

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

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

CASE: 14738  
14739

APPLICATION OF EOG RESOURCES INC., FOR SIMULTANEOUS  
DEDICATION AND AN EXCEPTION TO THE SPECIAL RULES AND  
REGULATIONS FOR THE RED HILLS-Bone Spring POOL, LEA COUNTY,  
NEW MEXICO.

REPORTER'S TRANSCRIPT OF PROCEEDINGS  
EXAMINER HEARING  
September 29, 2011  
Santa Fe, New Mexico

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BEFORE: WILLIAM V. JONES, Technical Examiner  
DAVID K. BROOKS, Legal Examiner

This matter came on for hearing before the New  
Mexico Oil Conservation Division, WILLIAM V. JONES, Technical  
Examiner, and DAVID K. BROOKS, Legal Examiner, on September  
29, 2011, at the New Mexico Energy, Minerals and Natural  
Resources Department, 1220 South St. Francis, Drive, Room  
102, Santa Fe, New Mexico.

REPORTED BY: Irene Delgado, NM CCR 253  
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A P P E A R A N C E S

FOR THE APPLICANT:  
 MICHAEL FELDEWERT  
 HOLLAND & HART  
 P.O. Box 2208  
 Santa Fe, NM 87504-2208

I N D E X

EXHIBITS

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WITNESSES

DOUGLAS HURLBUT Direct by Mr. Feldewert	04
WILLIAM I. MORRIS Direct by Mr. Feldewert	20
STEVEN D. ROBERTSON Direct by Mr. Feldewert	33

1 EXAMINER JONES: Let's call a couple of cases  
2 together, I think.

3 MR. FELDEWERT: Yes.

4 EXAMINER JONES: Case 14738 and Case 14739, both of  
5 them appear to be applications of EOG Resources Incorporated  
6 for simultaneous dedication and an exception to the special  
7 rules and regulations for the Red Hills-Bone Spring Pool in  
8 Lea County, New Mexico. Call for appearances.

9 MR. FELDEWERT: If it please the Examiner, Michael  
10 Feldewert with the Santa Fe office of the law firm of Holland  
11 & Hart appearing on behalf of the EOG Resources Inc., and I  
12 have three witnesses here today.

13 EXAMINER JONES: Any other appearances?

14 (No response.)

15 EXAMINER JONES: Will the witnesses please stand and  
16 state your names.

17 MR. HOLDER: Douglas W. Hurlbut.

18 MR. ROBERTSON: Steven D. Robertson.

19 MR. MORRIS: William J. Morris.

20 EXAMINER JONES: Will the court reporter please  
21 swear the witnesses.

22 (Oath administered.)  
23  
24  
25

DOUGLAS HURLBUT

(Having been sworn, testified as follows:)

DIRECT EXAMINATION

BY MR. FELDEWERT:

Q. Would you please state your full name for the record?

A. Douglas W. Hurlbut.

Q. By whom are you employed and in what capacity?

A. EOG Resources, as petroleum landman.

Q. Mr. Hurlbut, have you previously testified before this Division?

A. Yes, I have.

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

A. Yes, they have.

Q. Are you familiar with the two applications that EOG has filed in these consolidated cases?

A. Yes, I am.

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

A. Yes, I am.

MR. FELDEWERT: Mr. Examiner, I would tender Mr. Hurlbut as expert witness in petroleum land matters.

EXAMINER JONES: So qualified.

Q. Would you turn to EOG Exhibit Number 1 and identify

1 what you seek under these two applications?

2 A. First seek a plan of development for the area, and  
3 we also are seeking permission to drill numerous horizontal  
4 wells in the Leonard Shale -- Leonard Shale in the Red Hill-  
5 Bone Springs Pool as depicted on these two areas that we have  
6 here outlined in red.

7 Q. Now, you have two separate spacing units identified  
8 in red on the plat, correct?

9 A. Correct.

10 Q. How many acres is comprised into these two stand-up  
11 proposed spacing units?

12 A. 440 acres in each.

13 Q. Do you intend to dedicate each spacing unit to the  
14 three wells identified on the plat?

15 A. Yes, we do.

16 Q. What are your current horizontal drilling plans for  
17 the Leonard Shale portion of the Red Hills-Bone Springs Pool?  
18 How far apart do you intend to space these wells?

19 A. Okay. Well, we are on doing an 880-foot spacing.

20 Q. And is your target the Leonard Shale portion of the  
21 Bone Springs Pool?

22 A. Yes, it is. It is a shale.

23 Q. And where is that -- to your knowledge, where is  
24 that located within the geology of the Bone Springs  
25 Formation?

1 A. At about 9,000 feet.

2 Q. Do you have a geologist that's going to confirm that  
3 the shale is the top of the formation?

4 A. Yes, we do.

5 Q. Is there a possibility, Mr. Hurlbut, that, as you  
6 proceed with your development of this acreage, that you may  
7 add additional horizontal wells at some point in time if  
8 that's deemed necessary?

9 A. It's possible.

10 Q. But at this point, though, you plan on drilling  
11 three wells in each spacing unit 880 feet apart?

12 A. Correct.

13 Q. Is the area that's at issue here subject to special  
14 pool rules?

15 A. Yes, they are.

16 Q. And they have been marked as EOG Exhibit Number 2?

17 A. Yes, they have been.

18 Q. And what is the -- what are the exceptions that you  
19 seek for purposes of these wells from these special pool  
20 rules?

21 A. Well, we want to basically have an increased density  
22 and be able to have overlapping project areas.

23 Q. So if I look at the current pool rules, they require  
24 80-acre spacing, correct, under Rule 2?

25 A. Correct.

1 Q. And if I then look at Rule 2 under the special pool  
2 rules, they, at this time, only allow one well per quarter  
3 quarter section?

4 A. That's correct.

5 Q. And then under Rule 4, is it not true that each well  
6 is required to be no closer than 330 feet to any governmental  
7 quarter quarter section?

8 A. That's correct.

9 Q. Were these -- this Exhibit 2 reflects that these  
10 pool rules were enacted first in 1994 and then amended in  
11 1995.

12 A. That's right.

13 Q. At that point in time, Mr. Hurlbut, was EOG or  
14 anyone else drilling wells in the Leonard Shale portion of  
15 the Bone Springs Formation?

16 A. No, they were not.

17 Q. Now, if I then look back at your development plan  
18 here with the Leonard Shale portion of the Bone Springs  
19 Formation, you need an exception to these special pool rules,  
20 do you not?

21 A. Yes, we do.

22 Q. In fact, if I look at your plat here and I look at  
23 the southwest quarter of the northwest quarter, it would  
24 appear that you are going to have a total of three wells in  
25 that particular quarter quarter section?

1 A. That's correct.

2 Q. Okay. And then since you are doing horizontal  
3 wells, internally the horizontal wells are not going to  
4 comply with the internal 330-foot setbacks?

5 A. That's correct.

6 Q. All right. Will the producing interval of your  
7 proposed horizontal wells remain at least 330 feet from the  
8 outer boundary of your designated spacing unit?

9 A. Yes, they will be.

10 Q. If I turn to Exhibit Number 3, is that -- does that  
11 identify the current footage locations for your proposed  
12 wells?

13 A. Yes, it does.

14 Q. And did you meet with the BLM for purposes of  
15 developing these surface locations for these wells?

16 A. Yeah. We met with BLM, and of the six locations  
17 here, we had to change five of them.

18 Q. I know, for example, the Dillon Fed Com Number 3H  
19 has a surface location of 580 feet from the north line?

20 A. Correct. And the reason for that, there was surface  
21 reasons for -- for moving all five of the six pipelines or  
22 roads, and on that particular one there is a caliche pit, I  
23 think it was. That's the reason we had to move it south of  
24 the caliche pit.

25 Q. But for each of these six wells your penetration



1 point is going to remain 330 feet from the outer boundary of  
2 the spacing unit?

3 A. That's correct.

4 Q. Now, if I look back at EOG Exhibit Number 1, it  
5 shows, Mr. Hurlbut, an existing horizontal well in the north  
6 half of Section 6.

7 A. Correct.

8 Q. And you have outlined the spacing unit and project  
9 area in green?

10 A. That's correct.

11 Q. It's labeled the Diamond 6 Federal Number 2. Where  
12 is that particular existing well completed?

13 A. In the Third Bone Springs Sand.

14 Q. And, to your knowledge, roughly, where is the sand  
15 portion of the Bone Springs formation in relation to the  
16 Leonard Shale portion?

17 A. 12,000 feet.

18 Q. And the Leonard Shale portion is where?

19 A. 9,000.

20 Q. Okay.

21 A. There is about a 3,000-foot difference.

22 Q. And I know you are not a geologist and you're going  
23 to have a geologist testify here today, but to your  
24 knowledge, is the Third Bone Springs Sand a different  
25 producing interval from a shallower shale?

1 A. Yes, it is.

2 Q. And since we then, we kind of circle back then, if I  
3 look at this map and I look at the southwest quarter of the  
4 northwest quarter, because of that existing well and new  
5 development plan, you actually have three wells completed in  
6 the Bone Springs Formation in that particular quarter  
7 section. Correct?

8 A. That's correct.

9 Q. Or I should say quarter quarter section.

10 A. Right.

11 Q. Is that another reason why you need the exception to  
12 the density requirements and special pool rules?

13 A. That's correct.

14 Q. Okay. Then did you identify, Mr. Hurlbut, and  
15 provide notice of this hearing to all of the known interest  
16 owners in the quarter quarter sections surrounding each of  
17 the 480-acre project areas?

18 A. Yes, we did.

19 Q. If I turn to Exhibit Number 4, which is an affidavit  
20 and notice letter for Case Number 14738, is that the notice  
21 that corresponds with the spacing unit as comprised of the  
22 west half of Section 31?

23 A. Yes, it is.

24 Q. And the northwest quarter of Section 6?

25 A. Yes, it is.

1 Q. And then Exhibit Number 5, which is the affidavit  
2 and notice for Case 14739, does that correspond then with the  
3 spacing unit for the east half of Section 31 and the  
4 northeast quarter of Section 6?

5 A. Yes, it does.

6 Q. And on each of those exhibits, the third page  
7 reflects, does it not, that you had addresses for each of the  
8 interest owners?

9 A. Yes. Yes, we did.

10 Q. Okay. Now, then to wrap this up, does Exhibit  
11 Number 6 contain the affidavits for the publication in the  
12 Lovington Leader for each of those cases?

13 A. Yes, it does.

14 Q. And does EOG intend to present a geologist and  
15 production engineer here today to further explain your  
16 development plan?

17 A. Yes, we do.

18 Q. In your opinion, will the granting of this  
19 application be in the best interest of conservation, the  
20 prevention of waste, and protection of correlative rights?

21 A. Yes, it will be.

22 Q. And were EOG Exhibits 1 through 6 prepared by you or  
23 compiled under your direction and supervision?

24 A. Yes.

25 MR. FELDEWERT: Mr. Examiner, I move into evidence

1 EOG Exhibits 1 through 6.

2 EXAMINER JONES: Exhibits 1 through 6 will be  
3 admitted.

4 (Exhibits 1 through 6 admitted.)

5 MR. FELDEWERT: That concludes my examination of  
6 this witness.

7 EXAMINER JONES: Okay. These -- you just want to  
8 drill wells longer, horizontal wells, is that correct, rather  
9 than -- you don't want to hold it within one section?

10 THE WITNESS: Yeah, our plan -- yeah. Our plans are  
11 to drill longer horizontal wells, mile and a half.

12 EXAMINER JONES: Instead of drilling some wells  
13 in -- in Section 6, lay down wells, you want to drill  
14 vertical -- I mean, you want to drill north-south wells?

15 THE WITNESS: Correct.

16 EXAMINER JONES: You want to drill six horizontal  
17 wells with the two units, is that correct?

18 THE WITNESS: Correct.

19 EXAMINER JONES: Two --

20 THE WITNESS: Two project area.

21 EXAMINER JONES: Two project areas.

22 THE WITNESS: Right.

23 EXAMINER JONES: Now, didn't BLM form any kind of  
24 units for these, or did -- they just approved your wells, but  
25 did you go to them for any kind of unitization on this?

1 THE WITNESS: No.

2 EXAMINER JONES: Okay. Is it --

3 THE WITNESS: We're not really forming a unit.

4 EXAMINER JONES: You are definitely not forming two  
5 units here, or even one unit, but what about ownership within  
6 the Section 31 and Section 6?

7 THE WITNESS: There are other owners involved in  
8 that -- in those particular areas.

9 EXAMINER JONES: There is -- is there a difference  
10 of ownership between Section 6 and Section 31?

11 THE WITNESS: Yes, there is. What we are going to  
12 do is to establish a unit operating agreement, and have  
13 everybody sign up under a unit operating agreement on the  
14 spread of their interest, so we are going to do that.

15 EXAMINER JONES: Okay. And you anticipate everybody  
16 will sign on?

17 THE WITNESS: Yeah.

18 EXAMINER JONES: Because you didn't ask for  
19 compulsory pooling here.

20 THE WITNESS: No, we didn't do that, but I'm  
21 anticipating that everybody will sign on. I don't think  
22 there is going to be anybody that's not.

23 EXAMINER JONES: And is this still -- still oil,  
24 even 3,000 feet deeper? Expecting oil wells?

25 THE WITNESS: Oh, yes, yes.

1 EXAMINER JONES: And that existing well, did it --  
2 is that the green outline on exhibit --

3 THE WITNESS: What that is, that's the project area  
4 for that particular well. It's a 240-acre project for that  
5 particular well.

6 EXAMINER JONES: Okay. So it excluded the east half  
7 of the northeast quarter?

8 THE WITNESS: Correct. Correct.

9 EXAMINER JONES: And why was that? Do you know why?

10 THE WITNESS: I'm not sure.

11 MR. FELDEWERT: Mr. Examiner, if I may, the special  
12 pool rules require 80-acre spacing units for these wells, so  
13 basically these are stacked 80-acre units, and that's why you  
14 have, for example, that --

15 EXAMINER JONES: Okay.

16 MR. FELDEWERT: -- that particular 80 acres perhaps  
17 excluded, but they could still develop that.

18 EXAMINER JONES: So that is an oil well?

19 THE WITNESS: Correct.

20 EXAMINER JONES: Okay. That's an oil well in the  
21 Red Hills-Bone Springs pool?

22 THE WITNESS: Pool. And it's in the sand, the  
23 Second Bone Springs Sand.

24 EXAMINER JONES: And it's in the sand?

25 THE WITNESS: Right.

1 EXAMINER JONES: And it's still producing?

2 THE WITNESS: Correct.

3 EXAMINER JONES: So it's still going to maintain  
4 its -- but it's a different 3,000 foot --

5 THE WITNESS: Yeah, a difference of about 3,000  
6 feet.

7 EXAMINER JONES: Okay. So you've got several  
8 exceptions you are asking for here. Just about everything in  
9 that Red Hills special pool rule is being -- so basically, as  
10 far as the same dedication, all the notices went out to  
11 everyone surrounding --

12 THE WITNESS: Correct.

13 EXAMINER JONES: -- this acreage?

14 THE WITNESS: Correct.

15 EXAMINER JONES: And you have not received -- were  
16 you able to locate everybody?

17 THE WITNESS: I think it went out to everybody. I  
18 think there was one green card that didn't come back, and  
19 that was from Chevron. Why it didn't come back from Chevron,  
20 I don't have any idea. But that's their address we have used  
21 in the past, so -- we operate most of that area in there,  
22 so -- so what we did, we sent out notices -- we sent out  
23 notices to the non-operators as well.

24 EXAMINER JONES: Okay. Did the BLM have any other  
25 comments or restrictions?

1 THE WITNESS: Not that I know of.

2 EXAMINER JONES: That you know of?

3 THE WITNESS: No.

4 EXAMINER JONES: I have no more land questions.

5 EXAMINER BROOKS: Okay. Is this private land,  
6 federal land, state land?

7 THE WITNESS: It's a combination. Over there in 31,  
8 the east half of 31 is fee, and the rest of the land is  
9 federal. The north half of 6 and west half of 31 is all  
10 federal.

11 EXAMINER BROOKS: Okay. So you would anticipate --  
12 you said you were going to unitize it at a later date, and  
13 you indicated that you got all -- you have all the working  
14 interest owners committed?

15 THE WITNESS: Well, we don't have them -- we don't  
16 have them committed at this point, but I think we will. I  
17 don't see a problem with it.

18 EXAMINER BROOKS: So you would anticipate then that  
19 you are going to do a com agreement?

20 THE WITNESS: Yes, we will be doing a com agreement  
21 on this. It will be communitizing in the west half,  
22 communitizing these two federal leases, and, in the east  
23 half, the fee with the federal.

24 EXAMINER BROOKS: And there is no state land  
25 involved?



1 THE WITNESS: There is no state land involved.

2 EXAMINER BROOKS: Okay. Very poorly drafted rule  
3 provision. No more questions.

4 EXAMINER JONES: I have one more question. The Red  
5 Hills-Bone Spring Pool, does that encompass all of this area  
6 and all surrounding areas?

7 THE WITNESS: Well, I don't know for sure exactly.  
8 I think, when it was established, that Red Hill-Bone Springs  
9 Pool was established for the Red Hills unit that EOG or Enron  
10 or -- not Enron, but HNG had put together, that was  
11 established for that for the Third Bone Springs, and there's  
12 been other wells that we've drilled out there, development  
13 wells, and I guess they are utilizing that Red Hills-Bone  
14 Springs Pool, so I don't --

15 EXAMINER JONES: So the vertical limits of it  
16 include all the Bone Springs?

17 THE WITNESS: Correct. And I think that's why this  
18 one is kind of in that pool, because it's right next door to  
19 the unit.

20 MR. FELDEWERT: Mr. Examiner, I think it's within a  
21 mile of the pool boundary.

22 EXAMINER JONES: So we either contract the pool and  
23 create a new pool so you can do this development, or we get  
24 exceptions every time you want to drill?

25 THE WITNESS: Well, either that, or just amend the

1 rule to allow for drilling horizontal wells into the shale,  
2 because these are going to be, you know, shale wells and not  
3 sand wells.

4 EXAMINER JONES: Yeah, there's --

5 THE WITNESS: Because we plan on drilling a bunch of  
6 shale wells in there.

7 EXAMINER JONES: A bunch of them?

8 THE WITNESS: Yeah, several of them. At least these  
9 six and some more.

10 EXAMINER JONES: Some more.

11 THE WITNESS: We plan on drilling in this area.

12 EXAMINER JONES: How many other working interest  
13 owners do you think would be in this pool? In other words,  
14 the exist -- well, I take that back. Not working interest  
15 owners, but operators in the Red Hills-Bone Spring Pool, you  
16 would have to work with them to get the pool rules --

17 THE WITNESS: I think that that's -- the operator in  
18 most cases is going to be EOG.

19 EXAMINER JONES: Yeah.

20 THE WITNESS: Because we own most of that acreage in  
21 there. We do have some, you know, non-operators -- we are  
22 the operator. We have some non-ops with us on some of these  
23 wells.

24 EXAMINER JONES: You just have to work with the  
25 operators of the pool plus the --

1 THE WITNESS: Right.

2 EXAMINER JONES: -- a mile around.

3 THE WITNESS: Right.

4 EXAMINER JONES: I have no more questions.

5 EXAMINER BROOKS: I do have another question I  
6 forgot. I think I understood this, but I want to be sure I'm  
7 correct. Are the -- did I hear you say that the penetration  
8 points of all of these wells, that is, where they intersect,  
9 where the wellbore will intersect the top of the Bone Spring  
10 Formation is within the setbacks?

11 THE WITNESS: Yes.

12 EXAMINER BROOKS: Yeah, because -- all right. Our  
13 present rules we work from the -- where they intersect the  
14 top of the Bone Spring Formation, not where they intersect at  
15 the top of the shale where it's going to be producing from,  
16 so I wanted to make it clear that you are going to be within  
17 the setbacks and you're not going to need non-standard  
18 locations for those wells.

19 EXAMINER JONES: I think that would mean that the  
20 vertical -- that the well would have to be spotted within 330  
21 of the boundary. Do you know if that's the case?

22 THE WITNESS: Well, the actual surface locations?

23 EXAMINER JONES: Well, you've got them in here.

24 MR. FELDEWERT: We do, and we have a --

25 EXAMINER JONES: Yeah, these are -- two of them

1 are -- actually four of them are.

2 MR. FELDEWERT: We have an engineer that will  
3 testify.

4 EXAMINER JONES: Okay.

5 MR. FELDEWERT: I have no further questions.

6 EXAMINER JONES: Okay. Thanks a lot.

7 THE WITNESS: Okay.

8 MR. FELDEWERT: Our next witness.

9 WILLIAM J. MORRIS

10 (Having been sworn testified as follows:)

11 DIRECT EXAMINATION

12 BY MR. FELDEWERT:

13 Q. Would you please state your name for the record?

14 A. William J. Morris.

15 Q. By whom are you employed and in what capacity?

16 A. EOG Resources. I'm a petroleum geologist.

17 Q. Have you previously testified before this  
18 Division?

19 A. Yes, I have.

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

22 A. Yes, they were.

23 Q. Are you likewise familiar with the applications  
24 filed by EOG in these consolidated cases?

25 A. Yes.

1 Q. Have you conducted a study of the lands that are the  
2 subject of this application?

3 A. Yes, I have.

4 MR. FELDEWERT: I would tender Mr. Morris as an  
5 expert witness in petroleum geology.

6 EXAMINER JONES: He is so qualified.

7 Q. Mr. Morris, before we get to any more exhibits,  
8 would you just generally outline for the Examiners the  
9 various producing intervals in the Bone Springs Formation in  
10 this subject area.

11 A. Okay. In this two or three township area, the Bone  
12 Spring Formation produces from the Third Bone Spring Sand  
13 which is near the base of the formation. Also the Leonard  
14 Shale produces from some horizontal wells, and that's located  
15 near the top of the formation.

16 Q. And what depth are the sands versus the shale?

17 A. The Third Bone Spring Sands are at an approximate  
18 depth of 12,000 feet, and the Leonard Shale is at a depth of  
19 approximately 9,000 feet.

20 Q. And has EOG drilled horizontal wells both in the  
21 deeper Bone Spring Sand as well in separate wells in the  
22 shallower Leonard Shale area?

23 A. Yes, they have.

24 Q. If you then turn to -- pull out or turn to and pull  
25 out what's been marked as EOG Exhibit Number 7. Would you

1 first identify this exhibit, and then also describe where EOG  
2 has drilled both horizontal wells in the sand and then  
3 separate horizontal wells in the shallower Leonard Shale.

4 A. Okay. This is a structure map.

5 Q. Why don't you hold off one minute?

6 (Pause.)

7 Q. Go ahead.

8 A. This is a structure map over the Red Hills area that  
9 is on the top of the Bone Spring Formation. The red outline  
10 is our Red Hills unit that EOG operates. The subject wells  
11 are located just north of that red outline in Section 31 and  
12 Section 6.

13 Q. Are those wells identified in green?

14 A. Right. The horizontal wells that we propose to  
15 drill are shown with green laterals on them. The wells that  
16 are highlighted brown are wells that produce from the Third  
17 Bone Spring Sand, and the wells that are highlighted with  
18 green outlines are those wells that we have drilled producing  
19 from the Leonard Shale.

20 Q. So if I look at this map up there in the north half  
21 of Section 6, there is a well in brown in the northwest  
22 quarter of Section 6, that is the Diamond 6 Federal Number 2  
23 that we talked about the existing wells, correct?

24 A. That is correct.

25 Q. As completed in the sand?

1 A. As completed in the Third Bone Spring Sand.

2 Q. And there is a blue line here that corresponds with  
3 the cross section, and we will get to that here in a minute,  
4 but if I follow that line south, I get down to an area then  
5 that has a -- looks like a blue shading or green --

6 A. Yes, light green shade.

7 Q. Light green. What does that depict?

8 A. That's our Lomas Rojas project area where we drilled  
9 a number of Leonard Shale wells on somewhat different spacing  
10 in there.

11 Q. Okay. And in your Lomas Rojas project area, that's  
12 down in Section 26?

13 A. Right.

14 Q. Of 25 South 33 East?

15 A. Correct.

16 Q. Now, in that particular area, you said you drilled  
17 wells in the Leonard Shale portion of the Bone Springs  
18 Formation?

19 A. That is correct, yes.

20 Q. Is that the same target area as the proposed  
21 horizontal wells?

22 A. Right. It's the same zone that we intend to drill  
23 north of the --

24 Q. Okay. Is the geology of the Bone Springs Formation  
25 consistent throughout this subject area?

1           A.    Yes, I have a cross section that will show that the  
2    zones are continuous throughout the entire area.

3           Q.    Okay.  If we then leave this map out, turn to EOG  
4    Exhibit Number 8, and pull that out, why don't you identify  
5    EOG Exhibit Number 8 for the Examiners.

6           A.    This is a three well cross section that depicts the  
7    entire Bone Spring Formation in this area.  The first well on  
8    the left is the Lomas Rojas 26 State Number 4 Well.  It's  
9    located in the very south part of the map.  The second --

10          Q.    Let me -- the map being Exhibit Number 7?

11          A.    Being Exhibit Number 7, correct.

12          Q.    So looking at Exhibit Number 7 down in Section 26  
13    where the green wells are, and that's the start of your cross  
14    section?

15          A.    Right.  The well that's highlighted with a blue line  
16    that extends from it towards the north.

17          Q.    Okay.

18          A.    The second well of the cross section is the well in  
19    Section 6 that was drilled in the third -- it's the pilot  
20    hole for the well that was drilled laterally in Section 6 in  
21    the Third Bone Springs Sand, and it's the Diamond 6 Federal  
22    Well.

23                The last well to the right is the Morrow, it's the  
24    Deep Morrow Well that was drilled in Section 31, and it shows  
25    the entire Bone Spring Formation there.  The cross section



1 further highlighted in brown at the base, the Third Bone  
2 Spring Sand Pay, that has been drilled throughout the Red  
3 Hills unit, this log is very representative of those.

4 And on the upper part is the Leonard Shale, and you  
5 can see that the shale characteristics carry across the  
6 entire region, and our target zone is shown in green there.

7 Q. Is there a continuity throughout the area of these  
8 producing zones?

9 A. Yes. The Third Bone Spring Sand is continuous  
10 throughout the Red Hills area. And the shale, to my  
11 knowledge, encompasses the entire mapped area on here. It's  
12 continuous throughout the area.

13 Q. Is there communication of these -- expected  
14 communication between the Bone Spring Sand producing interval  
15 and Bone Spring Leonard Shale producing interval?

16 A. No. They have totally different producing  
17 properties.

18 Q. And do you expect any of the -- from a geologic  
19 standpoint -- any characteristics of these zones, are they  
20 completely different?

21 A. Yes. They would be -- well, the upper one is a  
22 shale unit, and it's very tight. And the other unit, the  
23 Third Bone Spring Sand is a -- it's an older pressure sand  
24 zone.

25 Q. Okay. Then just for the record, in your opinion,

1 will that existing well that's up there in the north half of  
2 Section 6 completed in the Third Bone Springs Sand, that's  
3 not going to drain from the Leonard Shale portion of the Bone  
4 Springs Formation, correct?

5 A. I don't think it possibly could.

6 Q. Okay. In your opinion, then, are separate  
7 horizontal wells needed in this area to recover the reserves  
8 in the shale?

9 A. Yes, they are.

10 Q. Is EOG presenting a production engineer to discuss  
11 the results of your horizontal drilling program in the  
12 Leonard Shale portion of the Bone Springs Formation down here  
13 if the Lomas Rojas study area?

14 A. Correct. We have an engineer present.

15 Q. And that's the area down here in Section 26 that was  
16 the start of your cross section?

17 A. Right.

18 Q. Okay. Almost finished here. In your opinion, are  
19 the results that EOG observed down here in Section 26 in the  
20 Lomas Rojas study area, are the results of that -- of those  
21 wells applicable to the area that is the subject of the  
22 application up there in Section 31 and Section 6?

23 A. We believe the geological parameters that are  
24 present down in Section 26 will be very similar to that in  
25 Section 31 to the north.

1 Q. Okay. Will the granting of EOG's application here  
2 be in the best interest of conservation and the prevention of  
3 waste and protection of correlative rights?

4 A. Yes.

5 Q. Were EOG Exhibits 7 and 8 prepared by you or  
6 compiled under your direction and supervision?

7 A. Yes, they were.

8 MR. FELDEWERT: That completes my examination of  
9 this witness.

10 EXAMINER JONES: Okay. So really there is not  
11 much -- there is not much vertical separation between the top  
12 of the Bone Spring and the target interval?

13 THE WITNESS: Right. That's right. It's right at  
14 the very top.

15 EXAMINER JONES: At the very top.

16 THE WITNESS: I think that answers the question that  
17 you had asked earlier.

18 EXAMINER JONES: Yes. And Mr. Brooks had asked,  
19 too. We don't look -- we always look at the wells, the plans  
20 for the wells, and you have those plans for those wells in  
21 your -- probably your proposal to the BLM and to Mr. Dillon  
22 or whatever the --

23 THE WITNESS: I'm sure they are.

24 EXAMINER JONES: Yeah, they are probably in our  
25 files. We'll find them one way or the other.

1 MR. FELDEWERT: If not, we can get them to you.

2 EXAMINER JONES: Okay. And this is pretty big --  
3 and you call this Leonard target zone, and this is Leonardian  
4 Age Permian, but is that the -- is that what the geologists  
5 are going to call the shale in the Bone Spring there?

6 THE WITNESS: I think a lot of companies may call it  
7 Avalon Shale, whatever. I mean, our company calls it Leonard  
8 Shale, that's what we've always called it, so that's pretty  
9 much, I guess, the name we are sticking with.

10 EXAMINER JONES: Where is this area part of the  
11 country located? Is it close to Maljamar or something?

12 THE WITNESS: I think it's closer to Jal. It's in  
13 the south part of --

14 EXAMINER JONES: So south of Lea County?

15 THE WITNESS: Yeah, very south part of Lea County.  
16 You're about 12 -- 15 miles north of the state line,  
17 something like that.

18 EXAMINER JONES: Okay. But south of jail -- Jal?

19 THE WITNESS: I think so. It's, I think it's a  
20 little --

21 MR. FELDEWERT: We have --

22 THE WITNESS: A little to the west of Jal.

23 MR. FELDEWERT: We have roughly 20 miles west of  
24 Jal. Did you say Jal or jail?

25 EXAMINER JONES: Jal. That's a Freudian slip.

1 MR. FELDEWERT: I called it Leonid Shale, but they  
2 corrected me.

3 EXAMINER JONES: This, within this -- this is about  
4 100-foot zone you have located here.

5 THE WITNESS: Right.

6 EXAMINER JONES: Where are you going to drill your  
7 well?

8 THE WITNESS: I think they are going to drill it in  
9 the -- just near the middle part of it, but just in the lower  
10 part of the middle section.

11 EXAMINER JONES: You've got markers there that you  
12 look at?

13 THE WITNESS: Yeah, there's a couple of little line  
14 markers in there, and, you know, we run gamma ray as we drill  
15 through it, so we can keep a pretty good stab as to where  
16 we're at.

17 EXAMINER JONES: I knew there is a new tool that you  
18 can use it to look further. Do you use that?

19 THE WITNESS: We have not used that, no.

20 EXAMINER JONES: And your gamma ray is still 30 feet  
21 back from the bit.

22 THE WITNESS: Yeah. I think it's probably more like  
23 40, 45.

24 EXAMINER JONES: After a stabilizer?

25 THE WITNESS: Right.

1 EXAMINER JONES: And all of this zone below --  
2 between this, this big shale and the traditional Third Bone  
3 Springs Sand is not productive?

4 THE WITNESS: It's not productive in this area. It  
5 is productive in other parts of the county.

6 EXAMINER JONES: Of the county?

7 THE WITNESS: Yes. To the north, up south of  
8 Lovington, whatever the first Bone Spring Sand produces, the  
9 Second Bone Spring Sand produces up in there.

10 EXAMINER JONES: Okay.

11 THE WITNESS: And actually some of these carbonates  
12 in between also produce.

13 EXAMINER JONES: Okay.

14 THE WITNESS: So the whole section does produce  
15 somewhere in the county, but in this particular area --

16 EXAMINER JONES: You are not seeing shows when you  
17 drill on the wells that drill through it.

18 THE WITNESS: I'm not familiar with all of that. I  
19 think we have seen some of shows, but it's not as prospective  
20 as the zones that we are drilling now.

21 EXAMINER JONES: Yeah. It seems you pretty much  
22 testified this is a different source of supply than -- or  
23 what we call a different pool than --

24 THE WITNESS: Well, it's definitely a different  
25 pool, I think.

1 EXAMINER JONES: Yeah, it should be.

2 THE WITNESS: Yeah.

3 EXAMINER JONES: And that horizontal well you  
4 drilled in the Third Bone Spring Sand was not any good?

5 THE WITNESS: No. It -- the Third Bone Spring Sands  
6 down there are very, very good.

7 EXAMINER JONES: So horizontal wells, you showed us  
8 a horizontal well that was drilled in that -- in Section 6?

9 THE WITNESS: Yeah. We developed those, you know,  
10 ten -- ten years ago or so.

11 EXAMINER JONES: Oh. And you drilled that one  
12 east-west, didn't you?

13 THE WITNESS: A lot of those Third Bone Spring wells  
14 we drilled were largely east-west, correct.

15 EXAMINER JONES: And now you want to go north-south.

16 THE WITNESS: Yeah, the Third Bone Spring Sand is a  
17 little bit more limited just because it's a sandstone the way  
18 it's deposited. The shale covers the whole basin or the  
19 entire part of this area.

20 EXAMINER JONES: So was it a geologic decision or a  
21 land decision to drill north-south versus east-west?

22 THE WITNESS: I wasn't involved in that. I think  
23 it's largely based on the regional pressure trends and  
24 stuff --

25 EXAMINER JONES: There you go. There you go.

1 THE WITNESS: -- that we are looking at.

2 EXAMINER JONES: Well coached witness here. Okay.

3 Let's -- I guess I better not ask any more questions.

4 Mr. Brooks?

5 EXAMINER BROOKS: Well, the term "pool" is a legal  
6 term, as it's used in the OCD, so when you were saying -- I  
7 wasn't sure totally what you were saying was a different pool  
8 from what else, but I thought you were suggesting that the  
9 shale and the Bone Spring Sands were a different pool than  
10 the generic sense of that term. Is that what you were  
11 saying?

12 THE WITNESS: Yeah, they are different reservoirs.

13 EXAMINER BROOKS: Right. In other words, they are  
14 not in communication with each other in terms of movement of  
15 the hydrocarbons?

16 THE WITNESS: Correct.

17 EXAMINER BROOKS: Which is the way the term "pool"  
18 is supposed to be used, but at the same time we have a  
19 classification system, and they are in the same pool under  
20 our classification system.

21 THE WITNESS: Right. You are correct.

22 EXAMINER BROOKS: Just wanted to clarify. No  
23 further questions.

24 MR. FELDEWERT: Mr. Examiner, I would like to leave  
25 EOG Exhibit Number 7 out, I don't think we will go back to



1 Exhibit Number 8, and then I will call my next witness.

2 STEVEN D. ROBERTSON

3 (Having been sworn, testified as follows)

4 DIRECT EXAMINATION

5 BY MR. FELDEWERT:

6 Q. Would you please state your name for the record?

7 A. Steven D. Robertson.

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

9 A. EOG Resources. I'm a reservoir engineer.

10 Q. Mr. Robertson, have you also previously testified  
11 before this Division?

12 A. Yes, I have.

13 Q. Were your credentials as a petroleum engineer  
14 accepted and made a matter of public record?

15 A. Yes, they were.

16 Q. And are you likewise familiar with the applications  
17 that have been filed in these consolidated cases?

18 A. Yes, I am.

19 Q. And you have conducted a study of the area that is  
20 the subject of this application?

21 A. Yes, I have.

22 MR. FELDEWERT: I would tender Mr. Robertson as an  
23 expert witness in petroleum engineer.

24 EXAMINER JONES: He is so qualified.

25 Q. Mr. Robertson, I want you to turn back to Exhibit

1 Number 1, EOG Exhibit Number 1. Is this the development plan  
2 that you put together for the Leonard Shale interval in the  
3 Bone Springs Formation?

4 A. Yes, it is.

5 Q. Okay. And just to -- since you put this together,  
6 how far apart did you instruct that these wells should be  
7 spaced to appropriately drain the Leonard Shale?

8 A. 880 feet.

9 Q. And what is the basis for this 880-foot drilling  
10 pattern in the Leonard Shale?

11 A. The basis is a pattern spacing test we conducted in  
12 the Lomas Rojas section area of Section 26.

13 Q. So if I look at EOG Exhibit Number 7 down at Section  
14 26 and 25 South 33 East, there is a number of wells that have  
15 a green shading on there, is that your Lomas Rojas study  
16 area?

17 A. Yes, it is.

18 Q. Okay. Before we get to that study was that -- was  
19 that study area that you discussed or that the company  
20 representatives discussed with the Division prior to  
21 implementing that project?

22 A. Yes, it is.

23 Q. Did company representatives come up and meet with  
24 the Division about this Lomas Rojas study area?

25 A. Yes, they did.

1 Q. Why did you conclude that the particular area here  
2 down in Section 26 provided a good study ground for the  
3 Leonard Shale component of the Bone Springs Formation?

4 A. Because it has reservoir properties of porosity and  
5 oil saturation and thickness that are typical for this  
6 Leonard Shale Formation all the way across this area.

7 Q. Would you then turn to -- leave Exhibit 7 out --  
8 turn to what's been marked as EOG Exhibit Number 9. And let  
9 me first ask you, is that then a close-up view of the same  
10 Section 26 and 25 South 33 East?

11 A. Yes, it is.

12 Q. So this is a slide of your Lomas Rojas study area?

13 A. Yes, it is.

14 Q. Why don't you then explain what the company did in  
15 this particular study area section.

16 A. In this section, we implemented a test in order to  
17 test different well spacings to see if these wells would  
18 interfere with each other. And so you see Well Number 2H on  
19 that figure has an average spacing of about 1320 feet from  
20 its adjacent wells. And then you will see Number -- Well  
21 Number 4H has an average spacing of about 880 feet from its  
22 adjacent wells, and those -- those two wells are confined, so  
23 they have that characteristic spacing. Of course you have  
24 the in member wells that are unconfined on the east and west,  
25 and so this was basically a test to see if we could squeeze

1 another well into each half section and not hurt our reserves  
2 on the adjacent wells.

3 Q. Then if I turn to what's been marked as EOG Exhibit  
4 Number 10, does that depict the results of your study?

5 A. Yes, it does.

6 Q. This shows the estimated ultimate recoveries on  
7 these five wells. And these recoveries were normalized for  
8 treated well lengths, oil in place per section, foot, and net  
9 pay thickness, so basically trying to compare apples and  
10 apples by normalizing for these small changes in these  
11 parameters.

12 And you can see that the Well Number 2H has a  
13 spacing, average spacing of about 1300 feet, and it's  
14 recovery is about 165 MBO. The Well 4H has an average  
15 spacing of about 900 feet, and it has an estimated recovery  
16 of about 165 MBO. So by spacing these wells closer, we did  
17 not impact the reserves on the closer spaced well.

18 Q. And based on this study, you have concluded that to  
19 adequately drain reserves, these wells should be spaced 880  
20 feet apart?

21 A. Yes, that was our conclusion.

22 Q. Which results in six wells per section?

23 A. That's correct.

24 Q. Okay. Are you concerned about waste if your  
25 proposed 880-foot spacing pattern is not followed by the

1 company in horizontal development of the Leonard Shale?

2 A. Yes. We believe that by not drilling that extra  
3 well, we are basically not recovering about 165 MBO per half  
4 section. So in a standard-length well, if we can drill an  
5 extra two wells per section, that would be an extra 330 MBO  
6 per section.

7 Q. As applied to the particular area that is the  
8 subject of our application, Section 31 in the north half of  
9 Section 6, what would you calculate to be the oil left in  
10 place if you didn't follow your path?

11 A. Yeah, those wells are expected to be about 7,000  
12 feet long, so more reserves per well. So by drilling an  
13 extra two wells per section, in that section and a half we  
14 would gain an additional 576 MBO.

15 Q. Okay. Now, I want to now turn just to a different  
16 topic, and the existing special pool rules which have been  
17 marked as EOG Exhibit Number 2. First, before we talk about  
18 them, in your opinion, as a production engineer, are the  
19 production characteristics in the sand interval of the  
20 Leonard Shale portion different from the production  
21 characteristics in the shallower shale portion of the Bone  
22 Springs Formation?

23 A. Yes, they are. The sand is much more permeable and  
24 drains a much further distance than the shale does.

25 Q. From a production engineering standpoint, do you

1 look at the shale then differently from the sand?

2 A. Yes, we do.

3 Q. Okay. Did you examine the record from the hearings  
4 that resulted in the adoption of the special pool rules for  
5 the Red Hills Bone Springs Pool?

6 A. Yes, I did.

7 Q. Okay. And were the existing pool rules based on  
8 drainage calculations and analysis that were -- that are  
9 applicable to the sand component of the Bone Springs  
10 Formation?

11 A. Yes, they were directed towards the sand.

12 Q. In your opinion, does that -- those drainage  
13 calculations and analysis that resulted in these special pool  
14 rules, are they applicable to the shale of the Bone Springs  
15 Formation?

16 A. No, they are not.

17 Q. At the time that these rules were adopted in 1994  
18 and 1995, was anyone drilling in a Leonard Shale portion of  
19 the Bone Springs Formation, to your knowledge?

20 A. No, they weren't.

21 Q. In your opinion, are exceptions to both the density  
22 and the internal setback requirements in these rules  
23 necessary in order to adequately drain the reserves in the  
24 Leonard Shale component of the Bone Springs Formation?

25 A. Yes.

1 Q. In your opinion, will waste occur if EOG is limited  
2 under these pool rules to two wells in an 80-acre spacing  
3 unit for the Leonard Shale development in these project  
4 areas?

5 A. Yes.

6 Q. In your opinion, how many wells -- I think you have  
7 already said you need at least three in each 480-acre project  
8 area to adequately drain?

9 A. Yes. That's what we require.

10 Q. And just to confirm this for the record, and there  
11 were some question about this, do your drilling plans for  
12 these horizontal wells, are they -- will they maintain the  
13 330 setback from the outer boundaries in each of these  
14 480-acre spacing units?

15 A. Yes. Those will be maintained, the penetration  
16 point of the Bone Springs.

17 Q. In your opinion, is the granting of this application  
18 or these applications in the best interest of conservation  
19 and prevention of waste and the protection of correlative  
20 rights?

21 A. Yes, they are.

22 Q. Were EOG Exhibits 9 and 10 prepared by you or  
23 compiled under your direction and supervision?

24 A. Yes, they were.

25 MR. FELDEWERT: Mr. Examiner, I move the admission

1 of Exhibits 9 and 10.

2 EXAMINER JONES: Exhibits 9 and 10 will be admitted.

3 (Exhibits 9 and 10 admitted.)

4 MR. FELDEWERT: And that concludes my examination.

5 EXAMINER JONES: Now, Mr. Robertson, I think mainly  
6 what you have done here is reservoir engineering work?

7 THE WITNESS: Yeah. Production engineering is a  
8 misnomer. It's more reservoir. That's my specialty.

9 EXAMINER JONES: So you would basically be doing the  
10 predicting reserves and economics for these -- these wells?

11 THE WITNESS: That's correct.

12 EXAMINER JONES: You had to sell it -- your team had  
13 to sell it to the management.

14 THE WITNESS: Yes.

15 EXAMINER JONES: Already?

16 THE WITNESS: Yes.

17 EXAMINER JONES: Probably.

18 THE WITNESS: Oh, yes. Yes.

19 EXAMINER JONES: Was there a big difference in the  
20 frac jobs on these -- within these various wells in Section  
21 26?

22 THE WITNESS: No. We tried to keep the fracs all  
23 consistent so that we didn't have another variable affecting  
24 the EURs.

25 EXAMINER JONES: Was there a lot of water production



1 with these, or --

2 THE WITNESS: Typically there is a fair amount of  
3 water production, about a 50 percent water cut, typically.

4 EXAMINER JONES: And what happens to it over time?  
5 Does it go up?

6 THE WITNESS: It stays about the same. Stays about  
7 the same.

8 EXAMINER JONES: Okay. So you basically -- no water  
9 drive, in other words?

10 THE WITNESS: Right. Yeah, it's possible. We don't  
11 know for sure where the water is coming from, to be honest.

12 EXAMINER JONES: So insitu water?

13 THE WITNESS: Right. Some of it is insitu, some of  
14 it is outside the zone of interest.

15 EXAMINER JONES: And you are not asking for  
16 allowable modification for this area, you just want to stick  
17 with Rule 6 of the Red Hills?

18 THE WITNESS: Sometimes it very initially will  
19 produce more than that allowable. I mean, just for a few  
20 days, if at all, but it -- it's not a problem, if we needed  
21 to reduce it initially. You know what I mean?

22 EXAMINER JONES: The allowable here is set for an  
23 80-acre proration unit, standard proration unit, so that  
24 would be --

25 THE WITNESS: Right. Right. You could actually

1 multiply that up, so we wouldn't actually encroach on that  
2 allowable, that's true.

3 EXAMINER JONES: What about the 2000 limiting GOR  
4 2000, but that would be times your maximum oil allowable  
5 anyway.

6 THE WITNESS: Okay. Yeah, so that would probably be  
7 all right. Although this is a totally different animal, and  
8 so it -- it's -- in some cases that GOR will -- will rise,  
9 but if it's based on the original oil allowable, I think we  
10 will have plenty of room there for the GOR or for the gas  
11 production.

12 EXAMINER JONES: What about the frac jobs you are  
13 going to put on this new area, is it -- was it different than  
14 the ones that was done on Section 26?

15 THE WITNESS: Essentially the same. I mean, we do  
16 continue to improve our technology, but it's essentially the  
17 same type of frac.

18 EXAMINER JONES: How would the wells be completed, I  
19 mean, as far as casings, and perforations, open hole or --

20 THE WITNESS: Yeah, we drill a five-and-a-half-inch  
21 casing around the curve and cement it in place, and then use  
22 plug and perms to create this multistaged frac job and inject  
23 many several million pounds of sand to proppant.

24 EXAMINER JONES: So there will be some sand going in  
25 the frac job, it's not just a click water job.

1 THE WITNESS: Yeah. Yeah. Definitely lots of sand,  
2 yeah.

3 EXAMINER JONES: Okay. Well, I don't have any more  
4 questions.

5 EXAMINER BROOKS: I was referred to you by the land  
6 witness. I want to make sure that these wells are -- since  
7 you are not asking for non-standard locations as such, I want  
8 to make sure that these wells are within the setback as per  
9 our definitions. And per our definitions, that depends on  
10 the point where the wells --

11 THE WITNESS: Penetrate.

12 EXAMINER BROOKS: -- penetrate the top of the Bone  
13 Spring Formation.

14 THE WITNESS: Correct. Correct.

15 EXAMINER BROOKS: Is that point going to be, in each  
16 case, more than 330 feet from the outer boundaries of --

17 THE WITNESS: Yes, it will be.

18 EXAMINER BROOKS: Okay. Thank you.

19 MR. FELDEWERT: I have no further questions today,  
20 and that concludes our presentation.

21 EXAMINER JONES: Okay. Thank you for coming in.

22 THE WITNESS: Thank you.


23 EXAMINER JONES: Stay around tomorrow and see the  
24 balloons. We'll take these cases, Case 14738 and Case 14739  
25 under advisement.

1 EXAMINER JONES: And let's take a ten-minute break  
2 here.

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I do hereby certify that the foregoing is a complete and correct report of the Examination heard by me on this date.


  
\_\_\_\_\_  
Oil Conservation Division

## REPORTER'S CERTIFICATE

I, IRENE DELGADO, New Mexico CCR 253, DO HEREBY  
CERTIFY THAT ON September 29, 2011, proceedings in the  
above-captioned cases were taken before me and that I did  
report in stenographic shorthand the proceedings set forth  
herein, and the foregoing pages are a true and correct  
transcription to the best of my ability.

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

WITNESS MY HAND this \_\_\_\_\_ day of October 2011.

  
Irene Delgado, CCR 253  
Expires: 12-31-2011