

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:

ORIGINAL

APPLICATION OF MEWBOURNE OIL COMPANY TO  
RE-OPEN CASE NUMBER 14554 TO MAKE THE  
SPECIAL RULES AND REGULATIONS FOR THE  
NORTH SEVEN RIVERS GLORIETA-YESO POOL  
PERMANENT, EDDY COUNTY, NEW MEXICO

Case 14554

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

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

August 9, 2012

Santa Fe, New Mexico

This matter came on for hearing before the  
New Mexico Oil Conservation Division, DAVID K. BROOKS,  
Presiding Examiner, and WILLIAM V. JONES, Technical  
Examiner, on Thursday, August 9, 2012, at the New Mexico  
Energy, Minerals and Natural Resources Department, 1220  
South St. Francis Drive, Room 102, Santa Fe, New Mexico.

REPORTED BY: Jacqueline R. Lujan, CCR #91  
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A P P E A R A N C E S

FOR THE APPLICANT:

JAMES BRUCE, ESQ.  
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1 EXAMINER BROOKS: We will call Case Number  
2 14554, Application of Mewbourne -- it says, "Mewbourne  
3 Company." Is that correct?

4 MR. BRUCE: It should be Mewbourne Oil  
5 Company.

6 EXAMINER BROOKS: -- Application of  
7 Mewbourne Oil Company to reopen Case Number 14554 to make  
8 the special rules and regulations for the North Seven  
9 Rivers Glorieta-Yeso Pool permanent, Eddy County, New  
10 Mexico.

11 Call for appearances.

12 MR. BRUCE: Mr. Examiner, Jim Bruce, of  
13 Santa Fe, representing the applicant. I have three  
14 witnesses.

15 EXAMINER BROOKS: Would the witnesses  
16 please stand, identify yourselves and be sworn?

17 MR. MITCHELL: Corey Mitchell.

18 MR. LODGE: Jason Lodge.

19 MR. ROBISON: Drew Robison.

20 (Three witnesses were sworn.)

21 MR. BRUCE: Mr. Examiner, before we begin,  
22 we only have two copies of Exhibit 1, so I'll let you  
23 both share Exhibit 1.

24 EXAMINER BROOKS: Okay.

25

1 COREY MITCHELL

2 Having been first duly sworn, testified as follows:

3 DIRECT EXAMINATION

4 BY MR. BRUCE:

5 Q. Mr. Mitchell, where do you reside?

6 A. Midland, Texas.

7 Q. Who do you work for, and in what capacity?

8 A. Mewbourne Oil Company, as a landman.

9 Q. Have you previously testified before the  
10 Division?

11 A. I have.

12 Q. And were your credentials as an expert landman  
13 accepted as a matter of record?

14 A. Yes, sir.

15 Q. Does your area of responsibility at Mewbourne  
16 include this area of Southeast New Mexico?

17 A. Yes, sir.

18 Q. Are you familiar with the land matters  
19 involved in this case?

20 A. Yes, sir.

21 MR. BRUCE: Mr. Examiner, I tender Mr.  
22 Mitchell as an expert petroleum landman.

23 EXAMINER BROOKS: So qualified.

24 Q. (By Mr. Bruce) Mr. Mitchell, could you  
25 describe briefly what Mewbourne seeks in this case?

1           A.       Division Order R-13350 abolished the Seven  
2       Rivers Yeso Pool and the Cemetery Yeso Pool. It also  
3       expanded the North Seven Rivers Glorieta-Yeso Pool to  
4       include the acreage in the abolished pools, as well as  
5       additional acreage.

6           The order also enacted special pool rules and  
7       regulations for the North Seven Rivers Glorieta-Yeso  
8       Pool, providing for a special depth bracket allowable of  
9       240 barrels of oil per day for a standard 40-acre spacing  
10      unit.

11           Mewbourne is seeking to pool -- to make these  
12      pool rules permanent and also include the additional  
13      acreage in the pool.

14           Q.       What is Exhibit 1?

15           A.       Exhibit 1 is a land plat of the North Seven  
16      Rivers Glorieta-Yeso Pool.

17           Q.       And what is Exhibit 2?

18           A.       Exhibit 2 is a description of the land  
19      included in the pool.

20           Q.       So that's just a legal description of what's  
21      depicted on Exhibit 1?

22           A.       Yes, sir.

23           Q.       There are three tracts shaded green on  
24      Exhibit 1. What does that represent?

25           A.       The green tracts is the acreage Paul Kautz,

1 with the OCD, wants included in the pool to make the  
2 acreage continuous.

3 Q. And is the acreage that the OCD wants added in  
4 described on Exhibit 3?

5 A. Yes, sir.

6 MR. BRUCE: Mr. Examiner, Ms. Gerholdt  
7 filed an entry of appearance in the case and told us what  
8 the Division wanted, so I have amended the application.  
9 At the end of this hearing, it needs to be continued for  
10 four weeks so that proper notice is given of the pool  
11 expansion at the Division's request.

12 EXAMINER BROOKS: Okay.

13 Q. (By Mr. Bruce) What is Exhibit 4,  
14 Mr. Mitchell?

15 A. Exhibit 4 is a list of the operators in the  
16 North Seven Rivers Glorieta-Yeso Pool.

17 Q. Was notice of this hearing given to all of the  
18 operators in the pool?

19 A. Yes, sir.

20 Q. Is that reflected in my affidavit marked  
21 Exhibit 5?

22 A. Yes.

23 Q. The application requests that the special pool  
24 rules, the increased allowable, be made retroactive to  
25 January 18th, 2012. What is the reason for that?

1           A.       The reasoning is Order R-13350, which set up  
2       the temporary pool rules, expired on that date. And we  
3       were to reopen the case to have them made permanent by  
4       January 18, 2012, but we are just now getting to  
5       reopening the case.

6                   MR. BRUCE: Mr. Examiner, normally in  
7       these cases the Division itself reopens the cases. But  
8       the wording in the language, and I talked with Ms.  
9       Davidson, and she was informed that it was up to the  
10      applicant to do so, and time just slipped by.

11                  EXAMINER BROOKS: Yeah, that's good. What  
12      I have noticed in following the history of many pools is  
13      there are a lot of cases where it says that the case will  
14      be reopened, and it never has been.

15                  MR. BRUCE: This one specifically said  
16      they'll expire within a year.

17                  EXAMINER BROOKS: Yeah. And the effort in  
18      drafting that order was to avoid creating a situation  
19      where it was unclear whether or not the temporary rules  
20      were still in effect.

21                  MR. BRUCE: Okay.

22           Q.       (By Mr. Bruce) Mr. Mitchell, were Exhibits 1  
23      through 5 prepared by you or compiled from company  
24      business records?

25           A.       Yes, sir.

1 Q. Is the granting of this application in the  
2 interest of conservation and the prevention of waste?

3 A. Yes, sir.

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

6 EXAMINER BROOKS: One through 5 are  
7 admitted.

8 (Exhibits 1 through 5 were admitted.)

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

11 EXAMINER BROOKS: Well, I don't think I  
12 have any further questions of the witness, either.

13 When I drafted this order -- well, it's not  
14 relevant. I don't think I have any questions of this  
15 witness.

16 Mr. Jones?

17 EXAMINER JONES: So notice was sent to  
18 everybody within a mile that operated wells in --

19 MR. BRUCE: If they weren't within another  
20 Yeso pool. And there are some other Yeso pools to the  
21 north, especially. I think everything -- the only Yeso  
22 pool I know of, other than this one, would be to the  
23 north or northwest. And the wells are -- for instance,  
24 right at the very top of the map in Section 7 and Section  
25 6, those are Penasco Draw/San Andres/Yeso Pool, so we

1 didn't notify people like that.

2 EXAMINER JONES: And this Section 30 up  
3 here in -- to the right -- I'm sorry, I don't see the --  
4 okay -- Section 30, 1925; is that correct? Is that  
5 one -- that would be 1926. Those wells, are those not to  
6 be included in this pool?

7 MR. BRUCE: We just took the acreage that  
8 Mr. Kautz requested. Actually, I think if you go back --  
9 I'm not sure about the acreage in Sections 18 and 19, Mr.  
10 Examiner. But in Section 30 -- I'd have to go back and  
11 look. I actually think we requested that Section 30 be  
12 included, at Marbob's request, at the time. But it  
13 wasn't included, and I don't know why.

14 I could go check the files and make sure on  
15 that, and I can certainly expand the acreage accordingly.  
16 We don't have any objection to that.

17 EXAMINER JONES: There's going to be a big  
18 nomenclature hearing coming up, a huge one, I guess.  
19 It's finally going to hit the docket pretty soon, I  
20 think.

21 MR. BRUCE: I will check on those.  
22 Because we don't have any objection to expanding the pool  
23 to include additional acreage. But it was Marbob, I  
24 believe, who drilled those wells. And of course COG, its  
25 successor, was notified of the application.

1 THE WITNESS: That's correct. And I do  
2 think it was included in the original hearing that we  
3 had, and it's just accidentally not colored on this map.

4 EXAMINER JONES: But it's not in this  
5 Exhibit 2, probably?

6 MR. BRUCE: No. That was directly off the  
7 original order in the case.

8 EXAMINER JONES: I see. That was the  
9 original order.

10 And this other is the expansion, Exhibit 3?

11 EXAMINER BROOKS: This Section 30, was it  
12 in the order, or was it --

13 MR. BRUCE: It was not in the order. I  
14 think it was in my application.

15 EXAMINER BROOKS: It was in the  
16 application, but not in the order? Okay.

17 EXAMINER JONES: I have nothing further.

18 MR. BRUCE: And I have nothing further of  
19 the witness, either.

20 EXAMINER BROOKS: I have nothing further.

21 You may call your next witness.

22 MR. BRUCE: I call Mr. Lodge.

23

24

25

1 JASON LODGE

2 Having been first duly sworn, testified as follows:

3 DIRECT EXAMINATION

4 BY MR. BRUCE:

5 Q. Where do you reside, Mr. Lodge

6 A. Tyler, Texas.

7 Q. Who do you work for, and in what capacity?

8 A. Mewbourne Oil Company, as a petroleum  
9 geologist.

10 Q. Have you previously testified before the  
11 Division?

12 A. Yes.

13 Q. Were your credentials as an expert geologist  
14 accepted as a matter of record?

15 A. Yes, they were.

16 Q. Are you familiar with the geology involved in  
17 this application?

18 A. Yes.

19 MR. BRUCE: Mr. Examiner, I tender  
20 Mr. Lodge as an expert petroleum geologist.

21 EXAMINER BROOKS: He is so qualified.

22 Q. (By Mr. Bruce) Mr. Lodge, could you identify  
23 Exhibit 6 for the Examiner and maybe discuss a little bit  
24 regarding the pool?

25 A. This is a structure map of the area. It's

1 identical to your first exhibit but with structure on it  
2 now.

3 The structure is 20-foot contours on the top  
4 of the Yeso. It dips slightly to the southeast or east.  
5 Again, all the pink dots are Yeso producers. We have  
6 both horizontal and vertical producers in the pool.  
7 There's like four proration units that I've highlighted  
8 there that our engineer will testify to next.

9 And then my next exhibit has my cross-section  
10 line on there, as well.

11 Q. Is the pool continuous across the shaded blue  
12 area on this map?

13 A. Yes, it is.

14 Q. Let's move on to your Exhibit 7 and discuss  
15 the reservoir a little bit.

16 A. Sure. Exhibit 7 is a four-well cross-section  
17 that I put together. It's kind of going over the limits  
18 of the pool. It goes from the south to the north on the  
19 last exhibit.

20 These are all Yeso producers in the area. The  
21 red boxes are perfs, intervals that were perfed. My  
22 stratigraphic marker here is the pink marker on top of  
23 the Glorieta Formation, which is interbedded siltstone  
24 and dolomite. The first green marker is the top of the  
25 Yeso.

1           As you can see, the 15-L, the first well to  
2   the left, you can see this is a vertical well that we  
3   drilled, and it kind of shows how we produced the  
4   vertical wells. We usually did it in two stages. We  
5   fracked the bottom stage first and then come up and frack  
6   the second stage.

7           Also on the logs here I've shown our targets,  
8   Target A and Target B. Those are where we land our  
9   horizontals. Probably 90 percent of the wells we've  
10  drilled horizontally are landed at the Target A. And  
11  that's also Paddock. We just don't use that nomenclature  
12  in our company.

13           In general, we land it there. And we just try  
14  to find a porosity lobe in the dolomite and try to stay  
15  in that zone.

16           Q.    The reservoir does include both the Glorieta  
17  and the Yeso zones; correct?

18           A.    Yes.

19           Q.    And I notice that at least with the -- it  
20  appears in the vertical wells, you have been completing  
21  in both zones?

22           A.    Yes. We are not landing our horizontals  
23  there, but there are wells that are producing out of the  
24  Glorieta.

25           Q.    To the best of your knowledge, are most of the

1 horizontal wells in this pool completed in the Yeso?

2 A. Yes, they are.

3 Q. And in looking at this, you mentioned on  
4 Exhibit 6, kind of in the center of the plat, four units  
5 that are outlined in red. You mentioned our next witness  
6 will discuss those?

7 A. That's correct.

8 Q. I noticed in the -- from a geologic  
9 standpoint, I think you said this a tight reservoir?

10 A. It's a thick, tight reservoir, low  
11 permeabilities, which is why we're drilling horizontally.  
12 We've had a lot of success horizontally, more so than  
13 with our vertical wells.

14 Q. I notice that in these units, as the next  
15 witness will discuss, there are horizontal wells side by  
16 side with existing vertical wells; is that correct?

17 A. Yes, there are.

18 Q. And have the results of the horizontal wells  
19 been fairly good?

20 A. They have been, yes.

21 Q. Even right next to a well that's been  
22 producing for a while?

23 A. Yes, they have.

24 Q. Were Exhibits 6 and 7 prepared by you?

25 A. Yes.

1 Q. And in your opinion, is the granting of this  
2 application in the interest of conservation and the  
3 prevention of waste?

4 A. Yes, it is.

5 MR. BRUCE: Mr. Examiner, I move admission  
6 of Exhibits 6 and 7.

7 EXAMINER BROOKS: They are admitted.

8 (Exhibits 6 and 7 were admitted.)

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

11 EXAMINER BROOKS: Very good. I have no  
12 questions.

13 Mr. Jones?

14 EXAMINATION

15 BY EXAMINER JONES:

16 Q. So this is a horizontally-drilled pool?

17 A. Yes, both horizontal and vertical. We are  
18 only drilling horizontals now.

19 Q. Okay. But on the vertical wells, where did  
20 most of your production come from? Is it down -- is this  
21 Blinebry down here, or do you just call it Yeso?

22 A. We call it the Yeso. We have our own internal  
23 nomenclature. But yes, it is equivalent to Blinebry.

24 Q. This upper part between the two green lines is  
25 Paddock?

1           A.     Yes, sir.

2           Q.     How would you, as a geologist, describe  
3     Paddock versus Blinebry?

4           A.     It depends where you are in the pool.  
5     Porosities can be different, but both are productive.  
6     The Blinebry can be very productive, and we do plan to  
7     drill some horizontals in the Blinebry. We have two  
8     horizontals in the Blinebry, and they're very good wells,  
9     and then 25 are in the Paddock.

10                So in general, the Paddock is more porous than  
11     the Blinebry. But again, it just depends on where you  
12     are in the pool.

13          Q.     If you had to give a number to the Paddock  
14     porosity and permeability, what numbers would you use?

15          A.     Generally, 8 to 10 percent porosity, neutron  
16     porosity. Permeabilities are .1 millidarcies to 1  
17     millidarcy. It kind of depends. Some of the -- it's  
18     pretty heterogeneous, as dolomite reservoirs usually are.  
19     So there's some areas that have vuggy porosity, which is  
20     your higher perm areas, but they're not necessarily  
21     easily mapped.

22          Q.     Well, it seems like this is more difficult to  
23     interpret than Rocky Mountain stratigraphy, as far as  
24     identifying the shales and sand.

25          A.     Yeah. Log evaluations is pretty tough, as

1 well.

2 Q. But you like the mud logs a lot?

3 A. Yes. We rely heavily on mud logs.

4 That being said, we have perfered intervals with  
5 no show. As you can see on our 15-L well, we still put  
6 perfs where we didn't have an oil show.

7 Q. Does your frack engineer tell you to do that?

8 A. Usually. But we've run so many mud logs in  
9 the area, we know where we generally have show. So to  
10 not have show in an area is usually anomalous. So it  
11 could be attributed to a lot of things, a mud logger not  
12 paying as close attention as they should be.

13 Q. I'm sure the mud loggers worked pretty hard up  
14 there.

15 A. They do. We drill them very quickly. So  
16 they're catching samples and --

17 Q. Every 10 feet?

18 A. Yeah -- describing a lot.

19 Q. Do you see anything, as a geologist, that you  
20 have concern about as far as pressures of the drillers  
21 overweighting your mud or damaging your formation?

22 A. No, there's nothing I've seen. And I didn't  
23 state this earlier, but it is stratigraphically  
24 continuous throughout the pool, and there's no major  
25 faults that we know of in the area.

1 Q. They drill with a 9-pound mud?

2 A. I believe that's what we generally use. I  
3 think our engineer can --

4 Q. That's okay with you, the additives they use  
5 and --

6 A. Sure.

7 Q. You don't see damage from frack jobs or --

8 A. No, nothing I've seen.

9 EXAMINER JONES: Okay. I don't have any  
10 more questions. Thank you very much.

11 EXAMINER BROOKS: Thank you.

12 DREW ROBISON

13 Having been first duly sworn, testified as follows:

14 DIRECT EXAMINATION

15 BY MR. BRUCE:

16 Q. Mr. Robison, where do you reside?

17 A. Midland, Texas.

18 Q. Who do you work for, and in what capacity?

19 A. Mewbourne Oil Company, as a reservoir  
20 engineer.

21 Q. Have you previously testified before the  
22 Division?

23 A. Yes, I have.

24 Q. Were your credentials as an expert petroleum  
25 engineer accepted as matter of record?

1           A.     Yes, they were.

2           Q.     Are you familiar with the engineering involved  
3     in this application?

4           A.     Yes.

5                     MR. BRUCE:  Mr. Examiner, I tender Mr.  
6     Robison as an expert petroleum engineer.

7                     EXAMINER BROOKS:  He is so qualified.

8           Q.     (By Mr. Bruce)  Mr. Robison, first of all, in  
9     your exhibits, you're not analyzing every well in this  
10    pool; correct?

11          A.     No, I'm not.  I'm trying to pick a few  
12    highlights.  There's a lot of wells in the pool, so I  
13    tried to keep it brief.

14          Q.     Did you also pick certain wells that had been  
15    used in testimony in the original hearing?

16          A.     Yes, I did.

17          Q.     With that, let's start with Exhibit 8.  
18    Describe what it shows.  And maybe, if they've got the  
19    land plat out in front of them, identify the location by  
20    section of the wells you're talking about here.

21          A.     The first well is the Long Draw 4JL.  That is  
22    in Section 4 of 20/25.  It's actually not highlighted.  
23    But it's the 120-acre lateral in the north half/south  
24    half of Section 4.  This is one of the earlier wells that  
25    we drilled.

1           And this exhibit and the next exhibit are  
2 both -- I wanted to show these to show the reason for  
3 asking the 240-barrel-a-day allowable per 40 acres. So  
4 being -- this well, being 120 acres, will have then a  
5 720-barrels-of-oil-a-day allowable.

6           You can see that its peak month production  
7 was -- this is a monthly decline curve. The peak month  
8 was around 20,000 barrels, which is in the ballpark of  
9 the 720 barrels a day. So it shows that it's necessary  
10 to have that high allowable.

11           Also, the black lines is the GOR, and the  
12 scale for that is on the right. But you can see it  
13 initially was about a 500 scf per barrel GOR, and it  
14 climbed to a little over 1,000. But it's remained fairly  
15 constant ever since.

16           I also want to show you, even though we were  
17 producing at this high rate, that it's maintained a  
18 pretty steady decline and it's really still on curve.

19           Q.     And the GOR appears to be right around 1,000?

20           A.     That is correct. And that seems pretty common  
21 throughout the field, about 1,000 scf per barrel.

22           Q.     Exhibit 9, what well is involved in this  
23 exhibit?

24           A.     Exhibit 9 is a well originally drilled by  
25 Marbob. It's now operated by Concho. It was, I would

1 say, the first high-rate well in the field. It's located  
2 in Section 35 of 19/25. It's the west half of the  
3 southwest. It's an 80-acre lateral of Section 35.

4 You can see here, being 80 acres, it will have  
5 an allowable of 480 barrels of oil a day. You can see  
6 its peak rate was up around 15,000 barrels per month,  
7 which is roughly equivalent. So again, this was just to  
8 show the reasoning for what we initially asked.

9 And this well was testified to by Bryant  
10 Montgomery, not myself, for the reasons for that  
11 allowable in the original hearing.

12 Q. Again, the GOR has remained low during the  
13 life of this well?

14 A. That's right. It has slowly increased. But  
15 there's been no rapid increase, even at the high rates.  
16 Again, I forecasted the decline to show that it's pretty  
17 much on trend for what you would expect.

18 Q. What is Exhibit 10?

19 A. Exhibit 10 is -- what I've done here, these  
20 next four exhibits are the ones that highlighted the  
21 proration units. And this one combines the 240s in the  
22 east half/northeast of Section 10.

23 There we had two vertical wells that we  
24 produced. And then we've come back subsequently and  
25 drilled a horizontal in that same proration unit and

1 created an 80-acre project area, so now these all share  
2 an allowable.

3 But I've highlighted where these different  
4 wells have come on. But it's just a production versus  
5 time plot, a combined production versus time plot for all  
6 the wells in that highlighted area.

7 This is monthly production. So you can see  
8 the initial well, the 10A, located in unit letter A, and  
9 it's -- this is a vertical well. Its initial month was  
10 close to 6,000 barrels, so well over the statewide  
11 allowable.

12 Then the second well was drilled, and it was  
13 also over allowable as a vertical well. And you can see  
14 the GOR is the purple curve, and it remained relatively  
15 flat, at about 1,000. And then we recently, about a year  
16 ago, drilled a horizontal along the east side of that  
17 80-acre tract. And you can see the jump in production  
18 and the subsequent -- and the GOR pulling down back to  
19 where it originally was, showing there was no damage.  
20 These wells weren't draining the entire 40 acres.

21 Q. So one vertical well per 40 was not draining  
22 the 40 acres?

23 A. That's correct.

24 Q. And once again, the GOR still remains right  
25 around 1,000; does it not?

1           A.     That's correct.

2           Q.     Let's move on to the next infield well  
3     scenario, Exhibit 11.

4           A.     The next three wells are all 160-acre  
5     laterals. And we've just recently drilled horizontals in  
6     between them, so I went to daily production, since  
7     there's not as much history. So these are all daily oil  
8     rates and daily gas rates. Then the GOR curve is again  
9     in purple.

10                 You can see -- again, I've highlighted where  
11     the wells came on line. And this is the 10 NC, which is  
12     the east half/west half of Section 10, that's  
13     highlighted. So we had a well in every 40, a vertical  
14     well, and they were all high-rate wells. You can see at  
15     an 80-barrel-a-day allowable, they were well above that,  
16     each one.

17                 So we produced these wells as just vertical  
18     wells for approximately three years before we've now come  
19     in and drilled horizontal in between them. When we  
20     complete the horizontals, we try to space around the  
21     wells, not to communicate with existing producing wells.  
22     We have a good idea of the frack orientation, so we  
23     project in the frack orientation and space our ports. We  
24     essentially skip a port where that vertical well is and  
25     try to drain the rock in between the vertical wells. You

1 can see we're getting quite a bit of incremental reserves  
2 with these horizontals.

3 Again, the GORs remain relatively flat for the  
4 vertical wells. And then when the horizontal was  
5 drilled, the GOR actually -- the combined GOR actually  
6 pulled back down to show that there was a lot of untapped  
7 reserves.

8 Q. And Exhibit 12?

9 A. Exhibit 12 is again the same thing. This one  
10 is the east half/east half of Section 9. Again, we had  
11 very good vertical wells drilled in each 40, and I've  
12 just combined the production.

13 And you can see, within the last couple of  
14 months, we drilled a horizontal. It's a similar  
15 scenario. The GOR was about 1,000, remaining pretty  
16 flat. And then the new well came on, and the GOR pulled  
17 back down to kind of your initial solution GOR.

18 Q. And Exhibit 13?

19 A. Again, it's the same thing. This is the south  
20 half/south half of Section 4 that's highlighted. In this  
21 instance, we only had three wells. So we had one 40 that  
22 had never been drilled, and it's a similar case.

23 These vertical wells aren't quite as good. We  
24 were really right at the allowable and not over it on the  
25 vertical wells. But the GOR remained pretty flat, about

1 1,000, until this new well came on. And the new well is  
2 making a couple 100 barrels of oil a day, relatively  
3 flat.

4 That's another thing you can see, the  
5 difference in decline shades between the verticals and  
6 horizontals. The horizontals have a lot flatter of  
7 decline.

8 Q. In your opinion, is the 240-barrel-a-day  
9 allowable for a 40-acre well unit still necessary?

10 A. Yes, it is.

11 Q. And it appears, from what you've testified,  
12 that it's necessary for some of the -- some newer wells  
13 coming in could still reach that allowable?

14 A. That's correct.

15 Q. And also, when you have two, three or four or  
16 even five wells on a well unit, you would need it because  
17 of the incremental production from each of those wells?

18 A. That's correct. As Jason testified to, you  
19 saw there was multiple intervals that we've drilled  
20 horizontals in. So we're still experimenting with the  
21 idea of putting a horizontal in each 160 acres in that  
22 upper zone, the Paddock, and then one in the lower, in  
23 the Blinebry. So you may have multiple horizontals  
24 producing at the same time in the same proration unit,  
25 along with existing vertical wells that are all sharing

1 an allowable.

2 Q. Finally, Exhibit 14, what does that reflect?

3 A. This is just the combined GOR plots from the  
4 four previous exhibits. I just wanted to show how  
5 consistent the GORs were. I mean they are somewhat  
6 erratic when you look at them at daily values. But  
7 overall, they're fairly consistent over these few  
8 sections that we've looked at.

9 Q. In your opinion, is the granting of this  
10 application in the interest of conservation and the  
11 prevention of waste?

12 A. Yes, it is.

13 Q. And were Exhibits 8 through 14 prepared by you  
14 or under your supervision?

15 A. Yes, they were.

16 MR. BRUCE: Mr. Examiner, I move the  
17 admission of Exhibits 8 through 14.

18 EXAMINER BROOKS: Eight through 14 are  
19 admitted.

20 (Exhibits 8 through 14 were admitted.)

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

23 EXAMINER BROOKS: I have no questions.

24 Mr. Jones?

25

## EXAMINATION

1

2 BY EXAMINER JONES:

3 Q. It all looks really logical. I was just going  
4 to ask if you know what the -- if you can estimate what  
5 the initial pressure is out there?

6 A. We really don't. We think it's probably  
7 normal pressures. I mean it's probably -- just by using  
8 normal gradients and the depth, it's probably 1,100 to  
9 1,200 pounds bottomhole pressure.

10 Q. So your drilling people will tell you the same  
11 thing, probably?

12 A. Yes. It being relatively tight rock, we don't  
13 have issues with higher mud weights. But you were right  
14 earlier. We're about a 9-pound mud weight. We typically  
15 set intermediate casing to the top of the Yeso, so we  
16 don't have any of the shallow formations to deal with,  
17 loss circulation.

18 Q. So if you set intermediate, you could almost  
19 drill with low mud rates and see what happens?

20 A. That's right, you could.

21 Q. And in these high-density areas that you've  
22 highlighted for this demonstration, do you have any idea  
23 how fast the pressure is being drawn down in the  
24 reservoir? Or do you think it's just a case that it's --  
25 because it's such a big vertical section and not draining

1 very much because of the -- it's just not affecting a  
2 whole lot of the reservoir?

3 A. That's correct. I think the pressure drawdown  
4 is very localized. The vertical wells, just calculating  
5 drainage, are, on average, about 10-acre drainage areas.  
6 So we still, in an average 40, we have another 30 acres  
7 to drain.

8 So we're spacing our ports accordingly and  
9 trying to say 330 feet off that projected frack plane and  
10 put four ports per 40 acres in each horizontal. Then  
11 each port will represent a vertical well.

12 Q. Can you look at your logs, and can you  
13 resolute the calculation of volumetric reserves with your  
14 decline curves? Have you done that?

15 A. We've tried to. It's very difficult. Trying  
16 to identify what is pay is difficult. And as he said,  
17 log evaluation is tough.

18 But in general, there's a lot of recoverable  
19 reserves out here. And we're finding, as you can see,  
20 with the infield horizontals, that the vertical wells  
21 were not doing the job. So we may even take that a step  
22 farther and drill more horizontals in each 160.

23 Q. Do you think it's because of maybe some of the  
24 stuff that looks like shale is really just uranium or  
25 something? In other words, there's some -- affected

1     porosity is closer --

2             A.     Yes.

3             Q.     The total porosity is probably what you ought  
4     to look at, instead of trying to degrade it with some  
5     kind of shale effect or something?

6             A.     Yes, I think you're correct. We've seen some  
7     of that on the log data and core data.

8             Q.     And your frack sand, do you see it coming back  
9     on in your production?

10            A.     A little bit. We do slick water fracks in  
11     this area, so it's relatively low concentrations of sand.  
12     We're not looking for conductivity with the sand. The  
13     sand is mainly in place for diversion.

14                    So our overall concentration per stage is only  
15     about half a pound per gallon, so it's relatively low.  
16     Then we overflush each stage, so we don't see much. We  
17     see a little bit in the wellbore. But overflushing has  
18     definitely helped, and it didn't hurt our results at all.

19            Q.     You're okay with low concentration in the  
20     overflushing?

21            A.     Yes. It goes against kind of your fundamental  
22     reservoir engineering and completion engineering. But  
23     we've tried different wells with higher concentrations of  
24     sand, and we ended up spending a lot more money and  
25     getting the same results. So we've opted for these lower

1 concentrations of sand and cleaner fluid.

2 Q. Maybe, because you're so shallow here, you  
3 don't have to drop it so much or something. Maybe you  
4 can revitalize it with the big slick water jobs or  
5 something?

6 A. I think so. Being a carbonate, I think it  
7 tends to do that.

8 Q. You're pumping these -- it's rod pumps in the  
9 horizontals, 500 feet up?

10 A. That's correct. Either a rod pump --  
11 traditional rod pumper. We run progressive cavity pumps  
12 also, which is just a higher rate pump.

13 Q. Are those working out okay?

14 A. They are.

15 Q. They'll handle sand, too, won't they?

16 A. They will.

17 Q. Have you tried drilling right by a big  
18 vertical well so you can put your pump in the vertical  
19 well and produce it further down the hole?

20 A. We have not tried that or have not planned on  
21 doing that. But we've drilled by quite a few vertical  
22 wells, though.

23 Q. So do you see GOR at around a thousand?

24 A. Yes. It seems really, across the field, to be  
25 remaining pretty constant. Even if you look at a

1 combined plot of the entire field, it's just -- since the  
2 first well was drilled, it's remained at roughly 1,000.

3 EXAMINER JONES: Thank you very much.

4 EXAMINER BROOKS: Thank you.

5 MR. BRUCE: I have no further witnesses.

6 EXAMINER BROOKS: Very good. Is there  
7 anything further in the case?

8 MR. BRUCE: The only thing is,  
9 Mr. Examiner, I've slightly misspoken. Regarding the  
10 west half of Section 30 of 19 South, 26 East, it's not  
11 officially included in the pool.

12 I did not include it in the original  
13 application. But at the time of the hearing, COG  
14 requested that we include it in the pool. And we did  
15 make a verbal request, but that didn't translate to the  
16 order. Those were the wells you were talking about in  
17 the far east of the field. So we did make a verbal  
18 request at the hearing. So as part of my amendment, I'll  
19 probably ask that that be included in the pool.

20 EXAMINER BROOKS: That will be good.  
21 You'll get all that wrapped up in your supplemental  
22 notice?

23 MR. BRUCE: That is correct.

24 EXAMINER BROOKS: Very good. Case Number  
25 14554 will be continued until September the 6th.

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

**PAUL BACA PROFESSIONAL COURT REPORTERS**

Heard by me on \_\_\_\_\_

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Examiner

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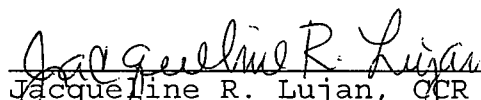
## REPORTER'S CERTIFICATE

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I, JACQUELINE R. LUJAN, New Mexico CCR #91, DO  
HEREBY CERTIFY that on August 9, 2012, the proceedings in  
the above-captioned case were taken before me and that I  
did report in stenographic shorthand the proceedings set  
forth herein, and that 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 20th day of August, 2012.

  
Jacqueline R. Lujan, CCR #91  
Expires: 12/31/2012