore pressure or the average reservoir pressure. That, divided by three, gives you an approximate frac gradient.

And that is very, very significant. Very material. Because as the reservoir pressure drops, the frac gradient goes down. So when you frac a well at virgin rock pressure, you tend to break more rock. If you have a well that's somewhat depleted, you'll have -- you have to fill up that volume and build up in that pressure and you may not get enough net pressure there and you don't have to effectively crack that rock. I'm not going to say "absolute," because we don't know absolute. But my professional opinion, that's likely why this well in slot one, the farthest western well

that was stimulated with three times the proppant as this well in slot three, and why it's potentially not as good a well.

Q. Because the pore pressure at that point had been reduced and it needed more pressure --

A. And that plays into the ability to frac. So to this point, I think it is important to come in and drill multiple wells while the reservoir pressure is higher. We have higher recovery and we minimize waste by taking that approach.

Q. So in your view Chisholm's proposal to drill four wells back-to-back-to-back and then to complete them simultaneously is a better, more prudent approach to minimize waste?

A. Yes.

Q. Because you will be maintaining the pore pressure before you start producing reserves?

A. You'll be main -- you'll be fracking the well while there is higher pore pressure, you'll have more similar frac gradients and have a more effective frac.

Q. So did you hear Mr. Harwell's testimony regarding some of the other factors that more modern completion technologies are employing in terms of cluster fracs?

A. Yes.

Q. So you do agree with him on that?

A. Absolutely. Absolutely.

Q. And with respect to his chart on page 2, do you agree that it's not -- it's not possible to discern which of those factors are in combination, which of those factors have resulted in the higher EUR estimates in the more recent well completions?

A. Yes. And I would agree also with Mr. Harwell with the public data. It is very difficult to know exactly what everyone's perf clusters, but we do know that, in general, just looking at data rooms, looking at industry information, that perforated -- excuse me -- frac intervals are tightening and perf clusters are also tightening.

And that -- that change is not depicted here. And with the public data, I agree with Mr. Harwell. It's hard to see, but if you do take case-by-case studies, you can see some results or benefit with tighter spacing on more recent wells.

Q. Okay. And so in your opinion, what Chisholm proposes to do with simultaneous completions and optimizing those other factors that Mr. Harwell testified about, you believe that you'll be able to achieve at least comparable EURs with the wells you're proposing today?

A. Yes.

Q. And you'll be doing that for less cost on the frac stimulations?

A. Yes.

Q. Because if you thought that it was prudent to spend more money on a frac, would you do it?

A. Absolutely. Again, we always look at net present value. We take -- and oil and gas prices can play into this. But we do look at - what is the frac cost? What is the completion cost? What are the operating costs? We schedule everything out and we -- and we did an optimization looking at what would be the benefit of the 2,500 pounds, 2,000 pounds, 1,500 pounds, 1,000 pounds, and based on the data, the simulation work we did, we feel like the optimum present value was 1,500 pounds per foot -- per lateral length.

Q. Now, I'm going to ask you to turn to page 5 of Exhibit 13 in your exhibit packet, which lists the comparison of the AFE costs.

I asked a question of Mr. Harwell, which I didn't understand, regarding the Hubbert & Willis Equation. And I'm wondering, if I ask you the same question, do you give me a different answer?

A. Well, I looked into it. Actually, Mike Middlebrook, who is the chief operating officer, has had

extensive experience with IPT and Andrew Tullis. They both have educated -- schooled me on that equation.

And bottom line is because that pore pressure -- when you draw down a reservoir, the pore pressure goes down and that's why it's been so important and why Range was so successful in places in the Barnett Shale and the Marcellus Shale and other places and in the Permian Basin, but -- and why we think our results have been so stellar in the first nine wells we drilled here is deploying that same technique of completing and fracking wells while the reservoir pressure is not drawn down. We get better impact of our frac job.

Q. So based on that determination and concern about maintaining pore pressure, do you feel -- given that concern, do you feel you have enough data in the immediate vicinity on wells drilled and producing -- horizontal wells drilled and producing in the 3rd Bone Spring and 2nd Bone Spring to know that you -- that it would be prudent to go ahead and proceed with drilling and completing all four wells at once?

A. Yes, sir.

Q. So in your view, would waiting to get data back actually be a waste of resources?

A. Yes.

Q. And that's based on your view that the pore

pressure would be depleted and you would be losing reserves?

A. And the results in Section 11, one mile to the south here, we could also move up to Section 27, which is just to the north, and you see similar results. I don't have it depicted here, but I can tell you the best 3rd Bone Spring well in that section was stimulated with 983 pounds per foot based on my EUR data set. And the worst well in the section, later -- completed later, 1,755 pounds of proppant per foot and had the lowest EUR.

MS. KESSLER: Are you looking at Exhibit 11 of Chisholm's Exhibits?

THE WITNESS: I can, yes.

Q. (BY MR. RANKIN) So you were talking about Exhibit 26, but if you turn to Exhibit Number 11 in Chisholm's Exhibit packet, does that depict Section 27?

A. Yes.

Q. Does it have the numbers you're talking about?

A. It just has the IP rates. But I --

Q. Yeah. Okay. So it's not what you were --

A. Yeah, I mean, I have the data, but I -- that was another section that was looked at in terms of depletion. But again, I admit I was not fully prepared to deal with all this. But I'm very familiar with this

area.

Q. All right. Now I think I covered everything that I wanted to cover.

Mr. Huling, did you have any other comments you wanted to share with Mr. -- on Mr. Harwell's presentation on any of the other pages that we didn't discuss, pages 3 or 4?

A. I think you covered a good bit of it. But I will say Chisholm Energy is -- having worked for two EnCap companies, I knew that we had about two- or three-year window that we were trying to deploy capital. After that, the rate of return for the management team went down. Warburg Pincus is backing Chisholm Energy. We are looking at other vehicles that will likely keep us around longer more similar to what Encore Acquisition Company did in the early 2000s. And so our approach is definitely drill, develop more wells, you know. Hence, we have dollars budgeted. You know, we originally looking at eight wells out here. So we are aggressively looking to -- want to develop and fully develop and because we see very attractive economics and rates of return on drilling wells here in the 2nd and 3rd Bone Spring.

Q. So if you're awarded operatorship in this section, will you proceed to drill these wells and get

them into production as you propose?

A. Yes. As previously stated, we have three rigs under contract. We have a dedicated frac crew, also. So, yes.

Q. Read to go?

A. Yes.

Q. And that's all the questions I have.

MR. McMILLAN: All right. We've got a bit of cross here.

EXAMINER McMILLAN: We're taking a five-minute break.

MR. McMILLAN: Sure. Sounds great.

(Recess, 5:05 p.m. to 5:14 p.m.)

EXAMINER McMILLAN: Call this hearing back to order.

CROSS-EXAMINATION

BY MR. McMILLAN:

Q. Good after- -- good evening, sir. Just a few follow-up questions -- cross-examination questions with respect to your testimony here.

Just to refresh your recollection, let's take a look -- sorry. Go ahead.

EXAMINER McMILLAN: 25 and 26?

MS. KESSLER: Mr. Examiners, we would move that Exhibits 24, 25 and 26 be included as part of the

record.

MR. McMILLAN: Sure. No objection.

EXAMINER McMILLAN: Okay. Exhibits 24, 25 and 26 may now be accepted as part of the record.

(Chisholm Energy Exhibit Numbers 24, 25 and 26 are offered and admitted into evidence.)

Q. (BY MR. McMILLAN) Let's just flip back to page 2 of Great Western and Advance's Exhibit Number 13. You had -- I believe in your testimony you were asked if you were to plot Chisholm's recent wells fracked at, I guess, within the 1,500-pounds-per-foot bin, you testified that those would land very high on the EUR scale, right? Whereabouts -- I think you used a vague descriptor, but can you give us a more specific sense within the 1,500-foot -- 1,500-pounds-per-foot bin these wells would be landing with respect to EUR?

A. Based on the results, at least south, we would be north of the 300 EUR line.

Q. Okay. How many Chisholm wells are you representing you have EURs for?

A. Specifically there, I'm going to have just two.

Q. Okay. And how are these EURs calculated?

A. Those are calculated with daily data using our type curve analysis for shape of the -- of the curves. We do have enough early data to where they are falling

in line. And with a reasonable degree of confidence, we feel like they will be north of 300.

Q. You said you had daily data?

A. Yes.

Q. How many months of production data do you have?

A. I don't remember the exact number of days, but we're getting out -- outside of 30 days on those.

Q. And you'll represent to us that that's enough data to be able to forecast these EURs within a reasonable degree of confidence?

A. Yes. We're -- on those particular wells we're seeing -- we're over -- we're almost at 4,000 BOE per day on those wells, so very, very high IPs.

Q. Is this the data that you previously described as stellar for these wells?

A. Yes. They would be included in that.

Q. Okay. And would you agree with me none of this data that you're representing to us today has, in fact, been publicly provided?

A. To the best of my knowledge, it has been publicly provided. It has been to the best of my knowledge. I -- I was surprised that it hasn't been posted yet because to the best of my knowledge, it has been provided to the State.

Q. Are you the individual who submits that data?

A. No, sir.

Q. Okay.

A. And that will be an immediate follow-up when I go back, but to the best of my knowledge, it was filed.

Q. So it would be surprising to you to learn, as you did today, that it's not appearing in places it should be?

A. Yes. I was surprised to hear that.

Q. Now, would you agree or disagree with me that the 2nd Bone Spring and the 3rd Bone Spring should really be tested in Section 34?

A. I would agree they should be tested.

Q. You would agree they should be tested?

A. Yes, sir.

Q. Yet it's my understanding that Chisholm is going all-in with four wells to be drilled simultaneously -- back-to-back, not simultaneously. That's impossible. Back-to-back.

A. You and I share the same view on back-to-back-to-back.

Q. Okay. Our question is: Has Chisholm ever done this in the Permian Basin, gone in and drilled multiple back-to-back without testing?

A. Yes. Well, we drilled two, completed two, drilled two, immediate offset and completing those two.

Yes. In New Mexico.

Q. In New Mexico?

A. Here, in the Northern Delaware Basin.

Q. Okay. Close to Section 34?

A. Not immediately there. Over in Eddy County.

Q. Okay. So different county.

Let's see. There was -- testimony about the Hubbert & Willis Equation, and Mr. Rankin and I, we're just lawyers. We're not familiar with the equation. But is this something that you would represent to us as being used industrywide?

A. Yes.

Q. And okay. Go ahead.

A. It was -- when I went to petroleum engineering school, it was definitely covered in fracture completion practices. I believe I also saw that equation in various modern completion and stimulation classes. I know that it is used as an algorithm in some of the frac modeling programs.

Q. Okay.

A. So I know that Mfrac -- I can't speak now, but I know years ago -- I don't do much frac modeling now, but years ago, that algorithm was used in Mfrac.

Q. From -- okay. But it's a model that's been used for quite some time?

A. Yes.

Q. And has it, to your understanding, has it been updated for really modern, really up-to-the-minute completion techniques?

A. Well, it's kind of a -- it's an empirically derived equation, and I don't think that it really needs to be updated. I don't think we need to update the laws of physics, per se, on that.

Q. We don't need to go down that road this evening. That's fine (laughter). I mean, we've done enough today. Where did you get the reservoir pressures that you use in the Hubbert-Willis work?

A. Well, you have normal pore pressure gradients. You can see from completions when you complete a well -- I mean from the drilling side. You can stop and check weights, pressures, flows. Then after a well is drilled, completed, shut in, you can get an estimate of the pressure. So there is a number of ways.

Q. Going back to my previous question about Chisholm's experience drilling back-to-back wells, it doesn't sound to me -- correct me if I'm wrong. It doesn't sound to me that Chisholm has ever drilled or completed four wells back-to-back in the same zone; is that correct?

A. To date, no.

Q. Okay.

A. Two -- two -- as I said, two back-to-back and then with plans to very quickly come back and drill the next two.

Q. Same zone?

A. Yes.

Q. Okay.

A. We have that scheduled in a number of places.

Q. How quickly?

A. Within a year.

Q. Within a year. So we're talking about a 12-month gap?

A. Yes.

MS. KESSLER: Objection. I think there is some confusion there.

THE WITNESS: Okay. Did I --

MS. KESSLER: When you say "back-to-back," you don't mean that you're drilling one well, waiting 12 months, and then drilling the other well. That's what -- I understand the question.

Q. (BY MR. McMILLAN) Clarify?

A. I didn't mean to say that. I apologize.

I mean drill one well, drill a second well, complete immediately, you know, move the drilling rig off, come back and complete one and two, wait within 12

months or within 12 months, come back, drill three and four, move the rig off, complete three and four. So you would effectively have four wells drilled in probably a little more than a year's time.

Q. Why take the year? Why wait the year?

A. Ideally, we'd like to go four. It just depends on the area. But some of it has been lease -- you know, trying to optimize, you know, proven up leases and holding leases, and there are some of these -- there are a number of sections out here that are held by marginal vertical producers and we think it's prudent to get in and establish those and eliminate the leasehold, you know, with acreage costs out here.

Q. Okay. Is one reason to wait the 12 months also to see what the results are on the first two wells?

A. Not necessarily, unless you're in an area where there is geologic risk, which I could say there would be some areas, maybe on the fringe, or yes, that would be the case. In Section 34 here, where, you know, as Mr. Francis testified, less than 1 degree or half a degree of dip, we have 3D seismic here. You know, I just do not see much geologic risk here at all.

Q. But there is geologic -- there's always geologic risk.

A. Very, very low.

Q. Does the proximity of the ridge play into your analysis of geologic ridge -- geologic risk?

MS. KESSLER: I would object just on the basis that he's an engineer, not a geologist.

THE WITNESS: I was going to defer to Mr. Bill Francis on that if counsel hadn't objected. So, yeah.

Q. (BY MR. McMILLAN) Okay. Let's move to do your Exhibit 24.

Now, it's my understanding -- correct me if I'm wrong -- that Chisholm is committed to fracking these wells at 1,500 pounds per foot, right?

A. That is the plan, yes.

Q. That's what the AFEs reflect?

A. Yes.

Q. Looking at your Exhibit 24 -- again, I'm just a lawyer, not a statistician or anything, but I'm looking at what we can fairly characterize as the, say, 500- to 1,000-pounds-per-foot bin?

A. Okay. You're on the 2nd Bone Spring.

Q. I'm sorry. This is Exhibit 24.

A. I didn't number mine.

Q. Oh, it is the 2nd Bone Spring.

A. Yes.

Q. Okay. So just looking at the trends here, if

we can lump together those data points kind of between 500 and 1,000 and call that a bin, and then those data points around 1,500-pounds-per-foot range, call that a bin. And then looking at the 2,000-pounds-per-foot range -- again, I'm not a statistician. But does it not appear -- well, first of all, is the highest EUR -- highest-producing well not in the 2,000-pound-per-foot bin?

A. Yes.

Q. That's my first question.

A. It is.

Q. And the other data points, and there are just a few of them, but aren't those in the 2,000-foot bin generally higher than those in the 1,500-foot bin?

A. There are one, two, three, four, five that look like -- there are five of them that are going to be -- let's just say the top six in the 2,000 pound are higher than top six in the 1,500. I would say that. Am I answering your question?

Q. I think you are. I think you are.

So when we move from the 1,500-foot bin to the 2,000-foot bin, we're losing quite a few of these lower-producing hundred, 150 EUR wells, right?

Does that make sense?

A. Yes. And some of those, I do not have denoted

here. I have larger spacing intervals, so that is not factored in here, so --

Q. Right. Right. Understood.

And then moving to the right, to the 2,500-foot bin, I'm just seeing two data points there, correct?

A. Yes.

Q. And just one there at the 3,000-foot mark -- pounds per foot. I keep saying --

A. Yes, which are lower than the 1,500-pound bins. Yes.

Q. Right, right, right. But my point is there's just three data points --

A. Yes. Correct.

Q. -- higher than -- we're talking over each other. She's going to kill us.

Let's try one more time. There are three data points greater than 2,000 pounds per foot, correct?

A. Correct. There are three data points with greater frac intensity, let's say 2,500 pounds per square foot, and the EURs are lower than the 2,000.

Q. Sure. Sure.

Looking back at page 2 to our Exhibit 13 --

A. Yes.

Q. -- you see how many data points Advance has

managed to find above -- at the 2,000-pounds-per-foot mark and higher?

A. Yes.

Q. Why do you only have the three data points?

A. Because I'm looking at a more concentrated area.

Q. Uh-huh.

A. And I'm looking at very zone-specific stratigraphic equivalent in the immediate area.

Q. Why are you looking smaller?

A. It's a small area.

Q. Okay. They are representing to us three data points is enough to decide within a reasonable -- to a reasonable degree that higher proppant levels show diminishing returns?

A. I would say that the data in the immediate area of the Grama Ridge planned development, that's the data available in the immediate area. And is that enough data to conclude? You know, that's up for interpretation, but that's the data available in the immediate area. Of all operators, you know, not just selective operators and not just a larger basin as compiled in Exhibit 2.

Q. Okay. But you've made decisions in developing your Exhibits 24 and 25 -- you've made decisions about

how to select the wells that you're going to use for data points, correct?

A. We also have looked, as I testified earlier, we have looked at proppant concentration in our database, similar to Mr. Harwell, all across the basin. We've also taken a look -- a very close look with where we have data on perf -- you know, perf design, cluster spacing, that factors into this.

So there are certainly data and results we're pulling from specifically looking at the results Lea South, look at the Buffalo West, other areas we drilled that were on Exhibit 1 this morning, where over and over we're seeing, you know, very favorable results. And, again, with the data we have from the data rooms, with sharing with other operators, with the frac modeling we've done, we are looking in general at data throughout the basin as well.

But specific to this area, again we were not -- we did not think this testimony was going to go this direction. And so as I was headed out the door on Monday, I said, "Let's go grab these wells, plot them up, just to have it, just in case." That's how this was developed.

Q. Fortuitous. Prescient, perhaps.

However, you're also describing to me

basin-wide data. That basin-wide data is not a matter of the record here today, correct?

A. That's correct.

Q. And, again, looking at your Exhibit Number 25, in terms of the quantity of data, looks like you only have one data point greater than 200-pounds-per-foot proppant; is that correct?

A. 2,000.

Q. In the 2,000 to 2,500 range?

A. Yes.

Q. And is it not true that the best performing well -- strike the question.

Moving to Exhibit 26. Let's see. A couple of things arising from your testimony concerning Mewbourne wells in Section 11?

A. Yes.

Q. Would you agree with me that even at about 1,500 pounds per foot, and it looks like going west to east the second and fourth well -- do you have the exhibit in front of you?

A. Yes, but I was also -- can I see our exhibit from this morning, please.

Go ahead.

Q. Okay. Looks like you've got two wells here at 1,495 pounds per foot and one at -- well, one well at

1495 and another well at 1490 with, would you agree with me, very different EURs?

A. Yeah, I did. These are just IPs.

Q. I'm sorry. I didn't mean EURs.

A. Maximum 30-day production rates.

Q. Right, right.

Those production rates are very different, correct?

A. Correct.

Q. So there's great variation even at 1,500?

A. Correct.

Q. And you called out that 655-pounds-per-foot completion as being -- well, would you describe that production rate as being fairly remarkable for that proppant -- for that amount of proppant?

A. I would say there are cases all over where we're -- I continue to be shocked sometimes when I see wells that have high EURs with low and what I would consider, poor completion practice. Be it 500 pounds per square foot -- again, if you're in a very productive area, it doesn't matter -- I mean, if you have -- to Mr. Harwell's testimony earlier, if you have an area that is poor reservoir rock or good reservoir rock, sometimes it doesn't matter as much what it is. A lot of it's driven by the geology. Okay.

Q. Okay. Okay. But you're not telling us, based on Mewbourne numbers, the smallest frac jobs are necessarily the best, are you?

A. I'm saying that the 2,000-pound-per-square-foot frac job that was performed in the last well drilled is not performing as well as the frac job with 655 pounds per square foot.

Q. Right.

A. In this case.

Q. Right. I think you testified to the -- I'm losing the word. I believe you testified essentially that if these four Mewbourne wells had been drilled at the same time, the results would be very different; is that correct?

A. Potentially, yes.

Q. Potentially?

A. Absolutely.

Q. Is that just a hypothesis or do you have some data to support that?

A. I do not have pore pressure data. But I can say over and over, we see throughout that subsequent wells drilled, even with larger frac jobs, many times don't perform as well as the first well of the section.

Q. Okay. Let's see. Do you recall testimony earlier today -- you've been here all day, correct?

A. Yes, sir.

Q. Do you recall testimony concerning an offer that Great Western made, essentially an acreage swap so that Chisholm, I believe -- I believe the offer was that Chisholm would take the west half of Section 34 and Great Western would take the east half and go our separate ways. That offer -- do you understand that offer was rejected by Chisholm?

A. I was not directly involved, but that's my understanding listening to the testimony today.

Q. Okay. Okay. And is it -- isn't it true that the reason that Chisholm would have rejected that offer would be because Chisholm wanted a risk partner in these wells?

A. I can't answer that. I don't know.

Q. You don't know.

Okay. I think that's all -- all I have.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. Okay. I'm not clear on what is your quote, "immediate area," for 24, -5 and -6.

A. And that's an excellent question, because I don't remember exactly. What I did is, on the way out, I circled. But I can absolutely provide you that area.

Q. Yeah. You're going to have to provide it to

everybody.

A. Be happy to. Not a problem. Again, as I was headed out the door --

Q. I understand.

A. Yeah.

Q. But let's make it Friday, 4:00, provide the information.

A. Absolutely. Not a problem. I can have it for you tomorrow by 5:00.

Q. As long as it's provided to all affected parties. That's what I care about.

A. Not a problem. Happy to do it.

Q. Okay. Going back to the Mewbourne section, do you know what -- I'm looking at -- I'm looking at Exhibit 26.

A. 26. Right here. Okay.

Q. Do you have any idea what the sequence of wells that --

A. I had it written down here over here. And I apologize. I can tell you that I think it was --

Q. Well, I'm not interested in what you think. I want to know the answers.

A. Okay. I had it -- well, I had it in my exhibit book, but I left it over there.

So here we go. Yes. I have the sequence

of wells. The furthest well to the west was spud July 10th, 2017. Second well to the west, which I would call slot two, spud August 9th, 2016. The third well, in slot three, spud August 31, 2014. The fourth well, in the fourth slot, July 14 --

MS. KESSLER: Can you slow down?

THE WITNESS: I'm sorry.

Q. (BY EXAMINER McMILLAN) July 14.

A. -- 2015.

Q. Okay. Well, then, are all the Mewbourne wells producing from the same zone?

A. Yes.

Q. So if the first well drilled had 655 pounds of proppant --

A. Yeah, the second well, 1490; the third well, 1495; and the fourth well, 2,057.

Q. So the well, the third well --

A. Has the highest 30-day IP.

Q. -- exceeds number two?

A. Correct.

Q. Why is that?

A. Potentially in better rock, better zone.

Q. But you're not a geologist?

A. That's -- absolutely, I'm not.

Q. Okay. So can you draw any inferences based on

the timing and the max 30-day IP rate -- what you just described?

A. Well, the fourth well that was, you know -- let's just -- let's just infer, and I'm -- that the reservoir quality is improving to the west. If the reservoir quality is improving to the west, the wells would have -- the quality would have continued to improve. It is possible that the performance of well number three could be impacting the fourth well drilled, hence the lower IP, even though the stimulation was larger.

Q. Okay. But there are two years' difference between one and three, and based on what you're telling me, three's better than one.

A. Three is better than one. Yes, sir.

Q. But there's two years. How does that relate --

A. You're absolutely right. I mean, there is, you know -- there is an inconsistency there.

Q. Yeah. Okay.

A. And at the same time, well number four, which was stimulated with a larger frac than well number three, you know, is not as good. Is some of that driven by exact steering? Is it depletion? There are a number of variables here, no question.

EXAMINER McMILLAN: Do you have any

questions?

EXAMINER JONES: Yeah. I always have questions.

EXAMINER McMILLAN: Go.

CROSS-EXAMINATION

BY EXAMINER JONES:

Q. First of all, I guess I should ask about the Hubbert & Willis Equation. Was that the minimum stress plus two times the pore pressure divided by three?

A. Correct.

Q. Okay. The spacing for these four wells, this Section 34, if the -- I have seen instances where people are putting their wells even 50 feet apart or so. But yours -- can you talk about that versus this spacing that you're doing here?

A. I'm sorry. 50 feet --

Q. Actually, 50 feet, maybe -- maybe a little bit --

A. Oh, okay. You're saying vertically like a wine rack.

Q. Yeah. Yeah. And you --

A. I cannot -- I don't know off the top of my head on the geological exact interval, you know, where they exactly fit, but I believe they are very, very close in the same parallel --

Q. Same zone.

A. -- stretch. So to the best of my knowledge, these were not spaced up or down. But yes, in the particular zones we're looking at with the thickness of them, I don't think we're really looking at much vertical spacing up and down at least. We've talked about it. It's more: What is the best geologic target that we can find in that interval? And we want to make every effort to diligently steer into that.

Q. Okay. So the pore pressure drawdown would still be a factor even if spaced out to this -- the distance you've got here if you don't complete them relatively simultaneously?

A. Right.

And if you go back to, I mean, in other basins, in other areas where simulfrac is done, which we utilize, where you frac Stage 1 in this well, Stage 1 in this well, Stage 2, Stage 2, Stage 3, Stage 3, you build up net pressure in that reservoir. And by building up more net pressure, you get more complex fracturing. And so that plays into it as well.

Q. Does your -- speaking of that, your winged models like Fracpro and Gopher, whatever they are nowadays -- I don't know what you're using nowadays -- are they actually -- are they accurately

telling you what's going on down there?

A. I'm a bit agnostic on some of those models.

Q. Is that a no? That's a no, isn't it?

A. No. I mean, we -- we need to use them in terms of our best estimates, but I think it's very difficult to predictively say, How do we measure that? I mean, yes, there is microseismic. Yes, there's -- we can look at pressure drawdown and try to estimate half lengths, but with the contribution of flow and slug flow and, you know, buildup of fluids, I think it's very difficult.

I will say that, you know, I have looked at recovery of wells drilled, not necessarily -- here's four wells here, but I've looked at other areas where six wells, eight wells have been drilled and try to look at the performance of those, and I will say as a general rule, not all the time, when the first two wells are drilled are generally better than the subsequent wells -- or the first -- you know, when wells -- when an operator comes back and drills four, five, or six, they tend not to be as good.

Q. Okay. Okay. So even -- even Mr. Harwell was saying that the trend is to try to pack more sand into but not necessarily increase your frac link. So he was -- he did say that. I remember him saying that.

So with that in mind, the concentrations

that are increasing, are they increasing -- the people that are trying to pack more sand in, are they doing it with a 30, 40 sand or doing it with a 100 mesh or what?

A. I can't speak for all operators, and there certainly have been -- seems like there were -- and I'm just talking very generic, very general here. Seems like there were many operators that were using just 100 mesh. Then operators started to use, you know, larger proppant, tailing in with larger proppant.

And so I would say the trend in recent years has been using some 100 mesh more on the front end and larger proppant on the tail end.

Q. So you're a believer in propping your wellbore?

A. Yes. And I'm a believer that -- here's an area where five or six years ago, I thought you could drill a horizontal into a zone and you can frac into whatever, and you were going to -- the wells were going to be similar. I'm a firm believer that geology dictates it. Finding the best interval and penetrating your lateral into that best rock and fracking that best rock, you get the best well.

Q. Isn't it true that you sometimes aren't going to know that until you begin your frac jobs and see how the pressures may have on your frac job?

A. You're not going to know it, but it is -- I

think we are making -- as an industry I think we're making a lot more effort in 2017 and will in 2018 to high-grade placements of laterals.

Q. Oh. Okay.

A. And specific in our case here, where we're using 3D seismic also to try to define the best intervals, and as Mr. Francis testified this morning, our first location in the 2nd Bone Spring was driven on a mud log where we had a very strong show. So we, you know, that's definitely an indicator of, you know, where to go. And we have an in-house geosteerer that steers all of our wells.

Q. Okay. So try to steer the straightest well possible?

A. And into those zones. And, you know, we identify those zones with electric log parameters. And try to stay in those same zones, correlate, and there's not much dip here. It is very flat.

So it's -- it's not a difficult thing to steer in that if you're -- if you're paying attention to those log parameters while drilling.

Q. Is the spacing between clusters an empirical thing that you learn by doing it to keep your fracs from interfering with each other, or are you guys doing some science on that?

A. We have done science. Actually, we, you know, kind of back it up on the geological side. We didn't talk about this, but we have a vertical well planned here. We'll gather data, which we have done in other areas where we've run complete set of logs including FMI, the sidewall cores. We also tagged our early frac jobs to verify some of our interpretations of the best methods to frac.

Q. Are you tagging with chemical tracers?

A. Yes.

Q. So you're tagging different -- different stages so you can tell where maybe your production is coming from in the well?

A. Correct.

Q. What about -- just a wild question here. What about sand crushing? Is that a factor at all at this depth?

A. It certainly can be over time.

Q. Can that affect your effectiveness of your frac job?

A. It can, but again, I think the most important thing is if you're in good rock and you have good perm and good porosity in your wellbore and the proppant pack you have is still going to generally have better permeability than the rock you're immediately producing

from. So there is enough permeability contrast there that I do not think that's the choke, the restricted flow on the fluids coming into the wellbore.

Q. Okay.

A. I will say we do have -- I don't want to get into it for proprietary reasons, but we have some very, very specific design parameters we use on or proppant selection.

Q. Okay. Okay. So you mentioned a minute ago that you're going to do some sidewall cores or you've already done some?

A. We have.

Q. So you pulled some rock that you're figuring out the clays, the types. Is that information helping you at all figuring out what fluids to put in your reservoir?

A. Not really fluids. You know, better understanding of the geology --

Q. Okay.

A. -- and some of the log calculations and -- but, yes, it does play into some of rock mechanics we're looking at.

Q. Okay. Speaking of that, your pore pressure -- you said you really didn't have a handle on the pore pressure versus time, is that correct, as these wells

produce?

A. On these particular wells. These are Mewbourne wells. So my testimony was with respect to Section 11.

Q. Oh, okay.

A. I would say on the wells that we have drilled, you know, we will have and do have opportunities to gather pressure data.

Q. Okay. So you will be able to maybe set up a model that you can see if the predictions are matching what you think it should do?

A. Yes. So far, I will say this, that our performance to date is exceeding our type curves.

Q. Okay. Okay. Thanks very much.

EXAMINER BROOKS: Nothing.

EXAMINER McMILLAN: No redirect to the redirect?

MR. McMILLAN: Nothing more from us.

EXAMINER McMILLAN: Okay.

EXAMINER JONES: Is that it for the case?

MS. KESSLER: Mr. Examiners, I would propose submit written closing statements given the time.

EXAMINER McMILLAN: That would be great.

EXAMINER BROOKS: Okay. I wanted to say, with regard to the question notice to the overrides, I

think this is not the case in which to research it. I think that if you -- rather than taking it under advisement, let's see, what's the first hearing next week -- next year?

EXAMINER JONES: The 11th, I think.

EXAMINER BROOKS: We can take it under -- if we can just delay it to January the 11th, that'll give plenty of time to notice the overrides.

Actually, it is very unlikely that there would be any overrides that are not uniform. But it seems to me, when I think about it, one state lease, whole working interest -- so any overrides aren't uniform so they probably uniform. So if they're not effectively pooled, it wouldn't make any difference. But I just hate to leave things that untidy. And that's a real easy fix, if it's not a schedule problems for anybody.

EXAMINER McMILLAN: Okay.

EXAMINER BROOKS: And Mike can have the draft all ready (laughter).

EXAMINER McMILLAN: Oh, sure, whatever you want.

MS. KESSLER: Mr. Examiners, I understand we'll be providing data on the sections included in the -- in Mr. Huling's graph and then also provide data

points for the geologic maps by Tuesday at 4:00?

EXAMINER McMILLAN: Yeah. Give everyone a chance to take -- give all the affected parties a chance to evaluate it.

Okay. Then Case Number 15865, Case Number 15866, Case Number 15867, Case Number 15868, Case Numbers 15875 and 15876 shall be continued until January 11th, 2018.

EXAMINER BROOKS: Good.

EXAMINER McMILLAN: Thank you very much.

(The proceedings conclude, 5:58 p.m.)

STATE OF NEW MEXICO

COUNTY OF BERNALILLO

CERTIFICATE OF COURT REPORTER

I, MARY C. HANKINS, Certified Court Reporter, New Mexico Certified Court Reporter No. 20, and Registered Professional Reporter, 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.

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