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 EOG RESOURCES, INC. FOR CREATION OF A NEW POOL AND FOR A SPECIAL DEPTH BRACKET ALLOWABLE FOR THE WC-025 G-09 S253336D; UPPER WOLFCAMP POOL, LEA COUNTY, NEW MEXICO. CASE NO. 15668

Consolidated with

APPLICATION OF EOG RESOURCES, INC. FOR CREATION OF A NEW POOL AND FOR A SPECIAL DEPTH BRACKET ALLOWABLE FOR THE WC-025 G-09 S263327G; UPPER WOLFCAMP POOL, LEA COUNTY, NEW MEXICO. CASE NO. 15669

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

May 11, 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 Thursday, May 11, 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 EOG RESOURCES, INC.:

JORDAN L. KESSLER, ESQ.
HOLLAND & HART
110 North Guadalupe, Suite 1
Santa Fe, New Mexico 87501
(505) 988-4421
Jlkessler@hollandhart.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

INDEX

EXHIBITS OFFERED AND ADMITTED

(10:29 a.m.)

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

I'd like -- at this time we are calling Case Number 15668, application of EOG Resources, Incorporated for the creation of a new pool and for a special depth bracket allowable for the WC-025 G-09 S253336D; Upper Wolfcamp Pool, Lea County, New Mexico.

Call for appearances.

MS. KESSLER: Mr. Examiner, Jordan Kessler, from the Santa Fe office of Holland & Hart, on behalf of the Applicant.

And we requested that this case be consolidated with Case Number 15669.

EXAMINER McMILLAN: Okay. Case 15668 and 15669, application of EOG Resources, Incorporated for creation of a new pool and for a special depth bracket allowable for the WC-025 G-09 S263327G; Upper Wolfcamp Pool, Eddy County, New Mexico, shall be combined.

Thank you.

MS. KESSLER: Thank you, Mr. Examiner. We have three witnesses.

EXAMINER McMILLAN: If the witnesses would please stand up and be sworn at this time.

(Mr. Kline, Mr. Smith and Mr. Trasko

sworn.)

MS. KESSLER: I'll call my first witness.

EXAMINER McMILLAN: Please proceed.

GAVIN SMITH,

after having been duly 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. My name is Gavin Smith. I'm a landman for EOG Resources.

Q. Have you previously testified before the Division?

A. I have.

Q. Were your credentials as a petroleum landman accepted and made a matter of record?

A. Yes.

Q. Are you familiar with the two applications filed on behalf of EOG in these consolidated cases?

A. Yes.

Q. And are you familiar with the status of the lands in the subject portion of the WC-025 G-09 S253336D; Upper Wolfcamp pool?

A. Yes.
Q. Will you understand if I refer to it moving forward as the Bobcat Draw?
A. Yes.
Q. And are you also familiar with WC-025 G-09 S263327G; Upper Wolfcamp?
A. Yes.
Q. And will you understand if I refer to this as the Sanders Tank pool?
A. Yes.
MS. KESSLER: Mr. Examiner, I tender Mr. Smith as an expert in petroleum land matters.
EXAMINER McMILLAN: So qualified.
Q. (BY MS. KESSLER) Mr. Smith, will you please briefly summarize what EOG seeks under this application?
A. We seek to create the Sanders Tank and Bobcat Draw pools and request an increase in the depth bracket allowables for oil wells.
Q. And that would be for both pools?
A. Yes.
Q. And it's the oil depth bracket allowable that we're focusing on today, correct?
A. Correct.
Q. What spacing and acreage dedication rules currently govern development of each of these two pools?

A. Rules for wildcat oil well supply, 330-acre spacing and 40-acre proration units.

Q. 330-foot setbacks, correct?

A. Yes.

Q. What is the depth bracket allowable for each of these pools?

A. 410 barrels per day per 40-acre spacing unit.

Q. And when was the Bobcat Draw pool created?

A. With the Bobcat Draw pool was created with the discovery of the Brown Bear 36 State 701H in 2015, and it was assigned a depth bracket allowable -- or a depth bracket of 12,000 to 12,099 feet, allowable of 410 barrels per day.

Q. And that was a EOG well?

A. Yes.

Q. When was the Sanders Tank pool created?

A. With the discovery of the Ophelia 27 703H, which is also an EOG well. It was assigned a depth bracket of 12,000 to 12,099 feet, and it has a 410 barrel a day allowable as well.

Q. Could you please identify Exhibit 1?

A. Sure. This is a map of both pools. The solid blue line at the top is the Bobcat Draw pool covering Section 26, the southwest quarter of 25 and the west half of 36. And then the Sanders Tank pool to the south

is the green -- green solid outline covering Section 21, the west half of 22 and the southeast quarter of 22, the east half of 28 and 33, the northeast quarter of 27, the north half of 26, and the west half of 27 and 36.

There is also -- we have several EOG wells pointed out, the Brown Bear 36 701H being the discovery well for the Bobcat Draw and the Ophelia 27 703 for the Sanders Tank. Also, recent wells that have been put in these pools are the Braswell, 707, 708 and 709, and the Whirling Wind, 701, 702, 703, 704.

The dotted boundaries outside of these are the one-mile notice boundaries that we used to notice for this hearing.

Q. Was the acreage in each of these two pools assigned by Paul Kautz?

A. Yes.

Q. So did you receive the information about the pool boundaries from Paul Kautz?

A. Yes, we did.

Q. And I notice that your dotted lines showing the notice boundary are actually more than a mile beyond the pool boundary. Why is that?

A. Paul Kautz designated the Braswell wells into the Sanders Tank and the Whirling Wind into the Bobcat Draw, so we went ahead and noticed a mile outside those

wells just to include them, since they were included in those pools.

Q. Were all operators of record in the Wolfcamp Formation, both within the pool and within the dotted line outside of the pool, provided notice of this hearing?

A. Yes.

Q. Has the Division granted a discovery allowable, test allowable for each of these wells?

A. They have.

Q. If I look at Exhibit 2, does this include a request for a test allowable and extensions for those allowables from Paul Kautz?

A. It does.

Q. Does EOG plan to call a geologist and an engineer to discuss production from these wells?

A. We do.

Q. Is Exhibit 3 an affidavit prepared by my office with an attach letter and green cards providing notice of each of these cases to the parties discussed earlier?

A. Yes.

Q. Are you aware of any objections to this application?

A. No, I'm not.

Q. Were Exhibits 1 and 2 prepared by you or

compiled under your direction and supervision?

A. Yes, they were.

MS. KESSLER: Mr. Examiners, I'd move admission of Exhibits 1 through 3, which includes my Notice of Affidavit.

EXAMINER McMILLAN: Okay. Exhibits 1 through 3 may now be accepted as part of the record.

(EOG Resources, Inc. Exhibit Numbers 1 through 3 are offered and admitted into evidence.)

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. I guess the first question I've got is do you just have to notify the operators or everyone in the mineral estate?

MS. KESSLER: The operators, Mr. Examiner. If you look at the notice rule, it's the operators not assigned to another Wolfcamp pool.

EXAMINER McMILLAN: I guess part of the problem I've been having with this whole thing is that there have been administrative applications approved for surface commingling. And, for instance, one of them was for the Endurance and -- for recent Endurance wells in Section 25 and 36 of 26-33, and these are actually assigned to WC-025 G-09; Upper Wolfcamp. And I

assume -- with that in mind, would you have to notify one mile from those boundaries?

MS. KESSLER: Mr. Examiner, what we did was we took the acreage that was identified by Paul Kautz, and we took the wells that we knew at the time that we filed the application that were dedicated to each of these two pools and notified a mile outside of those boundaries. These pools -- the acreage for these pools does continue to change, and we have -- we do not continue to be notified by Mr. Kautz. So at some point, we had to just file the application and send notice as best we saw fit.

EXAMINER BROOKS: This application does not involve changing the amount of acreage dedicated to a well?

MS. KESSLER: Correct.

THE WITNESS: Correct.

EXAMINER BROOKS: Okay. So in that case, under 4.12A(4)(b), you have to have Division notice -- Division to designate the operators in the pool and the Division designate in the same formation as the pool and within one mile of the pool's outer boundary that have not been assigned to another pool. And you have done so?

MS. KESSLER: That's correct, Mr. Examiner.

EXAMINER McMILLAN: Okay. Do you have any questions?

EXAMINER JONES: Oh, yeah.

CROSS-EXAMINATION

BY EXAMINER JONES:

Q. Mr. Smith, the pool boundaries you're proposing, they would be -- you're not proposing to freeze the pool boundary, are you?

A. No. This is just the boundary that was designated by Paul Kautz, and that's what we put on our map.

Q. So the solid green lines and solid blue lines --

A. Yes, sir.

Q. -- are where you're proposing new pool lines [sic]?

A. That's correct. The dotted is not a proposed pool by us. That is just the notice boundary we used.

Q. And as far as the contraction -- when we write this up, the contraction language -- these are all wildcat, so really there is no contraction from the wildcat, right?

MS. KESSLER: That's correct.

Q. (BY EXAMINER JONES) I guess we run into the situation where we've got -- where Paul has got this

wildcat tentative pool, and then you might have grabbed part of it to create a new pool. Are the boundaries of these wildcat pools still within this one-mile -- one and one-and-a-half-mile notice area that you've got -- in other words, that wildcat pool would not extend beyond this distance?

A. Beyond this exact boundary?

Q. Even though it's not really a pool yet, but still he's been calling it a pool, so --

A. Right.

MS. KESSLER: Not beyond the notice boundary.

Q. (BY EXAMINER JONES) It's not beyond the notice boundaries?

A. Correct.

Q. So are we asking for a well allowable? And right now you've got 410; is that correct?

A. Yes, sir.

Q. So what are you asking for?

A. Really just an increase, and we can go into that.

Q. Later?

A. Yes, I think so.

MS. KESSLER: The application states 1,400 -- 410 increases to 1,400, Mr. Examiner.

EXAMINER JONES: So 410 per 40. And that's not enough?

MS. KESSLER: (Indicating.)

EXAMINER JONES: You must have good wells.

EXAMINER McMILLAN: I've looked at some of the production here, I think, of these wells, and they're clearly overproduced, because a lot of times they have multiple wells within the project area.

EXAMINER JONES: Yeah. Mr. Catanach has asked us to scan for any, you know, wells that might be -- and Mike, of course, jumped right on it, and he found some wells. So we're glad you did come to hearing.

MS. KESSLER: And cover test allowable for now.

EXAMINER JONES: The test allowable, can we talk about that for a second?

MS. KESSLER: Yes.

Q. (BY EXAMINER JONES) You went 30 days and then an additional 30 days?

A. Yes, sir. We normally send a letter -- the letter that's part of Exhibit 2 goes with our completion paperwork, and Paul Kautz generally assigns a 30-day test allowable there. And then when we realized that we were still beyond that allowable, past that 30 days, we

sent an email and requested another 30. And that was kind of at the same time we were preparing for this hearing.

Q. Okay. But you didn't do a discovery well allowable? You did a test allowable?

A. That's correct.

MS. KESSLER: That's correct, Mr. Examiner. And if there is something different that EOG should be asking for in the future, we'll be happy to conform with that. But to our knowledge, the test allowable was the correct method.

EXAMINER JONES: Okay. When do you anticipate -- let's say we get this out maybe June 1.t so for March - so in other words, the amount of production that you've had over the depth bracket allowable, do you have a schedule for when -- when that would be possibly made up, or are we going to talk about that later?

MS. KESSLER: We hadn't anticipated talking about that. I think with the granting of the extended allowable, that will account for a great deal of production.

EXAMINER McMILLAN: Okay. So you've created this new pool. But we've decided we can't go back and create pools, in the distant past, so we're

starting from a certain point. So whatever happened before then --

MS. KESSLER: Correct.

EXAMINER JONES: -- we need to address that somehow.

MS. KESSLER: I think that's correct, Mr. Examiner. And how I see that happening is there will be evidence that the current spacing units are producing still in excess of the current allowable, but not by much. So I think that making up for these wells in the future will be -- will be something that EOG can comply with absolutely. And then the real issue is, I think, moving forward with drilling new wells and making sure those wells are covered by the higher allowable.

EXAMINER JONES: Okay. So if we do write something up in the order to make this up -- well, I'm not sure we can do that because we've got a wildcat pool, and then we've got, all of a sudden, a new pool. So it would be stretching over two different pools, kind of, with the language, but if -- in other words, your timing on when you're going to drill and when you're going to get some more wells on line, is that -- we've got to make sure we don't impact something like that. So do you -- do you know your timing on any new wells coming on line, like, almost immediately here or --

THE WITNESS: Not off the top of my head, but we can get that information and give it to you.

EXAMINER JONES: Okay. So we have another post case here, so I guess Mr. Brooks will let us talk to you.

EXAMINER BROOKS: Yeah. If it's not contested, the ex parte rule does not apply.

EXAMINER JONES: Okay.

Q. (BY MR. JONES) Now, as far as who you noticed, that was mainly Mewbourne; is that correct? Devon?

A. Yes, sir, Mewbourne, Devon, Concho, I believe.

Q. Mewbourne, Concho, Devon.

A. Anadarko as well.

Q. Are they also, some of them, partners in some of these wells?

A. Concho is in the Braswell wells, and I believe that's all. The others are just offset operators.

Q. Have you received any calls from them pertaining to this hearing?

MS. KESSLER: I have.

EXAMINER JONES: Are they --

MS. KESSLER: As far as I understand, Devon is in support and actually had requested that we extend the pools and the higher allowables, but that -- you know, timingwise, it was not going to be possible for

these particular cases.

And I believe Mr. Bruce is here on behalf of Mewbourne.

EXAMINER JONES: Mr. Bruce, are you making an appearance?

MR. BRUCE: Yeah. Jim Bruce making a belated appearance on behalf of Mewbourne Oil Company, and Mewbourne has no objections to the applications.

EXAMINER JONES: Would you like to send us an email about that, that you're making your appearance?

MR. BRUCE: Sure.

EXAMINER JONES: I don't have any more questions.

EXAMINER BROOKS: No questions from me.

THE WITNESS: Thank you.

MS. KESSLER: Call my next witness.

KEITH TRASKO,

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. My name is Keith Trasko. I'm the exploration

manager for the Midland Division of EOG Resources.

Q. Have you previously testified before the Division?

A. I have.

Q. Were your credentials as a petroleum geologist accepted and made a matter of record?

A. Yes.

Q. Are you familiar with the two applications filed on behalf of EOG in these cases?

A. I am.

Q. And are you familiar with the geology underlying the subject pools?

A. Yes.

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

EXAMINER McMILLAN: So qualified.

Q. (BY MS. KESSLER) Mr. Trasko, why does EOG seek an increased allowable for these pools?

A. We've seen from our spacing test that the ideal well spacing dictates that there be multiple wells per project area. We've found at least three per project area is sufficient. And, furthermore, for the health of the wells, we found that the wells need to be completed simultaneously.

Q. And would that lead to a higher initial

production allowable?

A. Yes. It would bring them on line at once.

Q. And EOG has brought an engineer to also address spacing issues, correct?

A. Correct.

Q. Can you please identify and review Exhibit 4?

A. Exhibit 4 is a structure map on top of the Wolfcamp, which would also be the top of the two pools. It shows EOG acreage and wells that are within the Wolfcamp Formation. The pools are outlined in red and blue, and then the cross section A to A prime line references Exhibit 5.

Q. What do you see with respect to structure across these two pools?

A. The structure dips gently to the west -- down to the west.

Q. And you may have mentioned that EOG acreage is highlighted in yellow, correct?

A. That's correct.

Q. What is Exhibit 5?

A. Exhibit 5 is a well log cross section that shows the gamma ray, resistivity and then neutron density with respect to the tracts. It covers the entire Wolfcamp Formation, Wolfcamp at the top and the Strawn Limestone at the base, and it covers the area of

the two respective pools.

Q. And you've called out the target for these wells, both the left and the right, correct?

A. Yes. The target for all these wells is uppermost portion of the Wolfcamp.

Q. Can you review the characteristics of this formation?

A. The Wolfcamp overall contains tight sandstones, organic shales and carbonate debris flows. All three of these lithologies have been targeted by industry. All three are low porosity, low permeability, require fracture stimulation to produce in paying quantities.

Q. And this is fairly tight rock?

A. Yes, it is.

Q. From a geologic standpoint, why are these targets so successful?

A. This portion of the Basin overall is highly overpressured. It's the deepest portion of the Basin. It's varied the most. When you vary the organic shales and get them into the oil and gas window, generating quite a bit of overpressure, it's been -- it's been trapped in the formation. This region of the Basin is most highly overpressured, and that helps with the productivity of the wells tremendously.

Q. In your opinion, does the formation extend

across the boundaries of each of these pools?

A. Yes. The formation is not segmented by any major faults or stratigraphic pinch-outs across the whole area.

Q. After reviewing the geology in this area, do you have any conclusions?

A. Yes. I concluded that the -- that the formation is continuous across the area and is -- is fairly uniform, you know, in thickness across the area. So all of the thickness variations that you see on the cross section across the area, which is about 700 feet, is in the lowermost Wolfcamp, not in the upper.

Q. And in your opinion, will granting this application be in the best interest of conservation, for the prevention of waste and the protection of correlative rights?

A. Yes.

Q. And were Exhibits 4 and 5 prepared by you or compiled under your direction and supervision?

A. They were.

MS. KESSLER: Mr. Examiner, I move admission of Exhibits 4 and 5.

EXAMINER McMILLAN: Exhibits 4 and 5 may now be accepted as part of the record.

(EOG Resources, Inc. Exhibit Numbers 4 and

5 are offered and admitted into evidence.)

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. I guess going back to Exhibit 5, is the whole -- is the target the entire Wolfcamp or just the box?

A. We have multiple smaller targets that are all within that box. Yes. So all the targets for all the wells are just within the target box.

Q. So there is nothing in the deeper portions?

A. No, sir, not on these subject wells.

REDIRECT EXAMINATION

BY MS. KESSLER:

Q. I'm sorry. Can you specify if you're talking about the current wells or EOG's overall development plan?

A. I'm talking about the current wells. Our overall development plan would include multiple -- more targets in the middle and basal portion of the Wolfcamp.

Q. Okay.

CROSS-EXAMINATION

BY EXAMINER JONES:

Q. So you're the exploration manager. Does that mean that you're also in charge of development --

A. Yes.

Q. -- and planning, too?
A. Yes. I'm in charge of exploration, development, petrophysics and operation of the geology departments. Yes.
Q. Okay. How are you guys related now with the new Yates merger? Is it -- are you also EOG Y Resources?
A. Yes. Our division covers EOG Resources, EOG Y, EOG A, going down, and the split is on the northwest shelf, our Artesia Division, which is the former Yates office. It covers the Northwest Shelf and Yeso and all the basin -- all sediments controlled by the Midland Division.
Q. Okay. So basically it's just -- within the scale of the geographic area, your team takes care of everything?
A. Yes, sir.
Q. You mentioned that the lower part of the Wolfbone varies in thickness. Is that because of a -- or some kind of unconformity or --
A. I think it's just the stratigraphic thinning as you go to the north. The deep -- the Basin access was slightly south of us at this portion. The thickest Wolfcamp you get in New Mexico is basically this area.
Q. Okay.

A. And as you head up to the north, you're just slowly thinning the entire section.

Q. Okay. Is there -- why is the Wolfcamp generally tight? Are the clays in it or just --

A. In general, there is not a lot of primary porosity within the sandstones, and then the shales overall are -- there is very little permeability. They're not particularly high clay compared to some other plays, but, you know, nanodarcy kind of perm.

Q. Nanodarcy.

Is it in danger of the wrong fluids hitting the formation to clamp it up?

A. I would say --

Q. You have to be careful when you're drilling through it?

A. We haven't seen a lot of fluid sensitivity issues with the shales here. Any stability issues we've seen while drilling or anything like that would be, you know, easily solvable by mud weight.

Q. You said you had multiple targets. So how do you -- what do you look for?

A. We've targeted both the sands and the shales, which industry has done as well, and we see the entire section basically being productive.

Q. Okay. And so these wells are going to be

vertically separated -- or laterally separated and vertically separated?

A. Yes, both.

Q. Your three wells in the project area?

A. The ones that are introduced today are all within the same vertical zone and are laterally separated. Yes.

Q. Okay. So how far apart do you think you're going to drill?

MS. KESSLER: Mr. Examiner, we've also got a whole other section.

EXAMINER JONES: Oh, you've got --

THE WITNESS: Yeah. Our reservoir engineer will speak more of the spacing.

EXAMINER JONES: That sounds good to me.

RECROSS EXAMINATION

BY EXAMINER McMILLAN:

Q. So all this is just fine grain because it's deeper water?

A. Correct. That's right.

EXAMINER JONES: Quieter environment.

EXAMINER McMILLAN: Yeah. The whole thing gets deposited -- the shale, basically all the same.

Do you have anything?

EXAMINER BROOKS: No.

EXAMINER McMILLAN: Thank you very much.

THE WITNESS: Thank you.

MS. KESSLER: We'll call our engineer, Mr. Examiners.

EXAMINER McMILLAN: Thank you.

ADAM J. KLINE,

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. My name is Adam Kline. I'm a reservoir engineering specialist in EOG's Midland Division.

Q. Have you previously testified before the Division?

A. I have not.

Q. Please review your educational background.

A. Sure. I earned my undergraduate in petroleum engineering from the University of Oklahoma in 2003. After that, I earned an MBA and a Juris Doctorate from Oklahoma City University in 2012.

Q. What is your work history?

A. Since my undergraduate in 2003, I went to work

for Devon Energy in their Oklahoma City office primarily as a reservoir engineer. I worked there for approximately ten years doing reservoir engineering for Permian Basin, Powder River Basin, Wyoming, and Anadarko Basin, Oklahoma, as well as corporate strategic planning functions.

Following that, I went to work for BP America in their Houston as an audit manager doing primarily reserve process audits internationally, and then joined EOG back in May of 20- -- 2014 in the Houston office, in Engineering and Acquisitions, doing primarily reserves and acquisitions development work, and then moved out to the Midland Division earlier this year to assume the current position.

Q. And your current responsibilities include the Permian Basin?

A. Yes, ma'am.

Q. What are your professional licenses and certifications?

A. I'm a licensed professional engineer in the state of Oklahoma and a member of the Oklahoma Bar Association.

Q. And you have previously testified in front of other administrative bodies?

A. That's correct.

Q. Are you familiar with the application filed on behalf of EOG in these two cases?

A. I am.

Q. And are you familiar with the reservoir in the subject pools?

A. Yes, ma'am.

MS. KESSLER: Mr. Examiners, I'd tender Mr. Kline as an expert in petroleum reservoir engineering.

EXAMINER McMILLAN: So qualified.

Q. (BY MS. KESSLER) Mr. Kline, why does EOG seek an increased allowable in these two pools?

A. We're looking for the increased allowable primarily from the basis that we're going to need multiple wells within these projects areas to fully develop the Wolfcamp. And as a secondary justification as well, these wells are individually capable of exceeding the allowable as currently stated.

Q. Are these wells simultaneously completed?

A. Yes, they are.

Q. And does EOG seek to develop these pools using at least three wells per spacing unit?

A. Yes, ma'am.

Q. Simultaneously completing?

A. Simultaneously completing.

Q. Why is that?

A. The simultaneous completions have been observed to generate better average well performance. You don't have the situation where you've got older wells affecting the complex of infill wells.

For that, I would draw your attention to Exhibit 6. It's a summary of a spacing study we did focusing on the Braswell three-well pattern, which is the subject wells, as well as the offset Thor, which is a three-well pattern also in the Wolfcamp.

The second page of the exhibit is a gun-barrel view, if you will, of the four wells. I'll call your attention to the wells labeled #702, #706 and #701H. Those are three wells all landed at roughly the same vertical interval, three wells across. And then for comparison, a gun-barrel view of the Braswell. So you've got wells labeled 709, 708 and 707.

Q. Were these wells all drilled at approximately the same time?

A. The Braswells were. The Thors were not. The Thors were drilled -- the 701, 702 first, and then the 706 was drilled.

Q. I should say completed rather than just --

A. Yes, completed.

Q. Would you please summarize the production

resulting from these well tests?

A. Yes. So going to the next page of the exhibit is the Thor section. This is where the three wells were completed, the first two in the summer of 2015, and then the infill well, the year later.

Now, what we observed was an initial performance out of the first two wells in the 2,500-barrel-oil-a-day range, the actual reported rate shown there. When we came back a year later, we were only able to achieve about 1,000 barrels a day. So we saw a degradation in the initial well performance from the delay.

Whereas, on the next exhibit, where we completed all three of the Braswells at the same time, we saw relatively similar initial well performance, with the IPs ranging from 2,100 barrels to 2,700 barrels of oil per day as recorded.

Q. In your expert opinion, does EOG have better results when wells are simultaneously completed?

A. Yes.

Q. Why is that?

A. In simultaneously completing the wells, you're completing the reservoir in its closest to initial state, if you will. So you're getting -- getting the best use of your frac energy with the original set of

wells.

Furthermore, coming in later, you have to deal with the offset completions affecting the use of that frac energy. So you have to overcome both -- both the prior completions having affected the reservoir some. And in an effort to build that near wellbore complexity that we're looking for, we just don't get quite the results the longer you're delayed on an infill basis.

Q. In your opinion, without drilling at least three wells and simultaneously completing them in a spacing unit for these two pools, would EOG be causing waste?

A. In not simultaneously completing, you're going to leave some in the ground, is basically what's going to happen. And these are all good wells. These are all commercial quantities. But really, in trying to optimize and get the best out of it that we can, this is what we have observed so far.

Q. What is Exhibit 7?

A. Exhibit 7 is a production summary of the subject wells showing their production -- cumulative oil production on a gross basis during both the first 30-day period, the second 30-day period, so covering the two test allowables, and then a current daily rate as

defined by about a week ago.

And what this shows is it shows the total production for the project area against what the allowable would have been, so what the degree of overproduction would have been but for the test allowable. And then it also shows where we are still in excess of the allowable on a current rate basis.

Q. Has each well individually produced in excess of the depth bracket allowable?

A. Yes, ma'am.

Q. Per spacing unit, are the wells continuing to produce in excess of the depth bracket allowable?

A. Yes, with the exception of one spacing unit.

Q. And do you expect the spacing units to continue producing in excess of the depth bracket allowable?

A. Yes.

Q. Does EOG intend to continue developing the subject wells with similar spacing patterns?

A. Yes. I would look at this as -- I would stress three or more.

Q. So you'll continue to require a higher allowable for these pools?

A. Yes, that's correct.

Q. Would you please turn to Exhibit 8 and review this exhibit for the Examiners?

A. All right. Exhibit 8 is a summary of the -- it contains a summary of the daily production from the Whirling Wind wells, the four wells, both in a tabular form with pressures and then a graphical form. The graphical displays will show the daily oil, gas and water, as well as the daily producing GOR.

Q. What is the type of reservoir in this area?

A. In this area we're dealing with a solution gas drive reservoir with a volatile oil fluid. What we're seeing on the daily production charts and in the production aggregates, we're seeing a relatively level producing GOR at about 2,000 SCF per stock tank barrel. The flat GOR is also indicating that we're not seeing any damage on a reservoir fluid basis. We're not pulling it so hard that you're seeing a premature gas breakout or anything that would be detrimental to oil recoveries.

Q. Will increasing the depth bracket allowable from 410 to 1,400 barrels of oil per day have a negative impact on this zone?

A. No, it will not.

Q. Do you see any potential for damage to the reservoir?

A. I do not see any potential for damage.

Q. And, again, that's reflected by the relatively

flat GOR?

A. It is.

Q. What is Exhibit 9?

A. Exhibit 9 is a similar exhibit for the Braswells, once again the tabular production data, followed by the graphical. Once again, on the graphical production chart, you'll see the daily oil, gas and water, as well as the daily producing GOR, once again showing a relatively flat producing GOR at 2,000 SCF per stock tank barrel.

Q. Once again, in your opinion, will a 1,400-barrel-a-day allowable result in damage to the reservoir?

A. No, ma'am.

Q. In your opinion, will approval of this application be in the best interest of conservation, for the prevention of waste and the protection of correlative rights?

A. Yes, it will.

Q. Were Exhibits 6 through 9 prepared by you or compiled under your direction and supervision?

A. They were.

MS. KESSLER: Mr. Examiners, I'd move the admission of Exhibits 6 through 9.

EXAMINER McMILLAN: Exhibits 6 through 9

may now be accepted as part of the record.

(EOG Resources, Inc. Exhibit Numbers 6 through 9 are offered and admitted into evidence.)

EXAMINER McMILLAN: Go ahead.

CROSS-EXAMINATION

BY EXAMINER JONES:

Q. Are there any vertical wells producing in this zone?

A. Not in this pool. I'm not aware of vertical production over there.

Q. You don't have to worry about that --

A. No.

Q. -- at least not yet.

A. I wouldn't expect to see vertical production.

Q. You're not asking for any special rules on how to handle vertical wells in the future or anything like that beyond the -- what the Division rules kind of omit, I guess?

EXAMINER BROOKS: The increased allowable would apply to any vertical wells that were drilled in the existing situations; would it not? The vertical well would have the same daily production -- you're asking for an increase to 1,400 barrels per day regardless of size and spacing, right? Is that what

you're saying?

MS. KESSLER: Per 40-acre spacing, correct.

EXAMINER BROOKS: Per 40-acres. Okay. That's what I was trying to get to.

If you have a vertical well drilled on a 40-acre spacing unit -- and these pools are -- what is the spacing of the pool going to be? This is going to be 40-acre standard spacing?

MS. KESSLER: Yes, Mr. Examiner.

EXAMINER BROOKS: Okay. So you're going to have a vertical well drilled in a 40-acre unit. It will have whatever allowable compared to the horizontal well that the operator decides to allocate to it but not more than the allowable for that 40-acre spacing unit. But it's going to be the 1,400 barrel -- 1,400 barrels a day, so you'll have that 1,400 barrels a day which the operator can allocate between the horizontal well and the vertical well, right?

MS. KESSLER: Yes, Mr. Examiner.

As there is no vertical production in either of these two pools, currently it would just be on a going-forward basis.

EXAMINER BROOKS: Yeah. It would be on a going-forward basis. That's why I say the operator can allocate, because there is a rule that the vertical well

gets priority if there is an existing vertical well, but there is not an existing vertical well --

MS. KESSLER: Correct.

EXAMINER BROOKS: -- anywhere in either of these pools.

MS. KESSLER: Correct.

EXAMINER BROOKS: Thank you.

CONTINUED CROSS-EXAMINATION

BY MR. JONES:

Q. So solution gas drive with -- and why do you say volatile oil and not black oil?

A. It's volatile oil. We're seeing formation volume factors just a little bit above 2. We've done some laboratory analysis in the area and confirmed by PVT and the characteristics we're seeing. It is on the lower end of a volatile oil, 2,000 GOR.

Q. It's interesting that a higher GOR is volatile.

A. It's on the low end. You're seeing that in the API gravities as well, mid to upper 40s but just into the threshold.

Q. Your GOR is remarkably stable, at least so far.

A. It is, yes. We've got that on the individual exhibits, and the GOR is also included on the three-well spacing exhibits. And you can see that even when we came back in and did an infill well of the Thor, we

still saw a -- on the GOR.

Q. That's a good sign. You may not reach your bubble point.

A. Yeah. We don't believe we're at the bubble point. We're still saturating.

Q. So basically it's your -- is it your testimony that there would be no damage to the reservoir by the 1,400 or even a higher allowable?

A. Yeah. That's correct. I don't see a point at which I would expect it to cause damage that we could reach with the deliverability of the wellbores we have.

Q. Is that supported by the theory on solution gas drives in volatile oil situations, or is that just supported by the GOR in this case?

A. It's supported by the GOR. We're not in a reservoir where you've got any sort of an overactive drive mechanism where you'd expect to see water coming and the other things that are detrimental. It really just gets down to the issues of maintaining that GOR and whether or not we're seeing big enough impacts from our withdrawal to start to have that gas break out in the formation and start to lose the energy in the oil. So we're not seeing any indications that we're anywhere near that kind of a drawdown.

Q. Okay. Well, do you do in-house with all your

reserves, or do you do them both in-house and you let a third party --

A. From a reserves reporting standpoint?

Q. The SEC reserves.

A. We do in-house -- our reserves are actually managed by the Engineering and Acquisitions Group out of Houston. They handle our internal reporting, and then those are reviewed by a third party as well, so auditing.

Q. That's what you had before, correct?

A. Yes, it is. I'm familiar with the process.

Q. So you can take your knowledge and apply it here and also apply the economics of your projection and operating costs and pricing?

A. That's correct.

Q. It's pretty economical, I take it --

A. Yes, sir.

Q. -- even though these Halliburton charges got to be pretty steep (laughter)?

A. Luckily, we've got a good staff that works on the operational side and makes sure we're doing the best we can on our contracts.

Q. I notice one of these is drilled one-and-a-half mile and the other one is a one-mile?

A. That's correct.

Q. Is that why you split up these pools into different pools, or you just did it because that's the way the drilling --

A. That's the way it was assigned.

MS. KESSLER: That's the way Paul Kautz did it.

EXAMINER JONES: Okay.

CROSS-EXAMINATION

BY EXAMINER McMILLAN:

Q. And the only question I've got is are you creating waste if you're forced to pinch back the wells to the state allowable?

A. Yes. Obviously, it would be --

Q. Can you explain that?

A. So what's going to happen if you have to pinch it back, it's going to affect the amount of time it takes to produce these wells. It's delaying -- in terms of whether or not you're going to see the same ultimate recovery that's yet to be seen -- we still have long-life wells -- if you pinch these back, it's not going to come out.

Q. You've got the time value and added money?

A. Well, it's not the time value component of it, but really -- I would say not so much pinching back as it is putting the wells all in at the same time. And so

I'm thinking of it from a less effective completion will get you less effective recovery from the reservoir, which would generate waste. And so really what's pushing allowable -- apart from the fact that the wells are capable of it, even the fact that if you're pinching it back -- if you pinch it back a half or a quarter of it, they're still very high-rate wells, and if you put three wells in or even more, you get there just on stacking the wells.

Q. Okay.

RECROSS EXAMINATION

BY EXAMINER JONES:

Q. Okay. As far as the reserves go, you just -- is the best way just to do decline curve analysis, or can you actually use any kind of volumetrics here?

A. We do a lot of in-house reservoir modeling.

Q. Okay.

A. And to back that up, you do get sort of your classic decline curve analysis as a -- as a baseline, an easy way to look at, and then we look at the interactions of the wells, the reservoir on a model basis as well.

Q. So you've got a model set up all the way to your takes [sic] back into your reservoir then?

A. It's mainly a formation, a reservoir model,

where we look at it there using varying conditions for surface situations.

Q. Okay. As far as pressures go, is there -- does the model predict your declining pressures, or do you have any pressure points that you can use to fine-tune your model?

A. We do. Yeah. Where possible, we try to gather bottom-hole pressure measurements, or we back calculate from our daily surface pressures. We've not seen any indications of other pressure support from anything other than solution gas drive.

Q. Okay. So no partial -- no other drive mechanisms?

A. Not that we've observed, no.

Q. So after the frac job, you go out there the next morning and you read your pressure and that's good?

A. Capture the pressure before and during the frac jobs and during the flowback and throughout the production of the well.

Q. Okay. And those wells that are drilled a mile and a half, is that more than the additional length? You're getting that much more -- more than that as far as the advantage, or is it one-mile wells that would be just as -- per foot as far as recovery?

A. In my opinion, recovery per foot is going to be

similar. It's just the added benefit of developing more resource with less -- less well cap.

Q. Less --

A. Yeah.

Q. What about water production out here? Is it pretty significant?

A. We get the initial flowback water. It's not to the level of like what you would see with the Bone Spring or the Delaware Formations. So it's not quite like that. But we've not -- I mean, these wells from a productivity standpoint, as we see from the actual daily plot -- I mean, they make a lot of oil, make a lot of gas and make a lot of water. The total deliverability is very high. But from a water standpoint, it's not like the Bone Spring.

Q. Okay. So why did you start where you did in the reservoir? As far as from an engineer's perspective, you didn't start at the lowest part in the -- you just -- the sweetest spot you could find? Is that it?

A. Well, as to that, I was not -- I was not in the Midland Division when those were determined.

Q. But if you had been, would you have started low and worked your way up, or as far as the fracs, you know, if you assume a frac is going to go a little bit

higher above the well than it was below the well --

A. The general philosophy is targeting the best rock.

Q. Okay.

A. And so looking for what we consider to be the best areas within the interval. And then from a completion standpoint, we have to replace the density of the wells. Instead of trying to go with the old, traditional by wing [sic] frac and reaching out, it's really trying to build that near wellbore complexity, which I think -- referred to it, high-density completions or the cloud completions, where you're really trying to contain that energy near wellbore and build reservoir -- build complexity in your area available to flow.

Q. What about tagging your fracs? We just got a question on this recently. Is there any chemical tracing or radioactive tagging of your --

A. I'm not aware of it on these. But I was not here for it, so I'm not sure. We do trace things. We trace completions on occasion, but I can't speak to anything specific.

Q. Okay. But as far as -- this pool is -- these pools will grow with time. So when you're not -- you don't have a problem with that as an engineer, with the

1,400 allowable and the growing out --

A. No, sir, I do not.

Q. -- and expanding?

A. No. As these pools are assigned and expanded, I don't see that being an issue to the -- that would definitely affect us.

Q. Okay. Okay. Well, if you come back again, hopefully it won't be such a long hearing.

A. That's okay.

MS. KESSLER: Thank you very much.

EXAMINER BROOKS: I have a question.

CROSS-EXAMINATION

BY EXAMINER BROOKS:

Q. Mr. McMillan asked you about whether or not it would cause waste if you had to restrict production for these wells.

A. Uh-huh.

Q. And you said -- you said no, but you qualified it by saying you really don't know what the effect on ultimate recovery would be, if I understood what you said.

A. That's correct. Yes, sir.

Q. And this is kind of a trick question, but do you have an opinion as to whether or not the restriction of production is -- this is the flip side of what he

says.

A. Uh-huh.

Q. If you produce it at full -- which I assume your requested allowable will allow you to produce these wells that you've seen to full development.

A. That's the intent. Yes.

Q. And if you produce these wells at full development, do you have an opinion as to whether or not that would in any way reduce the ultimate recovery as compared to if you produced them at a more restrictive -- if you produced the field at a more restrictive rate, because you're saying the number of wells, as well as producing each well?

A. That's correct.

What we've observed -- what I've observed from the, you know, deliverability of these wells -- so bringing basically what is maximum deliverability --

Q. Right.

A. -- we have not seen anything that would indicate that it is -- that this is detrimental to the reservoir in any way. And from my standpoint, it involves the minimum interference with the well.

Now, when you start choking the well back and doing things to restrict performance and making minor adjustments here and there, then you're starting

to -- to really try to fine-tune well performance, that's where I think you might introduce the opportunity for some things to maybe -- but I can't --

Q. Bottom line, do you have an opinion as to whether or not there will be -- as to whether or not there will be any reduction of ultimate recovery from this reservoir by reason of allowing full production of wells -- full deliverability at this stage?

A. I don't think there will be any reduction in your recovery for allowing full deliverability.

Q. And does that have to do with the extent to which a well in this type of reservoir reduces the pressure -- the geographical extent to which it affects the pressure in the reservoir? I mean, I know very little about reservoir engineering and just enough to be dangerous.

A. With this being such a tight reservoir -- so one generally requiring fracture stimulation to produce --

Q. Yeah.

A. -- your affected drainage area is much smaller than in a conventional reservoir, where you're going to drain for quite a ways. As such, the amount of the reservoir you're actually affecting with your drawdown, when you pull it at maximum there, it's not really

reaching out super far into the reservoir and affecting anything where you're going to affect the ultimate recovery in a detrimental way that would generate waste.

Q. Right.

A. Really, the question becomes: How close should they be? How many wells, you know, should it take?

And unlike the conventional sense, where you're worried about if I pull too hard, am I going to affect the wells in multiple sections away and cause serious detrimental impacts, this being such a tight rock, being such a competent rock -- so the other things that might affect your reservoir performance such as pressure permeability, the flowing formation itself, the sand, the materials in there, we're not seeing -- seeing those kinds of things as you might see in other formations across the industry.

And so so far, everything has been competent rock, robust fluid and very consistent well deliverability. When we do produce these, we see normal-looking decline curves, nothing that would indicate any sort of unusual behavior within the reservoir.

Q. Would you expect the picture to change at all when you reach bubble point?

A. When you reach bubble point on a reservoir

basis, then you would start to see the gas come out in the formation. However, we're -- with this being so tight, I don't think it's a situation where you're going to have a handful of wells that drop the whole reservoir to the bubble point and evolve some sort of giant gas cap.

Q. Thank you.

RECROSS EXAMINATION

BY EXAMINER McMILLAN:

Q. Just for clarity purposes, you said if you have to pinch -- if you have to cut the production, you can adversely affect the well. You need to clarify that point just a little bit. How are you affecting the well?

A. Well, in trying to pinch back to a certain production level, that's not -- in my experience, in my opinion, that's not something you can do one day, in a way. It becomes a daily activity, to have someone adjusting the flow performance from the well on a realtime basis. And so in doing that, you're -- you're increasing the flow pressure or bringing it down into -- you're doing things with your pressure in the wellbore and near the formation.

Q. So then what happens to the formation at that point?

A. The formation itself -- I don't believe you would necessarily damage the formation. I just don't know what's going to happen as you start to do that.

Q. So you're saying that --

A. You introduce the possibility to -- you create more variables.

Q. You increase possibility of damaging the reservoir?

A. Correct.

Q. And adversely affecting ultimate reserves? Is that a fair statement?

A. That is how I would see it on an ongoing basis.

RECROSS EXAMINATION

BY EXAMINER JONES:

Q. So the sand stays in place, right?

A. Yes. We're not seeing the formation.

Q. Even with these -- the all-out deliverability rates, your frac sand is staying pretty good?

A. Yeah. I've not seen anything. And we're doing fairly high concentration, as you can see from the well completion reports, fairly heavy sand loading and what I would consider large completions, and to my knowledge, we're not seeing anything that's -- that's coming back on us out of the ordinary.

Q. But they might if they start surging [sic] the

well a little bit. It might damage your frac job.

A. What's unknown is if you start moving the pressure around them in the formation by doing -- on and off, or if you choose to maintain your allowable by completely shutting a well in versus choking back. It adds another level of complexity to the production of the wells.

Q. When you start artificially lifting, what would you use out here?

A. So out here, traditionally, we'll free-flow the well with casing and then install tubing and flow up with tubing, and then for an artificial lift, a gas lift and ultimately into a pumping unit.

Q. So you get an exception -- not use tubing for a while, and then when you put in a gas lift -- open gas lift system or --

A. Yeah, just a gas lift.

EXAMINER McMILLAN: No more questions.

EXAMINER JONES: No, I don't.

EXAMINER McMILLAN: Do you have any questions?

EXAMINER BROOKS: No questions.

EXAMINER McMILLAN: With that in mind, thank you very much.

THE WITNESS: Thank you.

EXAMINER McMILLAN: Actually, this is a very nice presentation.

EXAMINER JONES: It was.

EXAMINER McMILLAN: Everyone did an excellent job.

Case Number 15668 and Case Number 15669 shall be taken under environment.

Thank you very much.

MS. KESSLER: Thank you.

EXAMINER McMILLAN: We're going to recess until -- let's say 1:15.

EXAMINER BROOKS: Okay. 1:15, it is.

(Case Numbers 15668 and 15669 conclude, 11:29 a.m.)

(Recess, 11:30 a.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.

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

MARY C. HANKINS, CCR, RPR
Certified Court Reporter
New Mexico CCR No. 20
Date of CCR Expiration: 12/31/2017
Paul Baca Professional Court Reporters