

1 STATE OF NEW MEXICO  
 2 ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
 3 OIL CONSERVATION DIVISION  
 4 IN THE MATTER OF THE HEARING CALLED  
 5 BY THE OIL CONSERVATION DIVISION FOR  
 6 THE PURPOSE OF CONSIDERING:  
 7 APPLICATION OF COG OPERATING, LLC, Case No. 14613  
 8 FOR SPECIAL RULES,  
 9 EDDY AND LEA COUNTIES, NEW MEXICO

10 TRANSCRIPT OF PROCEEDINGS  
 11 EXAMINER HEARING

12 BEFORE: RICHARD EZEANYIM, Technical Examiner  
 13 DAVID K. BROOKS, Legal Examiner

14 May 17, 2011

15 Santa Fe, New Mexico

16 This matter came on for hearing before the New  
 17 Mexico Oil Conservation Division, RICHARD EZEANYIM,  
 18 Technical Examiner, and DAVID K. BROOKS, Legal  
 19 Examiner, on Tuesday, May 17, 2011, at the New  
 20 Mexico Energy, Minerals and Natural Resources  
 21 Department, 1220 South St. Francis Drive, Room 102,  
 22 Santa Fe, New Mexico.

23 REPORTED BY: PAUL BACA, CCR #112  
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 25 500 4th Street, NW, Suite 105  
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1           LEGAL EXAMINER BROOKS: The COG Apache  
2 group has 8 hours and 35 -- 34 minutes remaining,  
3 and the Burnett/Hudson group has 3 hours and 42  
4 minutes remaining.

5           TECHNICAL EXAMINER EZEANYIM: We will call  
6 the hearing back to order now.

7           I'm going on the record. I'm not going to  
8 read the cases again. It's on the record the cases  
9 we are dealing with.

10           Today, now, we are going to go to  
11 Burnett/Hudson's witnesses. It's about 8:35 in the  
12 morning. So at this point, if there are no comments  
13 from anybody from what we did yesterday, I really  
14 want to congratulate you for -- you did excellent  
15 yesterday. That means we are going to finish today  
16 so everybody can go about their business. I'd like  
17 to streamline, instead of fighting here for years  
18 and coming back. So for what we did yesterday, I'm  
19 very proud of you guys.

20           At this point, if there is no comment, I  
21 will call on counsel for their appearance on  
22 Burnett/Hudson to present your first witness.

23           MR. CAMPBELL: Good morning, Your Honor.  
24 I'm Michael Campbell appearing for Burnett/Hudson.  
25 We have three witness, the first of whom is John

1 Haiduk.

2 LEGAL EXAMINER BROOKS: We'll begin at  
3 8:36.

4 TECHNICAL EXAMINER EZEANYIM: Mr. Haiduk,  
5 you were sworn in yesterday, so you are still under  
6 oath.

7 THE WITNESS: Yes, sir.

8 JOHN HAIDUK,  
9 after having been first duly sworn under oath,  
10 was questioned and testified as follows:

11 EXAMINATION

12 BY MR. CAMPBELL:

13 Q. Good morning, Mr. Haiduk. Would you state  
14 your name and your current occupation?

15 A. My name is John Haiduk. I am a petroleum  
16 geologist. My current position is geological  
17 manager for Burnett Oil Co., Inc.

18 Q. Would you please provide the Examiners  
19 with a brief background of your education and  
20 experience as a petroleum geologist?

21 A. I hold bachelor's and master's degrees  
22 from Oklahoma State University in geology.

23 I have been employed as a petroleum  
24 geologist -- this is my 29th year. I've spent the  
25 last 11 and a half years with Burnett Oil Co., Inc.

1 Prior to that I was with EOG Resources.

2 I also spent time with Pickett in Ardmore,  
3 Oklahoma, and the Gungor family in Enid and Oklahoma  
4 City, Oklahoma.

5 Q. Have you testified before this division  
6 before?

7 A. No, sir.

8 Q. Are you familiar with the COG application  
9 in case 14613 and the Burnett/Hudson application in  
10 case 14647?

11 A. Yes, sir.

12 Q. As a petroleum geologist for Burnett, have  
13 you prepared certain exhibits pertinent to those two  
14 applications?

15 A. Yes, sir, I have.

16 MR. CAMPBELL: Mr. Examiner, we'd tender  
17 Mr. Haiduk as an expert in the field of petroleum  
18 geology.

19 TECHNICAL EXAMINER EZEANYIM: Could you  
20 examine for the -- your educational -- your  
21 education? I was not paying attention. Since this  
22 is your first qualification to the division could  
23 you go, you know, further and tell me further  
24 qualifications or certifications?

25 THE WITNESS: Again, I hold a bachelor's

1 and a master's degree in geology from Oklahoma State  
2 University.

3 TECHNICAL EXAMINER EZEANYIM: And your  
4 work experience?

5 THE WITNESS: 28 -- 28 full years.

6 TECHNICAL EXAMINER EZEANYIM: Okay. Are  
7 you a certified petroleum geologist?

8 THE WITNESS: No, I'm not.

9 TECHNICAL EXAMINER EZEANYIM: You worked  
10 for 28 years, right?

11 THE WITNESS: That's correct.

12 TECHNICAL EXAMINER EZEANYIM: He's  
13 qualified to testify at this time.

14 MR. CAMPBELL: Thank you.

15 Q. (By Mr. Campbell) We have 16 exhibits to  
16 run through here, Mr. Haiduk.

17 Could you identify and explain the purpose  
18 of Burnett/Hudson Exhibit Number 1?

19 A. This is a pool outline map of the  
20 consolidated area in the shelf area of Southeast  
21 New Mexico. You can see in the red line there that  
22 this is Burnett/Hudson's proposed area of pool  
23 consolidation, and the various colored lines  
24 represent the approximate boundaries of the current  
25 pools, Yeso pools.

1 Q. Could you identify for the record the name  
2 of the six pools for which Burnett/Hudson seeks  
3 consolidation?

4 A. That would be the Loco Hills Glorieta  
5 Yeso, the Cedar Lake Glorieta Yeso, the Friend  
6 Glorieta Yeso, the Friend Glorieta East Yeso, the  
7 Maljamar Yeso West, and the Maljamar Paddock North.

8 Q. Now, other than those six identified  
9 pools, which are the subject of Burnett/Hudson's  
10 application in Case 14647, does Burnett/Hudson offer  
11 any position or opposition to the application of COG  
12 with respect to the six pools left in their Case  
13 Number 14613?

14 A. No. I believe that the Dodd Federal unit  
15 and the Grayburg-Jackson Seven Rivers have already  
16 been excluded.

17 Q. Correct. Could you identify Exhibit  
18 Number 2?

19 TECHNICAL EXAMINER EZEANYIM: Before you  
20 do that, I needed to make a clarification for the  
21 record.

22 We have six pools. We had this prehearing  
23 conference on Wednesday, and there was an objection  
24 to the West Maljamar North being included in that  
25 consolidation. And we reached an agreement we can

1 deal with the other five, excluding that.

2 Correct me if I'm wrong. Is that what we  
3 reached on Wednesday?

4 MR. CAMPBELL: I think, clearly, that COG  
5 withdrew opposition to consolidation of five of  
6 those pools.

7 TECHNICAL EXAMINER EZEANYIM: Yes. There  
8 is -- we have five of those. But now, if you're  
9 adding that, the Maljamar North, I don't know  
10 whether that's -- because I want to make clear  
11 what's going on, so we know what's going on.

12 MR. CAMPBELL: We have maintained that the  
13 single pool to which they object should be  
14 consolidated.

15 TECHNICAL EXAMINER EZEANYIM: Okay.

16 MR. CAMPBELL: They are opposing that.  
17 But we will illustrate that that sixth pool ought to  
18 be included.

19 LEGAL EXAMINER BROOKS: And is that the  
20 North Maljamar/Paddock?

21 TECHNICAL EXAMINER EZEANYIM: Yeah, the  
22 Maljamar --

23 MR. CAMPBELL: I thought they objected to  
24 the Maljamar Yeso West.

25 MS. MUNDS-DRY: Correct.

1 TECHNICAL EXAMINER EZEANYIM: Okay. The  
2 Maljamar Yeso West.

3 LEGAL EXAMINER BROOKS: Okay. So it's the  
4 West Maljamar Yeso that COG --

5 TECHNICAL EXAMINER EZEANYIM: If you are  
6 objecting to that --

7 MS. MUNDS-DRY: That is correct. We are  
8 objecting to that pool being consolidated with the  
9 other five pools.

10 LEGAL EXAMINER BROOKS: That's because it  
11 already has a special pool order on gas, right?

12 MS. MUNDS-DRY: That, and it's unclear to  
13 us that Burnett/Hudson have any interest in that  
14 pool.

15 LEGAL EXAMINER BROOKS: Okay.

16 MR. CAMPBELL: But we -- we still are  
17 urging, through our presentation, the consolidation  
18 of that pool with the other five, to which there is  
19 no opposition.

20 TECHNICAL EXAMINER EZEANYIM: Oh, yeah.  
21 Yes, that's not a problem. I mean actually, you  
22 shouldn't even go -- be going to consolidation.  
23 That has been done.

24 LEGAL EXAMINER BROOKS: And what is your  
25 position with regard to interest? I thought that --

1 you know, that should be fairly objective whether  
2 you do or don't have an interest in the pool.

3 MR. CAMPBELL: We are seeking  
4 consolidation there because we have the offset  
5 tracts.

6 LEGAL EXAMINER BROOKS: So you -- your --  
7 you own tracts within one mile of the exterior  
8 boundaries of that pool?

9 MR. CAMPBELL: Yes, sir.

10 LEGAL EXAMINER BROOKS: Okay.

11 TECHNICAL EXAMINER EZEANYIM: Okay. So  
12 you are right. You know, what you're saying is  
13 right. We don't want to go there. That is already  
14 done. Those five pools will be consolidated.  
15 They're already consolidated because there is no  
16 objection, and there were notices, and nobody  
17 objected. The people who have been objecting are on  
18 notification on those five pools. Now it's only on  
19 the sixth pool.

20 And remember now, Counsel, whenever we  
21 develop a special pool it's going to encompass all  
22 the pools without consolidation or not. So I want  
23 to make it so that we don't go back now, and then  
24 this will spill over into Friday.

25 MR. CAMPBELL: I'm not intending to do

1 that, Mr. Examiner.

2 TECHNICAL EXAMINER EZEANYIM: Okay.

3 Because I said I don't want -- consolidation has  
4 already been done. We are going to consolidate  
5 those five pools.

6 MR. CAMPBELL: Yes, sir.

7 TECHNICAL EXAMINER EZEANYIM: I mean I  
8 tell you right now, but not including the sixth  
9 pool, because there is no objection to that.

10 Do you see what I'm trying to say? So we  
11 might go to those three issues unless you see one to  
12 give us evidence to say that that sixth pool should  
13 be consolidated with the five, that -- you know,  
14 concrete evidence.

15 Do you see what I'm trying to say here?

16 MR. CAMPBELL: Yes.

17 TECHNICAL EXAMINER EZEANYIM: Because I  
18 don't want us to, you know, go back to square one  
19 and then --

20 MR. CAMPBELL: Well, we are seeking the  
21 application of the special pool rules that we seek  
22 for the five agreed-to pools --

23 TECHNICAL EXAMINER EZEANYIM: Yes.

24 MR. CAMPBELL: -- to apply a mile from the  
25 boundary --

1 TECHNICAL EXAMINER EZEANYIM: Yes, you  
2 should.

3 MR. CAMPBELL: -- into that Maljamar West.

4 TECHNICAL EXAMINER EZEANYIM: Yes.

5 MR. CAMPBELL: Okay.

6 TECHNICAL EXAMINER EZEANYIM: Yeah, you  
7 should, yeah.

8 MS. MUNDS-DRY: Mr. Examiner, excuse me  
9 for interrupting.

10 This witness was qualified as a geologist,  
11 and this appears to be several land exhibits. Maybe  
12 if I could take the witness on voir dire, maybe I  
13 can understand how he is qualified to present these  
14 land exhibits.

15 LEGAL EXAMINER BROOKS: Is there any  
16 controversy about the land exhibits? I mean...

17 MS. MUNDS-DRY: Well, we do have some  
18 questions about them.

19 LEGAL EXAMINER BROOKS: Okay. Well, we  
20 will put it on your time, then.

21 MS. MUNDS-DRY: Okay.

22 VOIR DIRE EXAMINATION

23 BY MS. MUNDS-DRY:

24 Q. Good morning, Mr. Haiduk. My name is  
25 Ocean Munds-Dry.

1 A. Good morning.

2 Q. I represent Concho.

3 I see here, for example on Exhibit  
4 Number 1, that you have presented certain pool  
5 boundaries.

6 A. Yes.

7 Q. Were you responsible for creating this  
8 exhibit?

9 A. My assistant was, under my direction.  
10 These were taken directly from maps provided to us  
11 by the OCD.

12 Q. And so someone that works for you created  
13 this map?

14 A. That's correct.

15 Q. And you've indicated that the source is  
16 from the OCD?

17 A. As much updated as we possibly could. I  
18 think you will see at the bottom that it should have  
19 been on there that operating areas and pool  
20 boundaries are approximate, because we were told by  
21 Mr. Kautz of the OCD that he did not have fully  
22 updated maps of some of the pools.

23 Q. So if I understand correctly, you or  
24 someone who works for you spoke to Mr. Kautz about  
25 these pool boundaries?

1 A. Burnett personnel did, yes, extensively.

2 Q. Okay. And this is what they told you and  
3 what is reflected on this map?

4 A. That is correct.

5 Q. And is that the case for the next several  
6 land exhibits that you are about to present?

7 A. The traces of the outlines?

8 Q. Yes, sir.

9 A. Of the pool boundaries? Yes.

10 MS. MUNDS-DRY: Okay.

11 Thank you, Mr. Brooks.

12 LEGAL EXAMINER BROOKS: Okay. Thank you.

13 TECHNICAL EXAMINER EZEANYIM: Sorry,

14 Mr. Campbell. I just feel I -- I'm sorry to  
15 interrupt, but I need to do this so that we know  
16 where we're going.

17 MR. CAMPBELL: Certainly.

18 TECHNICAL EXAMINER EZEANYIM: I don't want  
19 to stray back now and then we're not getting  
20 confluent -- I'm sorry about that.

21 MR. CAMPBELL: That's all right.

22 May we resume?

23 TECHNICAL EXAMINER EZEANYIM: Yes. Sure.

24 Go ahead.

25

## FURTHER EXAMINATION

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BY MR. CAMPBELL:

Q. Could you identify and state the purpose, Mr. Haiduk, of Burnett/Hudson Exhibit 2?

A. This just expands upon the previous exhibit. What we're trying to demonstrate here is the basic areas of operation of each of the significant operators in the area of the proposed area pool consolidation.

Q. And can you identify on Exhibit 2 which acreage and operatorship belongs to Burnett/Hudson?

A. That is the yellow acreage here (indicating). And we also have leasehold here (indicating), but operations have not been assigned yet.

I would like to take this opportunity to maybe clarify something that was said yesterday in the opening statements.

I believe Mr. Grable said that our Loco Hills lease was acquired in 1998. That is only a small portion of the lease that we took as a farmout and have developed from EOG Resources. The bulk of that, the majority -- the vast majority of this acreage over in the Loco Hills area in 17 South, 30 East is the legacy Burnett property which we have

1 had in the family since the 1940s.

2 Q. All right. Thank you for that  
3 clarification.

4 Could you identify and state the purpose  
5 of Burnett/Hudson Exhibit 3?

6 A. This is a map showing current operators by  
7 well, again trying to follow the same color code.  
8 We have the individual wells at this time instead of  
9 just blocks of acreage. Again, it shows the  
10 proposed area of pool consolidation and the pool  
11 boundaries as on the previous maps.

12 Q. How many wells has Burnett/Hudson drilled  
13 in the six -- in the five pools subject to this  
14 application?

15 A. Approximately 85.

16 Q. Has Burnett/Hudson, in these consolidated  
17 proceedings, other than core data, tendered to COG  
18 and Apache all of the data Burnett/Hudson has  
19 obtained with respect to each of these wells?

20 A. I believe the only thing that we withhold  
21 is core data and FMI data, XRMI data, which is the  
22 well bore imaging log that we -- that we hold  
23 confidential. Any -- any dip majors we would hold  
24 confidential, which is another type of log.

25 Q. Other than those exceptions, have you

1 provided Burnett/Hudson -- excuse me -- have you  
2 provided Concho and Apache with all of  
3 Burnett/Hudson's data?

4 A. Yes.

5 MR. COONEY: Excuse me, Mr. Hearing  
6 Officer. I hate to interrupt, but I've asked  
7 Mr. Campbell two or three times to send me the data  
8 produced in response to the subpoena served by COG,  
9 and I don't believe I've received it.

10 MR. CAMPBELL: Well, I will check again at  
11 the break. I've sent it to -- Ocean clearly has it.

12 MR. COONEY: Right, I understand.

13 MR. CAMPBELL: And whatever I sent to  
14 Ocean, I sent to you, but I'll double-check.

15 MR. COONEY: Thank you.

16 TECHNICAL EXAMINER EZEANYIM: Okay.

17 Q. (By Mr. Campbell) Could you identify and  
18 explain the purpose of Exhibit 4?

19 A. This is just a more regional map showing  
20 the same area, but encompassing much more.

21 Again, you see the pool boundaries in  
22 here, and I know they are quite faint. And the COG  
23 application is in the navy blue right here  
24 (indicating). Their consolidated -- the proposed  
25 area of consolidation of pools. I don't know if I'm

1 saying that right or not. It's just their COG  
2 application area.

3 It also shows some of the other Yeso pool  
4 boundaries and wells as you go on to the southwest  
5 along the Yeso fairway trend.

6 Q. What is Exhibit 5?

7 A. This is a stratigraphic chart.  
8 Highlighted in this column is the stratigraphic  
9 chart for the northwest shelf area of New Mexico,  
10 which this area covers.

11 What I've got highlighted in the -- in the  
12 pink here is the Glorieta formation and the Yeso  
13 formation and the four members of the Yeso formation  
14 from the top down, being the Paddock, Blinebry,  
15 Tubb, and Drinkard.

16 Q. Okay. Thank you.

17 Could you identify Exhibit 6?

18 A. This is a -- productive trends in the Yeso  
19 Clear Fork. The Clear Fork is the equivalent of the  
20 Yeso as you cross the border into Texas. Of course  
21 this is a Permian Basin map. We just wanted to show  
22 the commission the extensive outline of this  
23 particular trend.

24 Q. Exhibit 6 identifies a cross-section, A to  
25 A prime. Is that cross-section identified in

1 Exhibit 7?

2 A. It is. It's a diagrammatic cross-section  
3 basically showing the depositional nature of the  
4 Yeso and adjacent strata, the Yeso being here  
5 (indicating) in yellow, the top boundary being the  
6 base of the Glorieta, the lower boundary being a --  
7 the top of the Abo formation.

8 Q. Thank you.

9 Could you identify and state the purpose  
10 of Exhibit 8?

11 A. Again, this is for demonstrative purposes  
12 to -- this is a type log basically showing the four  
13 members of the Yeso formation. You see the Yeso  
14 formation is here (indicating), base of the  
15 Glorieta. Here (indicating) is the Glorieta  
16 formation. The San Andres formation lies above  
17 that. And between the base of the Glorieta and the  
18 top of the Abo is the Drinkard, at the base, and  
19 Tubb, the Blinebry, and the Paddock members of the  
20 Yeso formation. Over here (indicating), you can see  
21 we've designated this as the interval of requested  
22 consolidated pools.

23 Q. Thank you.

24 Could you identify and state the purpose  
25 of Exhibit 9?

1           A.     This is a Yeso structure map covering the  
2     area that we propose for the pool consolidation.  
3     Basically, this is a structure map on the top of the  
4     Yeso with 50-foot contra-intervals. You can see  
5     over here in this highly developed area is up dip --  
6     is the up-dip portion within the pool boundaries.  
7     And as you head towards the east, you become --  
8     going down structure as much as 5- or 600 feet. So  
9     you are going down dip towards the east.

10           You have a strong structural south dip on  
11     the south edge of the pool. This is where the Yeso  
12     appears to be wet, based on well tests in the area.

13           Q.     What is Exhibit 10?

14           A.     If you will go back to the previous map  
15     for just a moment, Mr. Campbell, I'll show this line  
16     of cross-section. And it's still hard to see on  
17     here, but this is a cross-section which goes from A  
18     to A prime which covers most of the area that we're  
19     proposing. It's a six-well cross-section from this  
20     well (indicating), this well (indicating), this well  
21     (indicating), and through some of the Yeso  
22     productive trend. And that's what this next  
23     Exhibit 10 is, is those wells on this cross-section.

24           Again, you can see the cross-section is  
25     hung on the top of the Glorieta on the green line.

1 This is a stratigraphic cross-section. We've used  
2 book density logs with gama ray track, book density  
3 in this one to do the correlations with. But  
4 basically, you're showing just a -- we're showing  
5 just the Paddock and Blinebry members and the  
6 Tubb -- top of the Tubb member at the base.

7 This is the area that we're most  
8 interested in, because this is where the producing  
9 reservoirs are. And the cross-section here is  
10 basically to show the continuation of the reservoirs  
11 across the area of this pool consolidation.

12 Q. What is Exhibit 11?

13 A. This is the first in a series of what we  
14 call vintage operator maps. Now, we're going to  
15 take intervals of time and show the commission  
16 the -- how the activity in the Yeso has gone on over  
17 those incremental times. And it will be a  
18 cumulative-type map, so the wells that were drilled  
19 previous to that were also going to be added on each  
20 time, so you see the ongoing development as time  
21 goes on.

22 Q. Exhibit 11 illustrates the vintage 1990 to  
23 2000?

24 A. That's correct.

25 And then the -- what you can see on here

1 is that the two dominate operators, here  
2 (indicating) in the purplish color, is Mack Energy,  
3 and in the lighter blue color is Marbob. Burnett  
4 has got a couple of wells in there that are kind of  
5 hard to see, but we really hadn't started  
6 development yet.

7           You can see the -- that most of the  
8 activity has gone on through here (indicating).  
9 There was a little bit of, I believe, activity also  
10 in this (indicating) particular area in the Friend  
11 Glorieta Yeso field, and over here (indicating) in  
12 the Maljamar Yeso West area.

13           Q.     Most of the concentrated area was to the  
14 west?

15           A.     That is correct. West of the Burnett Loco  
16 Hills acreage block.

17           Q.     Exhibit Number 12, then, is the vintage  
18 2001 to 2005?

19           A.     That is correct. As you can see again,  
20 this is a cumulative map, so we're showing wells  
21 that were drilled between 1990 and 2000 on this  
22 well -- on this map, as well as the wells from 2001  
23 to 2005.

24                    Again, much increased activity. Again,  
25 Marbob and Mack Energy leading the way. You can see

1 the Burnett acreage is in -- started to be in full  
2 development right through here (indicating). But  
3 again, as we go forward, you see really a blast of  
4 drilling in the next vintage section.

5 Q. Again, this vintage 2001 to 2005 would  
6 appear to concentrate drilling on the western side?

7 A. Yes, it does. However, there again, as we  
8 see in this particular 17/31, we're beginning to see  
9 a lot of activity in this particular area as well.

10 Q. Exhibit Number 13, then, is the vintage  
11 2006 to 2008. Would you state your observations  
12 relative to that exhibit?

13 A. During this time frame a new operator has  
14 kind of hit the -- has hit the ground running in  
15 through here (indicating). Based on our knowledge  
16 of the area and activities in New Mexico, Mack  
17 Energy was acquired by COG, and those wells that  
18 were operated by Mack are now -- were then taken  
19 over by COG, and they're represented by these  
20 burgundy dots. And you can also see that there was  
21 definitely a lot of drilling, a lot of going in on a  
22 10-acre spacing in this area by COG.

23 Q. And much of that 10-acre spacing, again,  
24 to the west?

25 A. Yes, it is.

1           The activity over here (indicating) in the  
2 Maljamar Yeso West appears to be, for the most part,  
3 still on 20-acre development during this time frame.

4           Q.     The final vintage chart is Exhibit 14.  
5 Would you explain that?

6           A.     Again, this is the last two years of  
7 activity. Again, even more increase in activity in  
8 this particular area, while -- another thing has  
9 happened.

10           In late 2010, Apache has taken over  
11 operations with -- from some -- on some of the  
12 Marbob wells. They're showing up in orange. So  
13 they have got a large position here just to the east  
14 of the Burnett area, and they have taken over, and  
15 there's 10-acre spacing here (indicating) and here  
16 (indicating), with Apache. And of course the  
17 density has greatly increased overall where COG has  
18 operations.

19           Q.     Do you have some estimate of -- of the  
20 spacing patterns in this most recent development?  
21 Is it 10-acre or...

22           A.     It's predominated by 10-acre spacing, yes,  
23 in the COG areas, exclusive of the Burch Keely and  
24 the Dodd Federal, which were excluded in this  
25 hearing.

1 Q. Would you identify Exhibit 15?

2 A. This is the current operator map with  
3 currency, I believe, as of January 1st of this year.  
4 It's pretty much the same map as you saw previously.  
5 Again, Apache has taken over operations here  
6 (indicating). Yeso -- excuse me -- COG and Chevron  
7 have interspersed operations in this particular  
8 area.

9 And again over here (indicating), the  
10 entire Maljamar Yeso West is dominated by COG  
11 operations. And again, Burnett has operations in  
12 this (indicating) area, this Loco Hills, and then in  
13 Section 8, of course as well, at 17/30 East.

14 Q. Finally, could you identify and explain  
15 the purpose of Exhibit 16?

16 A. This is Yeso cores taken since 1995. To  
17 qualify that, by this -- the information provided,  
18 taken -- used by this -- represented by this map,  
19 was derived from IHS data, which is -- IHS Energy is  
20 a commercial database -- and by Burnett files.

21 So wells that are on the Burnett leases  
22 here may not be reported, because they're supposed  
23 to be sidewall cores, but we still took Yeso cores.

24 This still goes to show -- basically, one  
25 out of eight wells, Burnett takes sidewall cores to

1 do a significant analysis. And with that, we take  
2 FMI or XRMI imaging logs to help complement that to  
3 see if we can define the reservoir better.

4 Q. Okay. Thank you, Mr. Haiduk.

5 MR. CAMPBELL: I pass the witness.

6 I move for the introduction of Exhibits 1  
7 through 16, excuse me.

8 TECHNICAL EXAMINER EZEANYIM: Any  
9 objection?

10 MS. MUNDS-DRY: No objection.

11 MR. COONEY: No objection.

12 LEGAL EXAMINER BROOKS: Okay. The witness  
13 was passed at 8:57.

14 TECHNICAL EXAMINER EZEANYIM: Exhibits 1  
15 through 16 will be admitted.

16 EXAMINATION

17 BY MS. MUNDS-DRY:

18 Q. Mr. Haiduk, you said, I believe when  
19 referencing Exhibit 1, you wanted to clarify  
20 something that Counsel said in opening, and I wanted  
21 to make sure that I understood this correctly.

22 That Burnett has had a certain leasehold  
23 block since 1940 --

24 A. Since the 1940s.

25 Q. Since the 1940s.

1           A.     Yes.  And that's this -- this majority  
2     area right in -- in through here (indicating).  Just  
3     a small part of our lease came from a farmout from  
4     EOG, Enron Oil & Gas, in 1998.

5           Q.     Okay.  And Burnett didn't develop that  
6     acreage until --

7           A.     No, it is developed for the shallow.  
8     We've developed it since the '40s.

9           Q.     Okay.  So you didn't develop the Yeso  
10    until the early --

11          A.     I think we started in 1998.

12          Q.     Mr. Haiduk, if I could finish my  
13    question --

14          A.     I'm sorry.

15          Q.     -- just for the court reporter, and then  
16    you can answer.

17          A.     I'm sorry.

18          Q.     That will make the court reporter much  
19    happier.  I know you're anticipating my question, so  
20    it is hard sometimes.

21          A.     I'm married.  I have to...

22          Q.     Earlier you said, when I took you in voir  
23    dire, that you -- your office, Burnett's office,  
24    spoke extensively, I believe, with Paul Kautz in  
25    determining the pool boundaries?

1           A.     I don't know how extensive it was.  
2     Mr. Jacoby, our geological -- or excuse me -- our  
3     engineering manager -- spoke with him more in-depth  
4     than I know about. So I would have to defer to him  
5     and let him tell you about that conversation. He  
6     just related the conversation to me.

7           Q.     Okay. Well, I'll ask that question of  
8     Mr. Jacoby.

9                     Do you know if your -- the folks that work  
10    for you looked at any OCD orders in addition to  
11    talking to Mr. Kautz?

12          A.     Yes, they did.

13          Q.     Did you look at any reporting services  
14    such as Byrum's?

15          A.     I do not know if we did.

16          Q.     Okay. But you -- you have stated here on  
17    your -- on your Exhibit 1 the pool boundaries?

18          A.     Yes.

19          Q.     Do you know how many net acres  
20    Burnett/Hudson has in this proposed consolidated  
21    area?

22          A.     No, I do not.

23          Q.     Who would know that, if that was testified  
24    to today, Mr. Jacoby?

25          A.     I don't know that any of us would exactly.

1 We could get that information for you with a phone  
2 call to the office.

3 Q. Does Burnett employ a landman? Do you  
4 have a landman on staff?

5 A. Yes.

6 Q. Is there some reason the landman couldn't  
7 be here today?

8 A. I don't know. I wasn't involved in that  
9 conversation.

10 Q. Also on Exhibit 1 you noted here in 17  
11 South, 31 East, that the East Friend Glorieta Yeso  
12 pool is in the southeast quarter, southwest quarter.

13 What is the source of determining that  
14 boundary for that pool?

15 A. Could you -- I'm sorry. Could you  
16 please --

17 Q. Where did you -- how did you determine  
18 that that was in the East Friend Glorieta Yeso pool?

19 A. Which -- and it's the south --

20 Q. That's in Section 12 of 17 South, 31 East.

21 A. That's in the north -- excuse me.

22 Q. In the southeast quarter of the southwest  
23 quarter. You have a square there, 40 acres?

24 A. Yes. That's what threw me. That appears  
25 to be in the northeast of the southwest.

1 Q. I'm sorry. Northeast of the southwest.

2 A. We were informed by Mr. Randall Hudson, of  
3 Hudson Oil Co. -- Company of Texas.

4 Q. If we could turn to Exhibit Number 2,  
5 please.

6 MS. MUNDS-DRY: Mr. Campbell or  
7 Mr. Grable, could we turn to Exhibit 2 on your  
8 slide?

9 MR. GRABLE: Sure.

10 Q. (By Ms. Munds-Dry) This indicates that  
11 these are operating areas, correct, on the exhibit?

12 A. Uh-huh.

13 Q. And you have here in the back, focusing on  
14 this yellow block in 17 South, 31 East, you have  
15 approximately four sections in yellow on the very  
16 most eastern boundary.

17 A. Uh-huh.

18 Q. How do you define "operating areas"?

19 A. I think I clarified that particular block  
20 in my testimony, in that we have not been assigned  
21 operations, that we just have 60- -- approximately  
22 67 percent of the working interest in the Yeso  
23 formation in those four sections.

24 Q. So this exhibit is inaccurate?

25 A. I did clarify it on the record, I believe.

1 Q. But the exhibit is inaccurate?

2 A. Yes. It is not an operating area yet.

3 Q. And I believe Burnett has at least one  
4 permit in -- in those -- in one of those four  
5 sections. Are you aware of what --

6 A. I believe we have six approved APDs.

7 Q. Six approved APDs?

8 And do you know what pool has been  
9 designated for each of those six APDs?

10 A. I do not.

11 Q. Do you have any reason to believe that  
12 it's in the Friend pool?

13 A. I have no opinion.

14 Q. Do you know who would know that with  
15 Burnett?

16 A. Probably our land manager.

17 Q. Do you think you could find that out for  
18 me on a break or over lunch?

19 A. I am sure we can, yes.

20 Q. Thank you, Mr. Haiduk.

21 If we could turn to Exhibit Number 3,  
22 please?

23 MS. MUNDS-DRY: Can you show that on the  
24 slides, Mr. Campbell?

25 Q. (By Ms. Munds-Dry) You show here a

1 current operator map. Did you post operations  
2 whether the well was active or inactive? Is it all  
3 wells or is it just active, inactive, or do you  
4 know?

5 A. These are wells that were designated as  
6 Yeso producers by -- in a spreadsheet provided to us  
7 by COG. The only thing that we modified was that we  
8 added four recent, new-completed Burnett wells.  
9 Other than that, we didn't try to make a  
10 determination.

11 Q. I also noticed that you included CML  
12 Exploration in the box in the middle there. Do you  
13 see that?

14 A. Here (indicating)?

15 Q. It's sort of into the light, in the red  
16 box there, well count?

17 A. Uh-huh.

18 Q. Now, CML is not actually in your proposed  
19 consolidated area, correct?

20 A. It does not appear to be.

21 Q. Was there some reason they were included  
22 in the well count?

23 A. Most likely what happened was this was a  
24 much larger map and we decided to crop it down, and  
25 they just weren't deleted from the -- from the

1 legend.

2 Q. And do any of these parties support --  
3 that you have listed here -- support  
4 Burnett/Hudson's application?

5 A. I don't believe we have any letters of  
6 support, no, besides Hudson Oil.

7 Q. Mr. Haiduk, if we could turn to Exhibit 4,  
8 please.

9 A. (Witness complies.)

10 Q. You note a box indicating the COG  
11 application area?

12 A. Uh-huh.

13 Q. Now, why didn't you include the Artesia  
14 Glorieta Yeso pool?

15 A. I have to admit that I'm going to plead  
16 ignorant to that. I believe this box was given to  
17 us by the land department and it was placed on here.  
18 And I did not -- is it just not labeled? Is that  
19 what it is?

20 Q. It looks like it's not included in the  
21 box, the application area, as part of COG's  
22 application.

23 A. I do not have an opinion. I'm sorry.

24 Q. Okay. How up-to-date is this information?  
25 When did you -- I guess my question is: When did

1 you pool -- pull the wells that you show here on the  
2 map?

3 A. Again, I believe these wells were provided  
4 to us by COG on a spreadsheet, so whatever their  
5 currency was.

6 Q. Okay.

7 TECHNICAL EXAMINER EZEANYIM: Excuse me,  
8 Counsel. Please, I want you to direct me on your  
9 line of questioning. What are you trying to  
10 establish?

11 MS. MUNDS-DRY: Well, we are trying to --

12 TECHNICAL EXAMINER EZEANYIM: Because, you  
13 know, I have to get a handle on what you're trying  
14 to establish so I can be with you. Your line of  
15 questions to the witness, what are you trying to  
16 establish?

17 MS. MUNDS-DRY: Well, we are really just  
18 trying to understand where they got their  
19 information from.

20 TECHNICAL EXAMINER EZEANYIM: Information  
21 that --

22 MS. MUNDS-DRY: Mr. Ezeanyim, there's some  
23 differences in the Concho exhibits you have been  
24 presented and what they are presenting as their land  
25 exhibits, and we're trying to understand where the

1 differences came from.

2 TECHNICAL EXAMINER EZEANYIM: I hope that  
3 you are not going into consolidation of the other  
4 five pools.

5 MS. MUNDS-DRY: No. No, no.

6 TECHNICAL EXAMINER EZEANYIM: Okay.

7 MS. MUNDS-DRY: We're trying to understand  
8 the basis for these exhibits.

9 TECHNICAL EXAMINER EZEANYIM: Oh, okay.

10 MS. MUNDS-DRY: Since there are  
11 differences, we are trying to understand why there  
12 are --

13 TECHNICAL EXAMINER EZEANYIM: Okay. You  
14 have the right to do that. But if you are going to  
15 go into consolidation, we are not going there.

16 MS. MUNDS-DRY: I understand that,  
17 absolutely.

18 TECHNICAL EXAMINER EZEANYIM: Okay. Very  
19 good.

20 Q. (By Ms. Munds-Dry) Mr. Haiduk, if we  
21 could go to Exhibit 6.

22 A. (Witness complies.)

23 Q. Mr. Haiduk, I believe you indicated that  
24 this was a Clear Fork equivalent. I believe those  
25 were your words. Is that correct?

1           A.     The Yeso is equivalent of the Clear Fork  
2 formation in Texas.

3           MR. COONEY:   Excuse me.   We need  
4 Exhibit 6.

5           MS. MUNDS-DRY:   Mr. Campbell, I'm sorry,  
6 could you put the exhibit up, please?

7           Q.     (By Ms. Munds-Dry)   And when you say "the  
8 equivalent," I just want to explore that just a  
9 little bit.

10           Do you see similar porosities in the Clear  
11 Fork than you do in the Yeso trend here in Southeast  
12 New Mexico?

13           A.     It depends on the field.   It's a very,  
14 very large area and there is a lot of reservoir  
15 change across.

16           Q.     I understand that.   But generally  
17 speaking, can you give me an opinion on whether the  
18 porosity is similar in the Yeso as it is in the  
19 Clear Fork?

20           A.     All I can speak of is to the northwest  
21 shelf area.   It's fairly similar across our study --  
22 across our area of development, area in question.

23           Q.     And what about permeability, the same  
24 question?

25           A.     I don't know.   I haven't studied any

1 permeability data for the Clear Fork.

2 Q. Okay.

3 A. Can I expand on that just a little bit --

4 Q. Please.

5 A. -- for the Clear Fork?

6 Again, for the Yeso, we have taken cores  
7 and I have -- we have looked at that.

8 Q. But you have no opinion as to whether  
9 permeabilities are similar in the Clear Fork as in  
10 the Yeso?

11 A. That's correct. I do not.

12 Q. Oh, we skipped all sorts of exhibits.

13 Let's go to Exhibit Number 9, please.

14 A. (Witness complies.)

15 Q. Were you responsible for generating this  
16 map, Mr. Haiduk?

17 A. Yes, in conjunction with another one of  
18 our geologists, Larry Galbiati.

19 Q. Is this something that you input some  
20 information and you have a software system?

21 A. Yes.

22 Q. So it's a computer-generated structure  
23 map. Is that fair?

24 A. No. No, it's not. It's a -- what we do  
25 is we do an overprint, and then we go back in and we

1 look at it and we adjust any contours that we don't  
2 feel are appropriate.

3 We also input data into the computer to  
4 tell it what parameters to look at specifically.  
5 And we have trends that we can magnify or diminish  
6 the trend, based on how we feel the geology fits,  
7 and then again, we hand adjust it, hand adjust the  
8 contours.

9 Q. Okay. So you are able to hand adjust the  
10 contours?

11 A. Absolutely.

12 Q. Let me ask you something. If -- if you --  
13 I believe Burnett/Hudson is asking for a 2,000 to 1  
14 GOR in the six pools you seek to consolidate -- and  
15 understanding that there's some difference of  
16 opinion as to whether it should be five or six. Is  
17 that correct?

18 A. I think we're asking -- our application  
19 asks for 2,000 GOR, following state-wide rules.

20 Q. And how do you justify, in a constant GOR  
21 of 2,000 to 1, when you show here on your structure  
22 map that you have a large pool with up-dip and  
23 down-dip positions?

24 A. Well, I believe on one of the -- in our  
25 previous hearing that we had several weeks ago, that

1 COG submitted an exhibit -- and we will probably  
2 need to dig that out -- saying that there's -- there  
3 is no difference. The structural position has no  
4 bearing on the GOR in this particular area.

5 So again, we go by that. But we're --  
6 we've not seen any gas gap. Again, we agree with  
7 Mr. Reyes' conclusion of high -- a high degree of  
8 heterogeneity in the reservoir and a fairly low  
9 permeability reservoir. And it is a solution gas  
10 drive, but we're not seeing in any way where gas  
11 gaps are being formed.

12 Q. Do you know how many active wells Hudson  
13 has in the Yeso?

14 A. One.

15 Q. That's easy to keep track of, right?

16 A. Yes.

17 Q. Does Hudson have any remaining undeveloped  
18 interests in these pools that are subject to  
19 Burnett's application?

20 A. The block that you see here, that we had  
21 previously said that we -- we have 66 percent of, I  
22 misstated that. Burnett and Hudson have  
23 approximately 67 percent.

24 Q. Okay. Thank you for that clarification.

25 Who has the remaining interest in that

1 block?

2 A. I believe COG.

3 Q. On your Exhibit Number 10, Mr. Haiduk,  
4 were you responsible for -- for picking the tops and  
5 bottoms for the Yeso shown on this cross-section?

6 A. I have checked all of them, yes. I picked  
7 the ones that were over to the -- over onto the  
8 right side of the cross-section. We kind of split  
9 the area with the other geologist.

10 But for this particular exhibit, of course  
11 I wanted to check his work, and I agreed with it.

12 Q. And is that the same for picking the  
13 Paddock and the Blinebry?

14 A. Yes ma'am.

15 Q. I'd like to turn to Exhibit Number 11,  
16 please.

17 A. (Witness complies.)

18 Q. This shows, if I -- if I can count the  
19 dots correctly -- and I'm a lawyer, so I'm not good  
20 at math. But between 1990 and 2000, that Burnett  
21 drilled two wells in that 10-year period?

22 A. Yes.

23 Q. And then, I think as we see on Exhibit 12,  
24 that's really when Burnett's activity picked up. I  
25 think I counted 35 wells in that 2001 to 2005 period

1 for Burnett. Is that correct?

2 A. I won't contest it. That may be good.

3 Q. Were these all Yeso wells that were  
4 drilled between 2001 and 2005?

5 A. Yes.

6 Q. If we could turn to Exhibit 15, please,  
7 Mr. Haiduk.

8 A. (Witness complies.)

9 Q. Now, this is the current operator map?

10 A. Yes, ma'am.

11 Q. Okay. And you indicated that this -- that  
12 the spacing within this proposed area of pool  
13 consolidation is predominantly on 10-acre spacing.  
14 Is that correct?

15 A. It appears to be.

16 Q. And do I understand correctly, from  
17 Burnett's application, that Burnett proposes to  
18 grandfather in the existing wells on 10-acre  
19 spacing?

20 A. I believe so, yes.

21 Q. Now, you understand that under the current  
22 density rules no operator is required to drill four  
23 wells on its 40-acre spacing?

24 A. I understand that.

25 Q. So you could drill two wells on the

1 40-acre unit right now if you wanted to?

2 A. Or four.

3 Q. Or four?

4 A. Yes, ma'am. I understand that.

5 Q. If we could go to Exhibit Number 16,  
6 please.

7 A. (Witness complies.)

8 Q. You indicated, I believe, that you  
9 drill -- or for one out of eight wells Burnett does  
10 cores?

11 A. Approximately, yes.

12 Q. And are those sidewalls or hole cores?

13 A. We -- predominantly sidewall.

14 Q. And you indicated that Burnett is still  
15 attempting to define the reservoir?

16 A. Absolutely.

17 Q. How many cores does Burnett have in total  
18 in this -- in your proposed application area?

19 A. I think it's --

20 Q. Did you say eight?

21 A. I think it's -- it looks like 11.

22 Q. 11 cores. And how many of those are  
23 sidewall?

24 A. 10 of the 11.

25 Q. And so you have one hole core?

1 A. Uh-huh.

2 Q. And are those Paddock or Blinebry cores?

3 A. They're both.

4 Q. They're both? All 11 of them are both  
5 Paddock and Blinebry?

6 A. The -- I know all the sidewall cores are,  
7 I believe. The hole core, I'd have to go back and  
8 check.

9 Q. Do you have an opinion as to whether  
10 sidewall cores or hole cores are better in terms of  
11 evaluating the reservoir?

12 A. It depends on what you're trying to  
13 evaluate.

14 Q. Okay. Now, if -- if you're still  
15 attempting to define the reservoir, how can you  
16 determine what the proper density should be?

17 A. I think it's a -- it's an iterative  
18 process. You continually try to define a reservoir.  
19 We've got a reservoir that we have been developing  
20 since the 1940s in Texas we're still taking cores  
21 on. We're still doing analysis on it, because we  
22 want to maximize the oil recoveries.

23 And any operator that isn't currently  
24 ongoing -- with an ongoing development project,  
25 drilling, is not repeatedly reevaluating the

1 reservoir, I would say it's not being managed  
2 properly.

3 I understand from Mr. Reyes' testimony  
4 that he is currently always reevaluating the res- --  
5 is evaluating the reservoir.

6 I understand that COG, in his testimony,  
7 said that he was -- they were pushing the limits  
8 trying to find new boundaries. To me, in my  
9 opinion, that's evaluating the reservoir.

10 Q. All right. And I believe Mr. Reyes'  
11 testimony, as you step out, it's important to  
12 continue to evaluate the reservoir so you can  
13 determine the economic limits?

14 A. Any -- any geologist would say that. I  
15 agree with him.

16 Q. So you don't disagree with that?

17 A. No, sir -- I mean, excuse me.

18 Q. That's okay.

19 A. A lot of geologists think that way. I  
20 hope they all do.

21 Q. Now, what about if you're in, you know,  
22 what they have called yesterday with Mr. Reyes, and  
23 the engineers referred to as the fairway?

24 A. Uh-huh.

25 Q. Are you still defining that portion of the

1 reservoir?

2 A. I would think that you are, yes.

3 Q. And so I go back to my question. How do  
4 you know what the proper density is if you're still  
5 attempting to define that portion of the reservoir?

6 A. Basically, in the densest parts of the  
7 field where there's 20-acre development, say, in  
8 Burnett's leases, we've got enough production  
9 history over 7, 8, 10 years on some wells that we  
10 can find out what the drainage is. We have got logs  
11 over those particular areas, we have got cores over  
12 those particular areas, and so we've got a pretty  
13 good idea. We know, in our area.

14 You should be able to take that data and  
15 extrapolate it into other areas, such as the four  
16 sections over there in the Maljamar area that we've  
17 talked about previously, especially when it's been  
18 drilled on either side of it. It's still kind of a  
19 new area, but with a couple of -- with a couple of  
20 new wells and core data, which we plan on taking on  
21 our first wells, we think we can pretty well define  
22 the reservoir by drilling just a few wells.

23 Q. Is the entirety of the pools that are the  
24 subject of Burnett and Concho's application within  
25 what you call the fairway?

1           A.     In our area of proposed consolidation I  
2 would say yes.

3           Q.     I lost my train of thought. Well, I'll  
4 think of it later.

5                     Let's go to Exhibit 17, please.

6           MR. CAMPBELL: We didn't introduce 17.

7           MS. MUNDS-DRY: Oh, I'm sorry. We stopped  
8 at 16.

9                     Could I have just a second, please,  
10 Mr. Ezeanyim, and let me try to remember what I was  
11 going to ask?

12                    TECHNICAL EXAMINER EZEANYIM: Okay. Sure.

13           Q.     (By Ms. Munds-Dry) And I remembered my  
14 line of thought.

15                    Mr. Haiduk, you indicated, I think in your  
16 testimony just now, that you have an extensive  
17 amount of data for your areas. And you indicated  
18 that you think you can extrapolate that out to the  
19 rest of these pools that are the subject of  
20 Burnett's application?

21           A.     What I'm saying is that you can drill one  
22 or two or four wells. You don't have to drill four  
23 wells per 40 to define what the reservoir is and how  
24 it would perform.

25           Q.     I see. And would you agree with me -- I

1 don't think this is the subject of much debate --  
2 but the more data points you have the better  
3 analysis you will have as to what the proper density  
4 should be?

5 A. We always like to drill as many wells as  
6 possible to get data, but we don't always like to  
7 drill as many wells to get commercial wells.

8 Q. That's fair enough.

9 MS. MUNDS-DRY: I think that's all I have,  
10 Mr. Ezeanyim. Thank you.

11 TECHNICAL EXAMINER EZEANYIM: Thank you  
12 very much.

13 LEGAL EXAMINER BROOKS: Okay. Pass the  
14 witness at 9:20.

15 TECHNICAL EXAMINER EZEANYIM: Redirect?

16 MR. CAMPBELL: Just briefly, Mr. Examiner.

17 FURTHER EXAMINATION

18 BY MR. CAMPBELL:

19 Q. In Burnett/Hudson's examination of the  
20 reservoir, has the company found it prudent and  
21 protective of both correlative rights and prevention  
22 of waste to begin its development on 20s rather than  
23 10s?

24 A. Yes, sir.

25 MR. CAMPBELL: That's all I have.

1 MR. COONEY: I have one question.

2 TECHNICAL EXAMINER EZEANYIM: Okay.

3 EXAMINATION

4 BY MR. COONEY:

5 Q. Mr. Haiduk, you indicated that of the 11  
6 cores, 10 are sidewall, and they are both Paddock  
7 and Blinebry?

8 A. I'd have to check, but the predominate --  
9 predomination are Blinebry and Paddock.

10 Q. Okay. And do those wells produce from  
11 both Paddock and Blinebry?

12 A. I'd have to go back and check.

13 Q. If the cores were taken of both zones,  
14 would you assume that they're producing from those?

15 A. I would assume that we probably tested the  
16 Blinebry.

17 Q. Okay.

18 MR. COONEY: Thank you.

19 LEGAL EXAMINER BROOKS: Okay. You-all  
20 took one minute between you, so I won't charge  
21 anybody.

22 TECHNICAL EXAMINER EZEANYIM: Any more  
23 questions for this witness?

24 LEGAL EXAMINER BROOKS: No questions.

25 TECHNICAL EXAMINER EZEANYIM: Okay.

1           LEGAL EXAMINER BROOKS: Well, I guess I do  
2 have a question, come to think of it.

3           Are you aware that there are  
4 discrepancies -- you talked about your inquiries  
5 about the pool boundaries. Are you aware that there  
6 are discrepancies between various sets of records  
7 kept by the division as to pool boundaries?

8           THE WITNESS: I'm not as aware of  
9 New Mexico as I am of Oklahoma. But I understand in  
10 the state of Oklahoma, I have been through many  
11 discrepancies. So yes, I would imagine that there  
12 probably is some.

13          LEGAL EXAMINER BROOKS: Okay. That's all  
14 I have.

15          TECHNICAL EXAMINER EZEANYIM: Okay.

16          Let's go to Exhibit Number 9. You stated  
17 that Burnett/Hudson has 86 wells in those five  
18 pools, right?

19          THE WITNESS: We have --

20          TECHNICAL EXAMINER EZEANYIM: Is it 86 or  
21 85?

22          THE WITNESS: We have 85 wells included in  
23 the area of proposed consolidation.

24          TECHNICAL EXAMINER EZEANYIM: And I see  
25 you have 86 wells.

1 THE WITNESS: 86. That would be about  
2 right, yes, sir.

3 TECHNICAL EXAMINER EZEANYIM: 86 wells.  
4 Okay. I thought you -- this is your exhibit, so I  
5 am reading from your exhibits. Okay.

6 Now, out of those 86 wells do you have any  
7 well in the Maljamar Yeso West?

8 THE WITNESS: No.

9 TECHNICAL EXAMINER EZEANYIM: You don't  
10 have any?

11 THE WITNESS: We just have the -- we just  
12 have -- us and Hudson together have a 67 percent  
13 right on the edge of it.

14 TECHNICAL EXAMINER EZEANYIM: Okay.  
15 Now -- but all those 86 wells are contained within  
16 the five pools you want to consolidate, right?

17 THE WITNESS: Yes, sir.

18 TECHNICAL EXAMINER EZEANYIM: Okay. If  
19 you look at Exhibit Number 9, I see Maljamar/Paddock  
20 North. There was nothing for Maljamar Yeso West.  
21 Is it included in there? Is that included in that  
22 Exhibit Number 9?

23 THE WITNESS: Yes. It must have  
24 inadvertently been left off.

25 TECHNICAL EXAMINER EZEANYIM: Okay.

1 THE WITNESS: The outline is there.

2 TECHNICAL EXAMINER EZEANYIM: Okay. Yeah,  
3 okay. Because I think it's included, but it wasn't  
4 marked, so I was wondering why.

5 THE WITNESS: I apologize, sir.

6 TECHNICAL EXAMINER EZEANYIM: Okay. If  
7 you will look at that exhibit again, you have A, A  
8 prime.

9 THE WITNESS: Yes.

10 TECHNICAL EXAMINER EZEANYIM: What are you  
11 trying to indicate from A, A prime, and your series  
12 of dots going all the way from the --

13 THE WITNESS: Yeah. Those are the wells  
14 that are on Exhibit Number 10, that are included on  
15 the Exhibit Number 10 cross-section.

16 TECHNICAL EXAMINER EZEANYIM: Exhibit 10?

17 THE WITNESS: Yes, Exhibit 10, the next  
18 cross-section.

19 TECHNICAL EXAMINER EZEANYIM: Oh, okay.

20 THE WITNESS: Those are wells that are  
21 included.

22 TECHNICAL EXAMINER EZEANYIM: Okay.

23 That's your A, A prime. Okay.

24 THE WITNESS: Yes, sir.

25 TECHNICAL EXAMINER EZEANYIM: Okay. Very

1 good.

2 Okay. Let's go to Exhibit Number 14. I  
3 see there you list all the -- you listed all the  
4 operators in the pool.

5 THE WITNESS: Uh-huh. Yes, sir.

6 TECHNICAL EXAMINER EZEANYIM: All of these  
7 operators in the -- all the 12 pools, or just in the  
8 pools you are interested? Is this -- let me explain  
9 first.

10 On the left-hand side I see about 15  
11 operators. But if you look at the right-hand side  
12 where you listed them, how much they're producing, I  
13 think is -- no -- okay.

14 It's -- actually, you can see the 10 of  
15 them, the number of wells and the number of the  
16 wells, and then there are 10 of them.

17 On the left-hand side there are 15. Some  
18 of them have farmed out their interest to those who  
19 are producing, because we have a total of 1,827  
20 wells. Is this 1,827 in the whole 12 pools or in  
21 the pools you're interested in?

22 THE WITNESS: I believe it's just in this  
23 platted area.

24 TECHNICAL EXAMINER EZEANYIM: Oh, in  
25 your --

1 THE WITNESS: In just this area of the  
2 map.

3 TECHNICAL EXAMINER EZEANYIM: In those six  
4 pools?

5 THE WITNESS: Yes.

6 TECHNICAL EXAMINER EZEANYIM: Okay.

7 THE WITNESS: Well, no. These six pools  
8 plus this area (indicating).

9 TECHNICAL EXAMINER EZEANYIM: Okay. Yeah.  
10 That's what I wanted to understand. So there are  
11 much -- more wells outside this 1,800-some wells?

12 THE WITNESS: Yes, sir.

13 TECHNICAL EXAMINER EZEANYIM: Okay. Very  
14 good.

15 If you will go to Exhibit Number 14 again,  
16 you look at the Maljamar West, it appears to me that  
17 some of them are located on 10-acre spacing.

18 THE WITNESS: It appears so, yes.

19 TECHNICAL EXAMINER EZEANYIM: But you  
20 don't have any wells there?

21 THE WITNESS: We do not have any wells.

22 TECHNICAL EXAMINER EZEANYIM: Because if  
23 you look at this cover of the wells, it appears to  
24 be at least 10-acre spacing there.

25 But on your -- the area where you have,

1 you have only drilled 20-acre wells, right?

2 THE WITNESS: Yes. In our interpretation,  
3 yes, we have only drilled 20-acre wells.

4 TECHNICAL EXAMINER EZEANYIM: You haven't  
5 drilled any 10-acre wells?

6 THE WITNESS: No. We have done 10-acre  
7 offsets where there would normally be a -- what we  
8 do is we do a diagonal within the 40. We drill  
9 diagonal. We have, in one or two instances,  
10 actually drilled a north/south instead of a  
11 northwest or southeast trend.

12 TECHNICAL EXAMINER EZEANYIM: Okay. In  
13 your application now, your consolidated application  
14 to consolidate those five wells, or for that matter  
15 six wells, did you give notice to all of these  
16 operators that you're going to consolidate these six  
17 pools?

18 THE WITNESS: I understand what we did is  
19 we notified the exact same entities that were  
20 notified by COG in their application.

21 TECHNICAL EXAMINER EZEANYIM: So -- and  
22 nobody objected?

23 THE WITNESS: Not that I'm aware of. I  
24 was not informed by Mr. Campbell and Mr. Grable  
25 there was any objections.

1           TECHNICAL EXAMINER EZEANYIM: This is how  
2 we create pools. We create pools when we give  
3 notice to everybody interested. And if nobody  
4 objects, then we can create the pool.

5           THE WITNESS: I believe Premier Oil and  
6 Gas showed up based on our -- based on our  
7 notification.

8           TECHNICAL EXAMINER EZEANYIM: Since there  
9 are no objections except the objection here by COG  
10 and Apache, which you have resolved, right?

11          THE WITNESS: I understand, yes.

12          TECHNICAL EXAMINER EZEANYIM: Okay. Good.  
13 That's all I have for you.

14          THE WITNESS: Thank you.

15          MR. CAMPBELL: We will call Mr. Mark  
16 Jacoby.

17                 Mr. Examiner, if I might, could I tender  
18 the notice of publication exhibits relative to the  
19 Burnett/Hudson Case Number 14647?

20          TECHNICAL EXAMINER EZEANYIM: That way,  
21 we're sure that we have those notices.

22                 Is there any objection to that tender?

23          MS. MUNDS-DRY: I'm sorry?

24          TECHNICAL EXAMINER EZEANYIM: Okay. He  
25 wants to give us evidence that he did give notice to

1 the operators, which I'm sure you got the notice.

2 MR. CAMPBELL: These are Exhibits 52 and  
3 53.

4 Mr. Examiner, we would move the admission  
5 of Exhibits 52 and 53 showing notice of publication.

6 TECHNICAL EXAMINER EZEANYIM: Any  
7 objection?

8 MS. MUNDS-DRY: No objection. I do wonder  
9 if he has the green cards showing he gave notice to  
10 the parties.

11 MR. GRABLE: I have those green cards. I  
12 didn't know it was necessary to put them in, but I  
13 can take the stand at the end of the hearing, if  
14 it's necessary, and I'll swear to who we served.

15 TECHNICAL EXAMINER EZEANYIM: Is that okay  
16 with you?

17 MS. MUNDS-DRY: He doesn't need to do  
18 that, if he will -- I mean, Mr. Brooks, that's  
19 usually something you like to see.

20 LEGAL EXAMINER BROOKS: Usually the  
21 attorney -- in practice here, usually the attorneys  
22 do file the green cards with their affidavits of  
23 notice. They don't usually testify to them,  
24 however. They may be asked about it from the table.

25 MR. GRABLE: I will see if my legal

1 assistant can put them in PDF form.

2 MR. CAMPBELL: May we submit them when we  
3 receive them, after showing them to Ms. Munds-Dry?

4 LEGAL EXAMINER BROOKS: Yes.

5 TECHNICAL EXAMINER EZEANYIM: Okay. At  
6 that point, Exhibits Number 52 and 53 will be  
7 admitted.

8 Your next witness.

9 MR. CAMPBELL: We call Mr. Mark Jacoby.

10 LEGAL EXAMINER BROOKS: Okay. We're  
11 beginning the examination at 9:30.

12 TECHNICAL EXAMINER EZEANYIM: Mr. Jacoby,  
13 you were sworn yesterday, correct?

14 THE WITNESS: Yes.

15 MARK JACOBY,  
16 after having been first duly sworn under oath,  
17 was questioned and testified as follows:

18 EXAMINATION

19 BY MR. CAMPBELL:

20 Q. Please state your name for the record.

21 A. My name is Mark Jacoby.

22 Q. And what is your current employment,  
23 Mr. Jacoby?

24 A. I am the exploration manager -- I mean the  
25 engineering manager for Burnett Oil Company, in

1 Fort Worth. And I look after the Permian Basin and  
2 principally the New Mexico properties.

3 Q. This is your first time testifying before  
4 the division, although you -- you appeared at a  
5 prior hearing, did you not?

6 A. I appeared at the previous hearing for  
7 this matter, yes.

8 Q. Would you provide the Examiners a brief  
9 description of your education and work experience as  
10 a petroleum engineer?

11 A. I have a bachelor of science and a master  
12 of science in industrial engineering from Texas Tech  
13 in 1975.

14 I began working for Amoco Production  
15 Company immediately, and I've worked 36 years as a  
16 completions and operations petroleum engineer in the  
17 Permian Basin for various companies.

18 I came to work for Burnett Oil four years  
19 ago.

20 Q. What are your responsibilities for Burnett  
21 Oil?

22 A. My responsibilities are to look after the  
23 operations, the drilling and the completions, the --  
24 getting wells on production, principally for the  
25 Loco Hills, New Mexico, property.

1 Q. Are you familiar with the engineering data  
2 and information pertinent to these consolidated  
3 cases?

4 A. Yes, I am.

5 Q. Have you studied those in connection with  
6 your testimony and the exhibits you will sponsor?

7 A. Yes, I have.

8 MR. CAMPBELL: Mr. Examiner, we tender  
9 Mr. Jacoby as an expert in the field of petroleum  
10 engineering.

11 TECHNICAL EXAMINER EZEANYIM: Any  
12 objection?

13 MS. MUNDS-DRY: No objection.

14 MR. COONEY: No objection.

15 TECHNICAL EXAMINER EZEANYIM: Okay. The  
16 qualifications are accepted.

17 MR. CAMPBELL: Thank you.

18 Q. (By Mr. Campbell) We're going to talk  
19 about three exhibits, Mr. Jacoby, that you have  
20 prepared. They are Exhibits 18, 19, and 20.

21 Did you prepare each of these exhibits?

22 A. Yes, I did.

23 Q. Could you identify Exhibit 18, please?

24 Now, this -- this -- let me ask you this.

25 A. Okay.

1 Q. In preview to your conclusions regarding  
2 Exhibits 18, 19, and 20, would you advise the  
3 commission what conclusions you have reached with  
4 respect to those exhibits?

5 A. The conclusions that I've reached, and  
6 that we will discuss, that principally through our  
7 well completion techniques, that we can consistently  
8 drain the Yeso with two wells on a 40-acre unit  
9 rather than four.

10 Also, we'll demonstrate that we can drain  
11 40 acres with two wells at a greater oil producing  
12 rate than a comparable 40-acre unit with 10-acre  
13 spacing.

14 And then we'll also demonstrate that  
15 Burnett wells, with two wells per 40, not only will  
16 yield a greater oil production rate, but will also  
17 stay at or near the 2,000 GOR limit; thereby,  
18 conserving reservoir energy.

19 And then we'll demonstrate that the  
20 drilling of four wells on 40 acres in most cases is  
21 unnecessarily and economically wasteful.

22 Q. All right. Let's begin with Exhibit  
23 Number 18, Mr. Jacoby. This is a rather busy slide.  
24 And just to orient the Examiners, I would like you  
25 to first explain what you intend to convey in the

1 upper left-hand quadrant of Exhibit 18.

2 A. Okay. This is a map, up in the upper  
3 left-hand corner, that shows the area of nine wells  
4 that COG operates.

5 And then on three sides, Burnett operates  
6 nine wells -- or more than nine, but it seemed like  
7 a very good sample, a very good place to take an  
8 equal number of wells and have an objective. This  
9 locates what we're going to be discussing.

10 Q. Okay. And you're going to be comparing  
11 the nine Concho wells to the nine Burnett/Hudson  
12 wells. Is that correct?

13 A. That's correct.

14 Q. Now, if you could again orient the  
15 Examiners, can you retrieve Exhibit Number 3?

16 A. (Witness complies.)

17 Q. Let's go to 2.

18 The area of your nine-well comparison is  
19 where on Exhibit 2?

20 A. It is in the north end of -- the yellow  
21 acreage is Burnett acreage, Burnett-operated  
22 properties.

23 The dark color there is the Harvard  
24 Federal lease. There's 160 acres in that lease that  
25 Concho operates. We're on three sides of Concho

1 with our operations.

2 Q. All right. That is the comparison --

3 A. Yes.

4 Q. -- that you're going to make --

5 A. Yes.

6 Q. -- in Exhibit 18?

7 A. Right.

8 Q. Let me get back to 18.

9 All right. Now, there's an X to X prime  
10 cross-section in your comparative sampling here,  
11 correct?

12 A. Right. There is a cross-section that goes  
13 from our operations west of the Harvard Federal and  
14 then goes down to this corner and crosses all the  
15 way across the Harvard Federal lease into a well on  
16 our -- on the east side of Harvard Federal that  
17 Burnett operates.

18 Q. And have you charted that cross-section in  
19 Exhibit 20?

20 A. Yes, we have.

21 Q. Referring quickly to Exhibit 20, what does  
22 Exhibit 20 tell you about the cross-section on which  
23 you're making this comparison?

24 A. This exhibit -- this is Exhibit 20 right  
25 here, right?

1 Q. This is Exhibit 20.

2 A. Right.

3 Q. This is the cross-section --

4 A. Right.

5 Q. -- in your comparative chart on 18.

6 A. Okay. This cross-section is simply to  
7 show that all of these wells are in the same  
8 geological framework. These four logs all have a  
9 nice Paddock section that you can really correlate.  
10 They may have a Blinebry section. It's just simply  
11 to show that we feel like it's -- they're very  
12 comparable geologically.

13 Q. All right. Now with respect to the Concho  
14 wells in the Harvard lease, are those Concho wells  
15 drilled on 10-acre spacing?

16 A. Yes, those are. That's 160 acres, and  
17 they're all on 10-acre well spacing.

18 Q. And what about the Burnett wells  
19 surrounding the Concho wells? Are they drilled on  
20 10s or 20s?

21 A. They are on 20s. We are developing on  
22 20s. Some actually are still 40, but coming to 20s.

23 Q. All right. Now continuing the orientation  
24 relative to the comparison you're making, what are  
25 the logs on the right side of the screen?

1           A.     The two red triangles, the Burnett -- this  
2     would be 51, and the Harvard Federal Number 13 --  
3     are the two strip logs. And this is just to show a  
4     Burnett well log and a Concho strip log.

5           Q.     All right. We will come back to that.

6                     Could you explain what you seek to convey  
7     in the lower left-hand quadrant of the slide?

8           A.     The lower left-hand quadrant is just  
9     simply to show the comparable volumes of sand and  
10    water used in our frac stimulations. The sand, you  
11    can see, is the red. The times 10 is just a scale.  
12    You cannot see those numbers on the screen there,  
13    but the sand is very comparable.

14                    The total fluid is -- the Burnett volume  
15    is 460 percent greater than Concho's.

16           Q.     All right. In the preview that you gave  
17    the Examiners, you testified that Burnett/Hudson is  
18    consistently able to drain 40 acres with two wells,  
19    that doing so yields greater oil production while at  
20    the same time honoring the current state-wide rules  
21    for GOR.

22                    What's the principal basis of your  
23    conclusion for that result?

24           A.     The principal basis is the results that  
25    we've gotten from the frac stimulation at the

1 completion of each of these wells, just comparing  
2 them.

3 Q. Is it fair to say Burnett/Hudson effects  
4 completion in frac differently than Concho does?

5 A. Yes, it is.

6 Q. All right. Let's first walk through -- is  
7 there a term of art that Burnett uses or the oil and  
8 gas industry uses in characterizing the type of  
9 completion and frac techniques that Burnett/Hudson  
10 uses?

11 A. There is. We have evolved into using a  
12 frac technique known as slickwater frac.

13 Q. Slickwater fractionation?

14 A. Right.

15 Q. Could you explain to the commissioners  
16 what is meant in the oil and gas industry by the  
17 term "slickwater fractionation"?

18 A. A slickwater frac is simply water that  
19 has -- the only chemical added to it is friction  
20 reducer; hence, the name slickwater.

21 And then it -- the slickwater frac, the  
22 way it carries sand is pumped -- it's pumped at a  
23 very high rate with alternating stages of water, and  
24 then water plus sand, with a lot of stages.

25 Q. Now, is this slickwater fracking a

1 practice and procedure well known in the oil and gas  
2 industry?

3 A. Yes, it is. I think it probably began in  
4 the Cotton Valley quite a few years ago, and then  
5 it's been used tremendously in the shale plays.

6 TECHNICAL EXAMINER EZEANYIM: How many  
7 years ago?

8 THE WITNESS: I'm not sure how many years  
9 ago. But whenever the Cotton Valley play was really  
10 beginning to take off, and the Austin Chalk,  
11 slickwater fracs were used without gel added.

12 I work with a consulting engineer that  
13 designs every one of these jobs for us under my  
14 supervision, and he's familiar with all of those.  
15 And we have maintained -- we watch industry very  
16 closely as well. So that's where we've gotten the  
17 idea to go with the slickwater.

18 Q. (By Mr. Campbell) Cotton Valley and  
19 Austin Chalk are in East Texas?

20 A. Yes, that's correct.

21 Q. All right. I was going ask that myself.

22 So slickwater fracking is a known and  
23 recognized fracking technique in the oil and gas  
24 industry?

25 A. Yes, it is. It's used all over the

1 country.

2 Q. Has it been used to any real extent in  
3 Southeast New Mexico?

4 A. I was not aware of it to much of an extent  
5 until we started utilizing it here in the Yeso.

6 Q. So Burnett/Hudson employs the slickwater  
7 frac completion technique?

8 A. Yes. I might add, I had used it in a  
9 smaller volume on a smaller scale because of a  
10 smaller amount of pay in the San Andres in West  
11 Texas. My previous employer, I worked for 24 years,  
12 I had some experience with the same slickwater  
13 there.

14 Q. And Burnett/Hudson's log utilizing the  
15 slickwater technique is on the left of these two  
16 logs. Is that correct?

17 A. Correct.

18 Q. On the right-hand side is the COG well,  
19 one of the wells in the location map. Is that  
20 correct?

21 A. That's correct.

22 Q. What is the identity of that well?

23 A. That well is the Harvard Federal Number  
24 13. It's in the northwest corner of their Harvard  
25 Federal lease.

1 Q. Okay. I would like you to explain to the  
2 Examiners in a bit of detail what is shown relative  
3 to the perforations utilized by Burnett/Hudson with  
4 its slickwater frac versus the perforations utilized  
5 by COG on its gel frac. I mean is there a general  
6 term of art for the methodology that COG uses?

7 A. Yes. They use -- from what I have seen of  
8 all of their -- I have seen many of their  
9 completions -- they use a gel water frac. It's been  
10 used many years in the industry.

11 Q. All right. And what -- what do you mean  
12 by a gel water frac?

13 A. A gel water frac utilizes, through a  
14 series of some chemicals mixed in with water, to  
15 create a very viscous fluid to carry higher  
16 concentrations of sand.

17 Q. So what is the principal difference  
18 between Burnett/Hudson's slickwater fracking  
19 technique and COG's gel fracking technique?

20 A. As I have mentioned, the slickwater frac  
21 has -- basically, the only chemical added is  
22 friction reducer. So it has a very low viscosity.  
23 The gel water frac has chemicals added to create a  
24 high viscosity.

25 As far as the results of that --

1 Q. Now, let's talk -- let's talk, then, about  
2 your comparative perforation techniques, starting  
3 first with the Burnett well on the left.

4 A. I might say that -- I know it's been  
5 brought out -- that we run open-hole logs and mud  
6 logs on every one of our wells. And our analysis  
7 starts with John Haiduk, who was on the stand prior  
8 to me, and the geologist that works for him. Both  
9 of them take this log -- these logs and create a --  
10 a log template. They study it quite a bit and  
11 develop a -- we use a cutoff of 3 percent porosity.

12 I take the log then and pick perforations  
13 selectively. I'll go through and pick pay points.  
14 I also pay real close attention to the number of  
15 perforations in the well, because I feel it's very  
16 important to pump at about 2 barrels per minute per  
17 perforation, so the number of perfs is important.

18 Q. On the left-hand side, then, have you  
19 indicated the selective perforation points that  
20 you -- that you instituted in connection with this  
21 well?

22 A. Yes. On the left-hand side of the strip,  
23 these dark lines (indicating), those are the  
24 perforation points.

25 Q. So you selectively, through log

1 examination and other data, have selectively  
2 identified your perf areas?

3 A. Yes.

4 Q. This appears to be a three-stage  
5 slickwater frac.

6 A. It is. Yes, it is.

7 Q. This well was completed in October of  
8 2009?

9 A. The bottom half of the Blinebry was  
10 completed, yes, in October of 2009.

11 Q. And over what period of time did you  
12 effect the three stages of the slickwater frac?

13 A. This particular well produced for three  
14 months from the bottom half of the Blinebry. We  
15 moved up, we completed the upper half of the  
16 Blinebry. You could see there's not as many  
17 perforations. It produced for a month, and then  
18 just two or three months ago -- well, we completed  
19 the Paddock on the stage three.

20 Q. All right. Now moving to the COG well,  
21 the Harvard Federal was completed approximately a  
22 year later. What do the dark vertical lines on the  
23 left side of the COG well indicate?

24 A. They indicate, from what I can tell --  
25 what I understand, they perforate 200-foot segments,

1 basically a 200-foot interval three times in most of  
2 their wells, from what I have seen in the Blinebry.  
3 And then they move up and complete in the Paddock as  
4 well.

5 Q. Has it been your observation that this  
6 interval-type perforation mechanic that COG employs  
7 is generally standard across all of its wells?

8 A. It appears so, yes.

9 Q. That is, they perforate four 200-foot  
10 blocks --

11 A. That's my understanding.

12 Q. -- in most of their wells?

13 A. Yes, that's correct.

14 Q. You've heard the testimony of the COG  
15 witnesses indicating that they -- they approach  
16 things on a statistical matter as opposed to paying  
17 much attention to the logs.

18 A. Yes.

19 Q. All right. Now, have you -- these --  
20 these wells are quite close together?

21 A. They are.

22 Q. The Harvard Federal is drilled on a  
23 10-acre spacing?

24 A. Yes.

25 Q. The Burnett well, the Gissler well, is

1 drilled on a 20-acre spacing?

2 A. Yes.

3 Q. And have you, on the basis of these two  
4 wells, studied the comparative production of these  
5 wells and the comparative GOR?

6 A. I did.

7 Q. Is that reflected in Exhibit 19?

8 A. It is not.

9 TECHNICAL EXAMINER EZEANYIM: It is not?

10 THE WITNESS: It is not on this exhibit,  
11 because the COG well was completed in December of  
12 2010. I did get four months' production from their  
13 well.

14 Q. (By Mr. Campbell) Okay. What I'm trying  
15 to get to is whether you have attempted to normalize  
16 a comparison --

17 A. Yes, attempted --

18 Q. -- of production between the Burnett well  
19 and the COG well over time.

20 A. Okay. This comparative production chart  
21 is actually the sum of the nine wells on the Harvard  
22 Federal.

23 Q. All right. Let's walk through this  
24 slowly. You are comparing the Burnett oil  
25 production from its well fracked with slickwater

1 technique to the oil production from the COG well  
2 utilizing this indiscriminate interval perforation  
3 mechanic gel frac. And you are also illustrating  
4 comparative GOR numbers?

5 A. Right. And I did this -- I did a  
6 normalized -- the first six months' production of  
7 the nine COG Harvard Federal wells. And then I  
8 selected nine Burnett Gissler wells that surround  
9 the lease. I tried to take all subjectivity out of  
10 the comparison, is why I did this.

11 Rather than using EURs, I just took the  
12 sum of the first six months' production of each of  
13 those nine wells, and that's reflected on this  
14 chart.

15 The dashed lines represent the Burnett  
16 nine wells. The solid lines represent COG wells.  
17 The green is the Burnett oil production. The green  
18 solid line is COG oil production.

19 Of each of those nine wells, the first  
20 months' production for Burnett wells is 27.7 --  
21 27,700 barrels for that month. COG was 18,900.

22 Q. All right. Let's -- let's stick with the  
23 comparison between the nine Burnett wells and the  
24 nine COG wells. Let's first stick through and walk  
25 through the oil production conclusions.

1           A.     I just summed each of those six months,  
2     and you can follow the trend of the Burnett Oil six  
3     wells. It was pretty flat. At the end of the sixth  
4     month was 27,400 barrels of oil for that month.

5                     The Concho wells were pretty flat. Here  
6     (indicating), it dropped some to 11-7,  
7     10,000-something, over 10,000 barrels for that  
8     month, below 10,000, and then I believe that's  
9     8,900 barrels.

10           Q.     So what conclusions do you reach relative  
11     to oil production from these comparative nine-well  
12     Burnett/COG samples?

13           A.     My conclusion is is that our wells on 20s  
14     are draining and producing at a higher rate than the  
15     same number of wells producing on 10-acre spacing.

16           Q.     All right. Let's turn to what the data  
17     shows with respect to GOR.

18           A.     Okay. I did the same comparison with GOR.  
19     The Burnett GOR is across the bottom. The first  
20     month was 1,700. The first month of COG's wells  
21     were -- I'm sorry, I can't -- that's 30 -- it's a  
22     little over 3,000.

23                     The next month was 4,300. Burnett's was  
24     2,200.

25                     Burnett's, which was fairly flat, was

1 2,500 at the sixth month. The COG GOR kind of  
2 gradually increased. The sixth month was 7,100.

3 Q. And what conclusions do you then draw  
4 between the comparative examination of these wells  
5 relative to the GOR?

6 A. One of my conclusions is is that with the  
7 slickwater technique, which develops about a  
8 500-foot frac length, and it stimulates much more  
9 reservoir, is able to effect the lower GOR for a  
10 longer period of time. Because it's -- the  
11 slickwater technique allows the reservoir to produce  
12 a lot longer before it goes into a matrix flow.

13 Q. Now as I understand it, Mr. Jacoby, you  
14 have recently been honored by invitation to present  
15 a paper at the national meeting of the Society of  
16 Professional Engineers. Is that correct?

17 A. Yes.

18 Q. And the invitation relates to a paper  
19 which you have been invited to prepare in connection  
20 with this slickwater fracking technique. Is that  
21 correct?

22 A. Yes.

23 Q. When will you present that paper?

24 A. I co-authored that with John Ely. We'll  
25 present that paper at the national SPE convention in

1 the end of September.

2 Q. And where will that be?

3 A. That will be in Denver, Colorado.

4 Q. What is the -- what is the full -- what is  
5 the full name of the paper that you will present to  
6 the SPE?

7 A. Two engineers, so this is a lengthy name.  
8 But the full name is: Utilization of simple fluids  
9 and proppant combined with design optimization  
10 yields outstanding results in New Mexico Yeso oil  
11 play.

12 Q. Thank you. In summary, would you state  
13 your conclusions relative to the study you have  
14 undertaken in comparing nine Burnett wells to nine  
15 similar COG wells, 20-acre spacing versus 10-acre  
16 spacing?

17 A. One conclusion is, is that through our  
18 completion technique, that we can drain 40 acres  
19 with two -- two wells rather than four. We can also  
20 drain at a -- that same 40-acre proration unit -- at  
21 a greater oil production rate than four wells  
22 drilled on a 10-acre spacing.

23 I also conclude that we can, in addition  
24 to effecting higher oil production, we'll also  
25 conserve reservoir energy because we're able to

1 produce very near the state rule GOR of 2,000 to 1.

2 And then it just demonstrates that in most  
3 instances four wells on a 40-acre unit are really  
4 unnecessary and economically wasteful.

5 MR. CAMPBELL: Thank you, Mr. Jacoby.

6 I pass the witness.

7 TECHNICAL EXAMINER EZEANYIM: Thank you,  
8 Mr. Campbell.

9 LEGAL EXAMINER BROOKS: Passed the witness  
10 at 9:56.

11 MS. MUNDS-DRY: Do you think we could take  
12 a quick break, just to stretch real quick?

13 TECHNICAL EXAMINER EZEANYIM: Okay. We'll  
14 take a quick break, a 10-minute break.

15 MS. MUNDS-DRY: Thank you.

16 (A recess was taken from 9:58 a.m. to  
17 10:16 p.m.)

18 TECHNICAL EXAMINER EZEANYIM: Welcome  
19 back. Let's go back onto the record and continue  
20 with the cross-examination from COG.

21 MS. MUNDS-DRY: Thank you, Mr. Examiner.

22 EXAMINATION

23 BY MS. MUNDS-DRY:

24 Q. Good morning, Mr. Jacoby.

25 A. Good morning.

1 Q. Tell me -- I didn't catch it in your  
2 direct. What's the name of the paper that you have  
3 been honored -- or tasked -- I guess it's a question  
4 of whether it's an honor, right, since it will be a  
5 lot of work --

6 A. Yes.

7 Q. -- to work on that paper.

8 What's the title of that paper?

9 A. It's a long title. It's Utilization of  
10 slickwater and proppant design to -- I can't  
11 remember the name.

12 Q. Something close to that?

13 A. Yeah, something close to that.

14 Q. And did that paper get peer reviewed?

15 A. It goes through a group to review the --  
16 we write a synopsis of the paper, and several  
17 papers -- many papers are submitted for acceptance.  
18 Many are not accepted to be printed -- to be  
19 written. This one was at that level.

20 Q. Thank you.

21 If we could turn to Exhibit 18, please. I  
22 think that's what is up on the projector there.

23 Now if I understand correctly, Mr. Jacoby,  
24 the three -- Exhibits 18, 19, and 20 are based on  
25 this 80-acre area that's shown on Exhibit 18 right

1 there.

2 A. Yes.

3 Q. Is that correct?

4 A. Correct.

5 Q. And this is what you based your conclusion  
6 that the 20 acres is appropriate for these six pools  
7 that are subject to Burnett's application?

8 A. I'm making this conclusion based on the  
9 area that -- that we operate. I do the studies, and  
10 this is an example to show that for our area and our  
11 wells 20 acres is appropriate.

12 Q. Have you presented any other evidence here  
13 today that shows that any other area than 20 acres  
14 is appropriate?

15 A. I have not worked -- I have not applied  
16 this to other areas. But what I know about the  
17 Yeso, I think it certainly could have a good  
18 application in other parts of the Yeso.

19 Q. Now on this Exhibit 18, you picked the  
20 Burnett well, the Gissler. Is that how you say it?

21 A. Yes.

22 Q. The Gissler P-51, in the Harvard Federal  
23 13.

24 A. Yes.

25 Q. Why did you pick these wells to show

1 comparisons on?

2 A. Because they're close to each other, just  
3 thinking the pay would be more comparable, and I had  
4 good log strips. That's -- I was trying to get as  
5 much -- an apples and apples comparison.

6 Q. Do you know how far Burnett's frac jobs  
7 extend out from the well bore?

8 A. Our frac design is designed for 500 feet.

9 Q. Have you tagged any of your wells to  
10 determine if that's true?

11 A. I have not.

12 Q. How do you know if your design is keeping  
13 within that 500 feet?

14 A. Mainly -- I don't know that exactly it's  
15 500 feet, but I know it's a long extension, based on  
16 the results from our wells.

17 Q. So how do you determine your frac half  
18 length?

19 A. We have not gone in and actually run tests  
20 to know exactly what that is. We have seen some --  
21 some interference and seen the frac communicate with  
22 other wells.

23 Q. You've seen communication?

24 A. I have seen the frac communicate, yes.

25 Q. How far away -- in those instances where

1 you've seen communication, how offset was that other  
2 well?

3 A. At over 500, and it was one of ours that  
4 communicated a little over 900 feet away.

5 TECHNICAL EXAMINER EZEANYIM: Excuse me.  
6 Could you speak a little louder so I can hear?

7 THE WITNESS: I'm sorry.

8 TECHNICAL EXAMINER EZEANYIM: I'm sorry.  
9 A little louder, please.

10 THE WITNESS: She asked -- I have seen  
11 well frac that communicated a little over 900 feet  
12 away.

13 Q. (By Ms. Munds-Dry) And are these wells  
14 330 from the spacing unit line?

15 A. No.

16 Q. What was --

17 A. That well that I'm speaking of now was not  
18 it. Is was an interior well.

19 Q. It was an interior well from what?

20 A. Within the interior of Burnett leases.

21 Q. Okay. But what -- I want to make sure you  
22 understand my question. I'm asking was it 330 from  
23 the spacing unit line, not the lease line.

24 A. I'm not sure.

25 Q. So then I believe the answer that you gave

1 me before is that you haven't done any studies to  
2 determine your frac half length?

3 A. Not after the fact, no. We use a frac  
4 model that's been tested. And they're not exact,  
5 but they are approximate.

6 Q. Okay. Have you conducted any  
7 microseismic?

8 A. I have not.

9 Q. Has Burnett done an internal comparison  
10 from Burnett well to Burnett well between -- the  
11 difference between slickwater completions and gel  
12 water?

13 A. Burnett's initial wells in the Yeso were  
14 created with gel acid treatments. And yes, I have,  
15 to those. Burnett used a very few gel water fracs.  
16 We used a very few gel water fracs early on.

17 The evolution of our stimulation was with  
18 large volume hot acid treatments, and then we did a  
19 few gel water treatments, and then we went to  
20 slickwater.

21 And the results were so much better than  
22 the gel water and the hot acid that we have  
23 continued to do and will continue to complete our  
24 wells with slickwater.

25 Q. And have you presented any evidence here

1 today that show those internal comparisons?

2 A. I have not.

3 Q. Have you mapped the lenses, what -- you  
4 know what we call -- or what Concho at least calls  
5 the lenses? I'm not sure what you call them, but  
6 map the lenses in these logs? Are you able to do  
7 that?

8 A. Me personally or in my company?

9 Q. In your company?

10 A. Yes, in my company.

11 Q. And so you -- you feel like you've mapped  
12 those lenses?

13 A. The geologist that works this area has  
14 done some very detailed mapping. And yes, he has  
15 done some real detailed mapping of the lenses.

16 Q. I'd like to turn to Exhibit 19, please.

17 A. (Witness complies.)

18 Q. Do I understand, Mr. Jacoby, that the well  
19 count is nine Burnett wells and nine Concho wells?

20 A. Yes.

21 Q. And are these all Yeso wells?

22 A. They are Yeso.

23 Q. Are they --

24 A. Bl- --

25 Q. I'm sorry, go ahead.

1 A. I've stated Blinebry and Paddock.

2 Q. Are they all completed in the Blinebry and  
3 the Paddock?

4 A. We complete ours in the Blinebry and move  
5 up to the Paddock. And I looked at Concho wells.  
6 Many of these wells were still in the Blinebry. And  
7 at the end, each of us had two Blinebry/Paddock  
8 completions -- Yeso completions.

9 Q. So out of the 18 wells, two of the wells  
10 had two total completions. Is that what I  
11 understand from your testimony?

12 A. Two Concho, two Burnett.

13 Q. Two Concho, both in Paddock and Blinebry,  
14 and two Burnett?

15 A. In the last month.

16 Q. In the last month.

17 The numbers at the table at the bottom,  
18 Mr. Jacoby, that show the production and GOR  
19 numbers?

20 A. Yes.

21 Q. How did you get these numbers?

22 A. I just went to production records and  
23 totaled the production that was reported to the  
24 regulatory agencies.

25 Q. So you looked at public OCD data?

1 A. Yes.

2 Q. Did you provide this data that's the basis  
3 of this exhibit to Concho?

4 A. I'm not sure if it's provided. I mean  
5 it's public information. It's...

6 Q. So you don't know?

7 A. I don't think I did.

8 Q. One of your conclusions from this exhibit  
9 was that this showed that the drainage -- that this  
10 shows drainage to support your application for two  
11 wells per 40, or development on 20s. How does this  
12 exhibit show drainage?

13 A. Our wells are developed on 20-acre  
14 spacing. I don't know if we have -- I did not show  
15 the drainage area calculation on this -- in this  
16 slide. But we have done drainage calculations on  
17 all of our wells.

18 Q. Okay. But this slide doesn't support --

19 A. It does not show that --

20 Q. -- your conclusion on drainage?

21 TECHNICAL EXAMINER EZEANYIM: A little  
22 louder. A little louder.

23 A. Well, I think it does, just because of the  
24 increased production that we're -- we effect with  
25 our fracking.

1 Q. (By Ms. Munds-Dry) So in your opinion,  
2 the increased production shows drainage on your  
3 spacing units?

4 A. It shows more drainage, yes.

5 Q. At the end here -- if I can point to it  
6 (indicating), you show an increase -- I believe this  
7 red line is Concho's GOR.

8 A. Yes.

9 Q. Is that correct?

10 A. That's correct.

11 Q. And you show it rising here at the end?

12 A. Correct.

13 Q. Are you aware of whether there were any  
14 workovers or recompletions that would cause that  
15 sort of GOR to rise?

16 A. I'm not.

17 Q. So you don't know if there were any other  
18 factors that would affect that increase in GOR?

19 A. I do not.

20 Q. Mr. Jacoby, if -- if I'm looking at your  
21 Exhibit 18 and 19, and I understand your testimony  
22 to be that Burnett has an essentially -- let's call  
23 it a better completion technique. If Concho is  
24 using a different completion technique, can they  
25 drain a 40-acre unit with two wells?

1           A.     Maybe. I don't know. I mean it's  
2 developed on 10s now. I'm just -- from the study  
3 that we have done with our log analysis and the  
4 results of our frac technique, and that has worked  
5 for us on our acreage, was my...

6           Q.     So you can really only speak to the  
7 Burnett acreage effectively being drained, according  
8 to your testimony, with two wells on a spacing unit?

9           A.     As far as the results, yes, but it applies  
10 to the Yeso.

11          Q.     It applies to the Yeso? All of the Yeso?

12          A.     Right. I would say that this technique  
13 would apply to the Yeso Paddock.

14          Q.     What leads you -- what evidence have you  
15 provided here today that should lead you to that  
16 conclusion?

17          A.     I have not -- just the technique works in  
18 the reservoir such as the Yeso, has worked on the  
19 acreage we operate, it's my assumption that it would  
20 work on other parts of the basin.

21          Q.     Okay. But if Burnett is the only one  
22 using that type of completion technique, is that --  
23 that fair to say that you could apply that  
24 conclusion to other operators?

25          A.     No.

1 Q. You're assuming that completion technique?

2 A. Yes, yes.

3 Q. And you're aware now that under existing  
4 spacing rules that you don't have to drill four  
5 wells on a spacing unit?

6 A. I do. I am.

7 Q. If we could turn to Exhibit Number 20,  
8 please.

9 A. (Witness complies.)

10 Q. Mr. Jacoby, how did you pick these logs?  
11 Why did you decide to use these four logs?

12 A. Principally, just to show that it's  
13 geologically apples and apples going all the way  
14 across the 160 with Burnett on the west and Burnett  
15 on the east, to show with -- it's an apples and  
16 apples reservoir.

17 Q. Do you agree that the Yeso shelf here is a  
18 heterogenous lenticular reservoir?

19 A. I think -- yes.

20 Q. And I believe you said, actually,  
21 comparable geologically. Is that -- that was your  
22 testimony?

23 A. I believe those were my words.

24 Q. In each of these logs, how far are you  
25 looking out in a log?



1           Did you give Concho the lens mapping that  
2 you described?

3           A.     I do not believe so.

4           Q.     Now, turning to Exhibit 18.

5           MR. COONEY:   Could we have Exhibit 18,  
6 please?

7           Q.     (By Mr. Cooney)   First, your testimony was  
8 that you could correlate the pay zones in the  
9 Paddock from the logs appearing on the right-hand  
10 side of this exhibit.   Is that correct?

11          A.     I believe when I stated that, I was  
12 sticking to that other exhibit with the four logs on  
13 the...

14          Q.     Okay.   That would be Exhibit 20?

15          A.     Yes.

16          MR. COONEY:   Could we see Exhibit 20,  
17 please?

18          Q.     (By Mr. Cooney)   All right.   You could  
19 correlate the pay zones in the Paddock from these  
20 logs?

21          A.     My statement was that you can correlate  
22 and see the porosity development pretty much along  
23 the same -- through all four wells.

24          Q.     Can you correlate the pay zones in the  
25 Blinebry?

1 A. Not as easily, no.

2 MR. COONEY: Could you turn to Exhibit 3,  
3 please?

4 Okay. Thank you.

5 Q. (By Mr. Cooney) Now, will you identify on  
6 Exhibit 3 the area -- I think you did for  
7 Mr. Campbell -- the area that this 640 acres that we  
8 are talking about on Exhibits 18, 19, and 20, where  
9 is that on Exhibit 3?

10 A. Right here (indicating).

11 Q. Okay. And that's an area where you say  
12 there are Burnett wells and there are also COG wells  
13 drilled on 10-acre spacing. Is that correct?  
14 That -- Burnett on 20 and the COG on 10?

15 A. Yes.

16 Q. Okay. Aren't there other areas in Exhibit  
17 3 where there are COG wells on 10-acre spacing and  
18 Burnett wells on 20-acre spacing?

19 A. Other areas in...

20 Q. In this exhibit, in Exhibit 3?

21 A. Yes.

22 Q. Why did you select this particular area?

23 A. Because I was trying to select an area  
24 where we had more than two or three wells, just a  
25 group of nine wells. I did not high grade other

1 areas. It was just an area where we were on three  
2 sides of COG.

3 Sorry, right there (indicating).

4 Q. Okay.

5 A. We have production on three sides. It  
6 just seemed like that it was more apples and apples  
7 in the heavy production all the way around.

8 Q. And that was the sole basis for selecting  
9 this 640-acre area?

10 A. To make this comparison.

11 Q. Did you do any comparison of the other  
12 areas where -- that are shown on Exhibit 3 -- where  
13 we can see that there are Burnett wells on 20-acre  
14 spacing and COG wells, or Apache wells for that  
15 matter, on 10-acre spacing?

16 A. I did not.

17 Q. Now you're basing your analysis and  
18 conclusions, then, on what you derived from the  
19 study of the 640-acre area as applying to the entire  
20 area embraced within the six-pool block here that  
21 you wish to have all consolidated. Is that correct?

22 A. Yes.

23 Q. And I believe another exhibit showed that  
24 Burnett has 85 wells or 86 wells in this area?

25 A. We do. Right in this area (indicating),

1 where I made the -- yes.

2 Q. Did you do any comparison of the GOR and  
3 production records of 85 Burnett wells versus 85 COG  
4 or COG and Apache wells?

5 A. No.

6 Q. And your testimony is that you can simply  
7 extrapolate what you concluded from the study of  
8 these nine wells to the entire area?

9 A. I'm making the statement that it works  
10 very well on that acreage.

11 Q. In this area you picked?

12 A. Yes.

13 Q. Okay. Now, I believe your testimony was  
14 that based on this work, you think that the drilling  
15 of the third and the fourth well, the cost of that  
16 is economic waste?

17 A. Yes, I am. On our -- on the wells that we  
18 operate.

19 Q. Okay. And that in most areas, you think  
20 that two wells in the 40-acre proration unit is  
21 sufficient?

22 A. Did I say that?

23 Q. I think you said most areas.

24 A. I think it's applicable. I know that -- I  
25 know that the whole area, a lot of area is developed

1 on 10s. Maybe it would have worked, but it's --  
2 it's been done. I'm saying it works.

3 Q. Okay. Are you saying that your analysis  
4 applied to every area within the block of the  
5 six-pool unit you're trying to get consolidated  
6 here?

7 A. My -- my response to that would be that I  
8 would evaluate this in every area and study with  
9 open-hole logs and do the same kind of analysis that  
10 we do, and just evaluate it. If we drill the 20s  
11 first and if that works, then evaluate drilling the  
12 10s.

13 Q. And in fact, you haven't evaluated any  
14 area other than this 640 acres which is the subject  
15 of Exhibits 18, 19, and 20?

16 A. For this particular analysis, no.

17 Q. Okay. Now, do you log these slickwater  
18 fracs?

19 A. When you say "log," you're talking about  
20 tracers?

21 Q. Yes.

22 A. No, I have not.

23 Q. Okay.

24 MR. COONEY: Would you bring up Exhibit 18  
25 again? I'm sorry for making you go back and forth,

1 Mr. Campbell.

2 Thank you, sir.

3 Q. (By Mr. Cooney) Now, do you see where my  
4 little pointer is there? There's a Burnett well  
5 (indicating). I'm sorry that it's shaking so much.  
6 It must be my advanced age.

7 There's a Burnett well on the south side  
8 of what you've outlined in blue, and a COG well  
9 directly to the north and a little bit to the west.

10 A. Yes.

11 Q. And you frac on a northwest pattern?

12 A. The slickwater frac, one thing that I did  
13 not mention, it -- it contacts all the  
14 microfractures, I would say preferentially  
15 northwest. But it does not -- generally, it goes  
16 out in a much more radial, because it contacts a  
17 whole lot of the fracture systems.

18 Q. How far out does it go?

19 A. As I testified, the frac model in our  
20 design is based on 500 feet.

21 Q. Well, in that particular area, on a  
22 northwest frac orientation, doesn't it look like you  
23 may be producing some of COG's gas?

24 A. I would -- ask that question again.

25 Q. Well, if you go out 500 feet or more from

1 your well with your slickwater frac job, isn't that  
2 getting into the area outlined in blue?

3 A. It possibly could be.

4 Q. Okay. Now one thing we can probably agree  
5 on, Mr. Jacoby, as we look at the production figures  
6 that you have in Exhibit 19 -- and we don't need to  
7 bring that up -- is that there doesn't seem to be  
8 any interference between the 10-acre wells and the  
9 COG wells. There doesn't seem to be any  
10 interference with the Burnett wells outside of the  
11 blue box. Is that correct?

12 A. Based on?

13 Q. Based on this production data.

14 A. What I will say is that I have seen -- I  
15 did not com- -- let me say I did not compare the  
16 decline curves for interference.

17 Q. Okay. And if we look -- maybe we ought to  
18 go to Exhibit 20 -- no, Exhibit 19.

19 Okay. What this is designed to show is  
20 that the Burnett wells are producing better than the  
21 COG wells.

22 A. Yes.

23 Q. So wouldn't that indicate to you that the  
24 existence of the Burnett wells on the 10-acre  
25 spacing doesn't seem to be having much impact --

1 excuse me -- the existence of the COG wells on the  
2 10-acre spacing doesn't seem to have much impact on  
3 the Burnett wells?

4 A. That's correct.

5 Q. Okay. Also on this slide, I was curious  
6 here that the oil production in the Burnett wells,  
7 these nine wells, seems to be going up. Is that  
8 right?

9 A. It does, yes.

10 Q. And if I read this right, is that 27.4 MBO  
11 per month? What is that, in thousands of barrels of  
12 oil? I'm not real good at Ms and all of that.

13 A. That's 27,700 barrels per month.

14 Q. Okay. That's way above the current  
15 allowable, is it not?

16 A. Yes.

17 Q. And if the oil production seems to be  
18 going up, the annual averaging you are seeking may  
19 not do you much good with the allowable you're  
20 proposing. Isn't that correct?

21 A. Let me just say that the 27,000 and the --  
22 all of these wells have -- there are fracs being  
23 done on the Blinbry, cleanups were taking place.  
24 Our first completion was in October of 2009, and we  
25 did not realize exactly how the OCD was applying the

1 allowable.

2 Q. Okay. Have you done any studies of the  
3 long-term effects or results of slickwater fracking,  
4 as opposed to conventional sand or L-fracking?

5 A. What do you mean by "long-term"?

6 Q. Well, you've only been doing it a few  
7 years, so you don't know what the long-term effects  
8 are in this area of the Yeso formation?

9 A. No, we do not.

10 Q. Okay. And getting back for a moment to  
11 your testimony that it's economic waste to drill the  
12 third and fourth well, isn't the -- or aren't the  
13 frac jobs that Burnett does, the slickwater frac  
14 jobs, much more expensive than the gel frac that COG  
15 is using?

16 A. No, they're not.

17 Q. Are they any more expensive?

18 A. They're comparable. I have not --

19 Q. What is the expense?

20 A. I have not compared it recently, but some  
21 time ago I compared it.

22 Q. Is the drilling of a horizontal well more  
23 expensive than a vertical well?

24 A. Yes.

25 Q. Okay. Now what you're, in essence,

1 saying, then, is that the division should force  
2 operators to use the slickwater frac technique as  
3 opposed to the gel water that they're using, and  
4 thereby avoid what you term the economic waste of  
5 cost of the drilling the third and fourth well?

6 A. I don't think I was saying to force people  
7 to. I'm just saying these are the conclusions I  
8 draw for us. It works well for us.

9 Q. Okay. It's Burnett's choice to use the  
10 slickwater frac with two wells?

11 A. Yes.

12 Q. And other operators may choose to use a  
13 more conventional fracking system via four wells?

14 A. Yes.

15 Q. On the production comparison represented  
16 here in Exhibit 19, have you -- have you done an  
17 extended time comparison of the production and GOR  
18 rates?

19 A. On these wells?

20 Q. Yes.

21 A. Not extended more than -- these are all  
22 fairly new completions.

23 Q. Another thing I was curious about, and I'm  
24 not that -- I'm almost done.

25 If we look at Exhibit 18 --

1 MR. COONEY: If you could go back to that,  
2 Mr. Campbell.

3 Q. (By Mr. Cooney) Now, I'm not sure if I  
4 counted this right, but it looks to me like there  
5 are 12 COG wells within the blue box. Is that  
6 right?

7 A. There are -- I'm sorry. I did not say  
8 that -- the wells used in this comparison were  
9 highlighted in green or yellow. I'm sorry, I'm  
10 colorblind. The Brin- --

11 Q. It's green.

12 A. It's green? Okay.

13 I think for those three wells, can you see  
14 the green color around the --

15 Q. Yeah, that's what I'm looking at.

16 A. Those nine wells.

17 Q. Okay. You didn't use all 12 of the COG  
18 wells?

19 A. Some of their wells were completed in the  
20 Grayburg San Andres.

21 Q. Okay. Are you saying that there are only  
22 nine wells within the blue box completed in the  
23 Paddock and Blinebry or in the Blinebry?

24 A. I'm not sure. I -- I don't recall on the  
25 other wells.

1 Q. Okay. And out of the 21 Burnett wells  
2 that I count outside the blue box, why is it that  
3 you only used nine of those?

4 A. I was trying to make apples and apples. I  
5 was trying to make nine versus nine rather than --

6 Q. Okay. And on what basis did you select  
7 this particular nine?

8 A. Of which wells? Which nine?

9 Q. Burnett wells.

10 A. Burnett wells? Proximity to the Harvard  
11 Federal lease.

12 Q. All right. Would you agree that the wells  
13 in this Yeso formation generally have a hyperbolic  
14 decline followed by a long relatively flat decline  
15 over time?

16 A. I would say they go -- hyperbolic going  
17 into an exponential decline, yes.

18 Q. If there was well work going on with  
19 respect to any of the nine COG wells that you used  
20 for your comparison during this six-month period you  
21 state, wouldn't that affect the validity of the  
22 comparison?

23 A. It would. I tried to take that into  
24 account, looking at the month's production. And I  
25 made an esti- -- I made a guesstimate that -- if a

1 well had severely less production, and none of these  
2 were. So I assume that they were not down for any  
3 extended period of time.

4 MR. COONEY: I have nothing further.

5 THE WITNESS: Thank you very much.

6 TECHNICAL EXAMINER EZEANYIM: All right.

7 LEGAL EXAMINER BROOKS: I would like to  
8 ask one question.

9 MR. CAMPBELL: I have some redirect. May  
10 I redirect?

11 LEGAL EXAMINER BROOKS: Okay.

12 We will change at 10:49.

13 FURTHER EXAMINATION

14 BY MR. CAMPBELL:

15 Q. Mr. Jacoby, I would like to refer you to  
16 Burnett Exhibit Number 19.

17 Counsel was suggesting that there has been  
18 no evidence of impact by COG's 10-acre wells on  
19 Burnett/Hudson's 20-acre wells.

20 Would you consider the differential and  
21 the high and increasing GOR ratio in COG's wells to  
22 be a possible impact on Burnett/Hudson?

23 A. Yes, I would.

24 Q. Now relative to actual interference or  
25 communication between COG's 10-acre wells and

1 Burnett/Hudson's 20-acre wells, is six months enough  
2 time to give you a clear read as to whether there is  
3 interference occurring or not?

4 A. Probably not. You'll have to look at a  
5 decline curve over time, unless there's a direct  
6 frac communication.

7 Q. Are you aware factually of a circumstance  
8 when a COG 10-acre well has communicated with and  
9 adversely impacted a 20-acre Burnett/Hudson well?

10 A. Yes, I am.

11 Q. I'd like to probe that just a little bit.

12 MR. CAMPBELL: I have a demonstrative  
13 exhibit here, Mr. Examiner, if I might hand it to  
14 the witness and opposing counsel.

15 TECHNICAL EXAMINER EZEANYIM: Sure.

16 MR. CAMPBELL: It is not marked as an  
17 exhibit.

18 LEGAL EXAMINER BROOKS: If you call it a  
19 demonstrative exhibit, you don't propose to offer it  
20 into evidence. Is that correct?

21 MR. CAMPBELL: That's right.

22 TECHNICAL EXAMINER EZEANYIM: You don't  
23 want it to be part of the record, you just want  
24 people to see it?

25 MR. CAMPBELL: Well, why don't we -- why

1 don't we go ahead and introduce it. It is direct --  
2 we believe direct evidence of adverse --

3 LEGAL EXAMINER BROOKS: Yes, I was  
4 wondering why you were not offering it as an exhibit  
5 if it was --

6 MR. CAMPBELL: I don't have it marked.  
7 Could we mark it as Exhibit 54?

8 TECHNICAL EXAMINER EZEANYIM: We have to  
9 ask for objections to that.

10 LEGAL EXAMINER BROOKS: Yeah.

11 MR. CAMPBELL: We can mark it, and then I  
12 would offer it as Exhibit 54, and you can object.

13 MS. MUNDS-DRY: No objection.

14 MR. COONEY: No objection.

15 TECHNICAL EXAMINER EZEANYIM: No  
16 objection? Okay.

17 LEGAL EXAMINER BROOKS: All right.

18 TECHNICAL EXAMINER EZEANYIM: So you can  
19 mark the exhibit, and if you would like, you can  
20 admit it.

21 MR. CAMPBELL: Okay.

22 Q. (By Mr. Campbell) Mr. Jacoby, could you  
23 identify Burnett/Hudson Exhibit 54?

24 A. Yes. It is the Burnett-operated Section 8  
25 Gissler B lease.

1 Q. Do we have to go back to Exhibit 3 to find  
2 this location?

3 A. Yes. Go back to Exhibit 3.

4 Q. All right. Can you locate on the general  
5 map, Exhibit 2, where this Section 8, 17 South, 30  
6 East is?

7 A. Section 8 is this -- colored in yellow,  
8 that's just west about three miles from our main  
9 area of operations.

10 Q. All right. And Exhibit 54, then, is  
11 illustrating circumstances in this far southeast,  
12 southeast quarter section?

13 A. Yes. Yes, it is.

14 Q. All right. Returning to Exhibit 54, could  
15 you identify the circumstance of direct interference  
16 by a COG 10-acre well on a 20-acre Burnett/Hudson  
17 well?

18 A. Yes. We have a well, the Gissler B-45,  
19 which is in the very southeast of the southeast,  
20 Section 8. It was on production. It had been  
21 produced -- was producing.

22 Concho was completing the Caddo Federal  
23 Number 7, which is a 10-acre well. It's due south  
24 of the Gissler B-45. At the time they were  
25 completing, and when they fracked that well, it

1 directly fracked into the Gissler B-45. The well  
2 was making over 100 barrels of oil a day, was still  
3 cleaning up from the frac, and their frac  
4 communicated. It knocked our well off for a month.  
5 We had to pull the well and got sand in the pump.

6 The well is now back. It's now back in  
7 production. But, yes, it communicated directly with  
8 our well.

9 Q. Would there be any other reason for the  
10 cessation of production in your well other than the  
11 communication and interference by the COG well?

12 A. Not that I'm aware of.

13 Q. Now, Mr. Jacoby, if an operator can drain  
14 40 acres with only two wells, not four, if doing so  
15 increases production and yet honors the state-wide  
16 rules at a 2,000 to 1 gas/oil ratio and the cost is  
17 comparable, why is it, in your opinion, COG is not  
18 utilizing this technology?

19 A. My opinion would be that it doesn't fit  
20 their model of a standardized program of -- of,  
21 basically, a standardized program of drilling and  
22 completing wells.

23 Q. That is to say, COG insists on what they  
24 call a statistical approach to drilling rather than  
25 a prudent examination of individual well logs?

1 A. Yes. Yes.

2 Q. Burnett/Hudson is not trying to force COG  
3 into utilizing the slickwater frac, is it?

4 A. No. We are not trying to force anyone to  
5 use that.

6 Q. But it is your expert testimony to the  
7 division that wells can be drained out there. A  
8 40-acre production unit can be drained effectively  
9 and efficiently with only two wells?

10 A. Yes, it is.

11 Q. And that rules requir- -- rules allowing  
12 four wells to be drilled results in economic waste?

13 A. Yes. I would say that from my analysis  
14 here.

15 MR. CAMPBELL: That's all I have.

16 LEGAL EXAMINER BROOKS: It's 10:56.

17 My question was this.

18 TECHNICAL EXAMINER EZEANYIM: Do you have  
19 any redirect based on those questions?

20 MS. MUNDS-DRY: We do, based on this  
21 exhibit.

22 TECHNICAL EXAMINER EZEANYIM: Yeah. Okay.  
23 Go ahead.

24

25

1 FURTHER EXAMINATION

2 BY MS. MUNDS-DRY:

3 Q. Mr. Jacoby, Exhibit 54, do you still have  
4 that in front of you?

5 A. Yes.

6 Q. This Gissler B-45, how far is that from  
7 this section line?

8 A. It's a 330.

9 Q. Did you use a slickwater frac job on the  
10 well?

11 A. Yes.

12 Q. You previously testified you designed the  
13 frac jobs to go 500 feet.

14 A. Yes.

15 Q. And your -- your frac -- frac direction  
16 generally goes north/south?

17 A. I think it goes radially.

18 Q. It goes radially?

19 A. It goes pretty much northwest/southeast.

20 Q. You've also testified that you have seen  
21 some frac lengths go as long as 900 feet.

22 A. That long, yes.

23 Q. Did you frac your well before Concho  
24 fracked its well, the Caddo Fed 7?

25 A. Yes.

1 Q. How do you know you didn't frac into our  
2 well?

3 A. I do not know that.

4 Q. You do not know? So this --

5 A. It was not drilled. It was not drilled at  
6 the time.

7 Q. So this evidence of interference could  
8 have been because your frac job fracked into our  
9 well?

10 A. The interference occurred on the same day  
11 that the Caddo 7 was being fracked, and they fracked  
12 into the well.

13 Q. Certainly, you can't argue that it's very  
14 possible that it at least went into Concho's  
15 acreage, your frac job?

16 A. It's possible.

17 MS. MUNDS-DRY: Thank you.

18 MR. COONEY: I've got a couple more  
19 questions, if I could.

20 TECHNICAL EXAMINER EZEANYIM: Go ahead.

21 Your time is still running.

22 MR. COONEY: Thank you.

23 FURTHER EXAMINATION

24 BY MR. COONEY:

25 Q. Mr. Jacoby, you said that six months isn't

1 enough time to know if COG's wells on a 10-acre  
2 spacing are adversely affecting Burnett, is that  
3 correct, Burnett's 20-acre spacing?

4 A. I said that.

5 Q. Okay. Isn't it true that that's also not  
6 enough time to know if a slickwater frac will help  
7 the well to produce or drain 20 acres, if you're  
8 just looking at six months' worth of data?

9 A. I look at six months' worth of data and  
10 estimate from decline curves, and that's -- I've  
11 estimated that it continues to -- to produce oil on  
12 time.

13 Q. But you don't have any long-term studies  
14 or data concerning slickwater fracs?

15 A. We began fracs -- slickwater fracs -- the  
16 first one the end of 2007 --

17 Q. Okay.

18 A. -- or January of 2008.

19 Q. So we're only dealing with three and a  
20 half years?

21 A. That's correct.

22 Q. Have you ever run into or heard of  
23 instances where the slickwater frac well's  
24 production falls off over a period of time, as  
25 compared to gel water or gel fracs?

1           A.     My com- -- my analysis shows that decline  
2 rates are less steep. The hyperbolic portion  
3 lasts -- is quicker, and will get into the  
4 exponential curve more quickly.

5           Q.     You haven't produced any of those decline  
6 curves to support this analysis, though?

7           A.     I have not produced beyond when they were  
8 completed.

9           Q.     Okay. Now, can you turn to Exhibit 19 one  
10 more time?

11          A.     (Witness complies.)

12          Q.     Maybe I just don't understand this. And  
13 if so, I apologize. But doesn't this show a GOR of  
14 2.2, that would be 2,200 to 1, in the second month  
15 for the Burnett GOR?

16          A.     Yes.

17          Q.     And 2,500 the third month?

18          A.     Yes.

19          Q.     And going on out there to the right, all  
20 of those are above 2,000 to 1, are they not?

21          A.     Yes.

22                 MR. COONEY: Nothing further.

23                 MR. CAMPBELL: Mr. Ezeanyim, I'm sorry. I  
24 didn't request to make one clarification question on  
25 cost. I will be very brief.

1 TECHNICAL EXAMINER EZEANYIM: Okay. Sure.

2 LEGAL EXAMINER BROOKS: Did you pass the  
3 witness?

4 MR. COONEY: Yes, I passed the witness.

5 LEGAL EXAMINER BROOKS: Okay. Passed the  
6 witness at 11:01.

7 TECHNICAL EXAMINER EZEANYIM: And then  
8 we're going to Burnett/Hudson.

9 LEGAL EXAMINER BROOKS: Okay.

10 TECHNICAL EXAMINER EZEANYIM: You can ask  
11 any question you want.

12 FURTHER EXAMINATION

13 BY MR. CAMPBELL:

14 Q. Mr. Jacoby, my question may have been, you  
15 know, inartful.

16 You have said that the cost, generally, of  
17 a slickwater frac for a Burnett well is roughly  
18 equivalent to the gel frac AFE by COG, correct?

19 A. When I have compared the costs in some  
20 months back, yes, they were comparable.

21 Q. Okay. So in Burnett/Hudson's thinking, it  
22 can drill two of those slickwater fracs and drain  
23 the production unit, whereas COG would have to drill  
24 four of its comparatively costed gel fracs, correct?

25 A. Yes, that's correct.

1 Q. So that the COG completion techniques to  
2 drain the same acreage costs about twice as much  
3 money. Is that a fair statement?

4 A. Yes.

5 MR. CAMPBELL: Thank you, Mr. Examiner.

6 TECHNICAL EXAMINER EZEANYIM: Thank you.

7 LEGAL EXAMINER BROOKS: Okay. This is --

8 TECHNICAL EXAMINER EZEANYIM: Redirect?

9 MS. MUNDS-DRY: Mr. Ezeanyim, based on  
10 that question, if I could, briefly.

11 TECHNICAL EXAMINER EZEANYIM: Okay.

12 LEGAL EXAMINER BROOKS: The time now is  
13 11:03.

14 TECHNICAL EXAMINER EZEANYIM: Now, it's  
15 COG. I know you are going back and forth.

16 MS. MUNDS-DRY: I'll make this brief.

17 FURTHER EXAMINATION

18 BY MS. MUNDS-DRY:

19 Q. Mr. Jacoby, if I understand your answer,  
20 then, are we all going to be forced to slickwater  
21 frac?

22 A. I'm not forcing anyone to slickwater  
23 frac.

24 Q. Then how do your cost comparisons mean  
25 anything? How does that show economic waste?

1           If we want to go about our business and do  
2 four wells with gel fracs at the same cost, why is  
3 that any different?

4           A.     Four times two is -- costs more than at a  
5 comparable price, is all I'm saying.

6           Q.     Well, you're saying to drain 40 acres with  
7 two wells you have to use a slickwater gel, correct?

8           A.     Correct.

9           Q.     Concho chooses to do it and Apache chooses  
10 to do it in a different way, and it takes four wells  
11 to drain the 40-acre spacing unit, correct?

12          A.     Correct.

13          Q.     So in order to get to your conclusion, we  
14 all have to drill with slickwater fracs, correct?

15          A.     To get to my conclusion, the --

16          Q.     That we need two wells per 40?

17          A.     I'm just saying that's what the cost is  
18 for our two wells. That's just what I'm saying.

19                 MS. MUNDS-DRY:   Okay.   Thank you.

20                 TECHNICAL EXAMINER EZEANYIM:   Thank you.

21                 LEGAL EXAMINER BROOKS:   Okay.   It's 11:04.

22                 I can understand -- and even a lawyer can  
23 understand -- that if your fracking technique  
24 produces longer or more extensive or more adequate  
25 fracturing of a formation, why it would produce a

1 greater amount of production.

2           What I don't know, and I would ask your --  
3 what I didn't really follow from your presentation,  
4 and what I would ask your explanation of, is why  
5 does your fracking technique, in your opinion, keep  
6 the GOR down as compared to the techniques used by  
7 COG?

8           THE WITNESS: My opinion is that with the  
9 longer frac length, the slickwater frac does frac in  
10 a general direction, but it -- with a slickwater,  
11 the main advantage is it's contacting microfractures  
12 in the reservoir; whereas, the gel water builds one  
13 fracture and -- and has fluid loss and does not  
14 contact nearly as much area of the fractures.

15           And the gel water frac is -- is designed  
16 probably at 150 or 200 feet, I'm not sure exactly  
17 what. But just my experience from having used them,  
18 it's -- that's an approximation. And slickwater is  
19 around 500 feet long.

20           So you have more reservoir that's  
21 stimulated and is producing into the well bore  
22 before it gets to a matrix flow condition, is why I  
23 think -- why I think that it produces a lower GOR.

24           LEGAL EXAMINER BROOKS: And what  
25 exactly -- now, you know, I'm not a technical

1 person. What exactly do you mean by "matrix flow  
2 condition"?

3 THE WITNESS: It's the point in time where  
4 the reservoir is flowing out of an unstimulated part  
5 of the reservoir, where it's just matrix in its  
6 natural state.

7 LEGAL EXAMINER BROOKS: Thank you.

8 TECHNICAL EXAMINER EZEANYIM: You're done?

9 LEGAL EXAMINER BROOKS: I'm done.

10 TECHNICAL EXAMINER EZEANYIM: Thank you  
11 very much. This is -- this is becoming interesting.  
12 I'm enjoying this but -- you know my work is cut out  
13 for me, but I am enjoying it.

14 Mr. Jacoby, this is interesting. First of  
15 all, let me begin with your paper that you're going  
16 to present this September.

17 Has that paper been peer reviewed for  
18 presentation or is it just under the -- still not  
19 reviewed by your peers or something?

20 Because before you present it, it has to  
21 be peer reviewed and then, you know, maybe approved  
22 for presentation.

23 THE WITNESS: The process is you make  
24 application for the paper, and you write a synopsis.  
25 And there's a committee that the SPE sets up. They

1 review the -- the synopsis of the paper and they  
2 accept or reject that paper.

3 TECHNICAL EXAMINER EZEANYIM: Oh, yeah. I  
4 know that. I have presented something at the SPE.  
5 I know how it goes.

6 THE WITNESS: Okay.

7 TECHNICAL EXAMINER EZEANYIM: That's why  
8 I'm asking you. Has it been peer reviewed, the  
9 paper you wrote?

10 THE WITNESS: Not peer reviewed, except to  
11 that level.

12 TECHNICAL EXAMINER EZEANYIM: Okay.

13 Okay. Now going back to your testimony,  
14 let's start with Exhibit Number 18, I think, because  
15 it is very interesting.

16 Oh, here we go. Look -- let's look at --  
17 allow me -- you have it, or you can look at it  
18 there. I have it, but I can look at it here.

19 Let's go to that and find one and compare  
20 it here, and look at Bennett and COG. What they're  
21 trying to demonstrate there, correct me if I'm  
22 wrong, is that they have an amount of sand, but the  
23 water, the fluid you are using, you are using a  
24 lighter fluid than COG?

25 THE WITNESS: Yes.

1           TECHNICAL EXAMINER EZEANYIM: And you  
2 are -- what you call slick -- slickwater, which  
3 you're writing a paper on, right?

4           THE WITNESS: Yes.

5           TECHNICAL EXAMINER EZEANYIM: You have  
6 written a paper on this slickwater?

7           THE WITNESS: We are writing it. It's not  
8 written.

9           TECHNICAL EXAMINER EZEANYIM: Oh, it's not  
10 written. So you are writing it. After you write  
11 it, it will be peer reviewed, so it's not really  
12 close to that. Okay. You're just writing it.  
13 Before, you can provide some abstracts. Okay.

14           Now, can you demonstrate to me on that --  
15 on this block diagram what you are trying to  
16 demonstrate to the commission?

17           THE WITNESS: I'm trying to demonstrate  
18 that using the slickwater technique that we have  
19 used, we stimulate the Blinbry.

20           TECHNICAL EXAMINER EZEANYIM: Yeah.

21           THE WITNESS: We stimulate at different  
22 intervals in the well, and that it is superior --  
23 has resulted in superior results to the COG  
24 completion, where there's a -- we frac each interval  
25 successively. And then I just compare six months --

1 the first six months' production on a normalized  
2 basis.

3 TECHNICAL EXAMINER EZEANYIM: Okay. I  
4 see, looking at that, because I want to understand  
5 your intent of that block diagram.

6 THE WITNESS: Okay.

7 TECHNICAL EXAMINER EZEANYIM: The block  
8 diagram you are demonstrating, you are using a  
9 lighter fluid, not really the friction reducer.

10 Is that -- is it because of the friction  
11 reducer that you add to the water or is it because  
12 of the lighter amount of water that you use?

13 THE WITNESS: The slickwater design  
14 requires a lot of water. It's pumped at a high  
15 rate, 80 barrels a minute plus or minus. And the  
16 design is such that pads of water alternating with  
17 pads of water and sand, many stages, 50 or 60, just  
18 alternating. So that once the sand is pumped, the  
19 water follows, and just pushes the sand further out.

20 TECHNICAL EXAMINER EZEANYIM: Okay.  
21 Before you turned to slickwater frac, you have done  
22 some gel water frac, right? You've done that?  
23 You've got that testimony today. You've done some  
24 gel water in your well, in the Burnett/Hudson wells.  
25 You used gel water frac before you turned to the

1 slickwater, right?

2 THE WITNESS: Burnett Oil had. The  
3 engineer previous to me used a few gel water fracs.

4 TECHNICAL EXAMINER EZEANYIM: Oh, you  
5 never did it yourself?

6 THE WITNESS: Not myself, no.

7 TECHNICAL EXAMINER EZEANYIM: Okay. Now  
8 for what the engineer did, can you give me a  
9 comparison between the gel water and slickwater?  
10 What I understand, which I think is true, is the way  
11 of using slickwater you have low viscosity; gel is  
12 high viscosity.

13 So give me a comparison of why gel water  
14 or slickwater is done, or gel water frac.

15 THE WITNESS: One reason that slickwater  
16 is better is there's only one chemical added, the  
17 friction reducer.

18 The gel water has cross-linkers, breakers.  
19 It has a lot of chemicals added to gel the fluid.

20 The design of the slickwater extends  
21 further, to get more frac length.

22 TECHNICAL EXAMINER EZEANYIM: Isn't it  
23 more costly to do gel water than slickwater?

24 THE WITNESS: My -- in the -- a few months  
25 ago I compared the jobs, one job each, and they're

1 very comparable. I don't remember the numbers, but  
2 the percentage was they were comparable in cost.

3 TECHNICAL EXAMINER EZEANYIM: Okay. Now,  
4 why don't we go to that Exhibit Number 18 again?

5 I see this is Gissler B-51 and the Harvard  
6 Federal Number 13. Those -- okay. B-51 is on 20  
7 acres, right, 51, Burnett/Hudson?

8 THE WITNESS: Yes, correct.

9 TECHNICAL EXAMINER EZEANYIM: And then  
10 Harvard Federal is on 10 acres?

11 THE WITNESS: Yes.

12 TECHNICAL EXAMINER EZEANYIM: Okay. In  
13 your demonstration here, are those two wells  
14 producing both for the Paddock and Blinebry?  
15 Because we need to know -- if we're going to compare  
16 apples and apples, we want to know whether both  
17 wells are producing from the same pool including  
18 Paddock and Blinebry, or is one producing from  
19 Paddock and one is producing from both?

20 Can you tell me where you get these  
21 numbers, when we go to Number 19? Can you tell me  
22 where those two wells are producing so that we can  
23 make an accurate comparison?

24 THE WITNESS: Okay. The curve on the next  
25 exhibit is the sum of nine wells. I do not have the

1 production comparison of each of these two wells.

2 TECHNICAL EXAMINER EZEANYIM: Okay.

3 THE WITNESS: I know what the first four  
4 months' production is, and I can tell you what these  
5 two wells are producing out of. But I do not have  
6 this slide that was -- that slide is a production  
7 comparison.

8 TECHNICAL EXAMINER EZEANYIM: Yes. I'm  
9 going to come to that slide.

10 THE WITNESS: Okay. I'm sorry. I'm  
11 sorry.

12 TECHNICAL EXAMINER EZEANYIM: I'm still  
13 going to stay on Number 18 here.

14 THE WITNESS: Okay.

15 TECHNICAL EXAMINER EZEANYIM: But you know  
16 what I'm trying to really understand, and what I  
17 want to know, is what can the reservoir -- is what  
18 you tell me that I'm going to use to process that  
19 information.

20 THE WITNESS: Okay. I'll say the well  
21 Gissler B-51, for the first four months of  
22 production -- and the reason I'm saying four months'  
23 production is the Harvard Federal was completed in  
24 December of 2010, and there's only four months of  
25 production that's been reported.

1 TECHNICAL EXAMINER EZEANYIM: Okay.

2 THE WITNESS: And it was completed in the  
3 Blinebry and the Paddock altogether, just  
4 consecutive fracs, so that the entire Yeso section  
5 is on production for the first four months.

6 The Burnett well was completed first in  
7 the lower Blinebry. Do you see where the mark is  
8 there? Do you see where the frac is noted?

9 TECHNICAL EXAMINER EZEANYIM: Yeah.

10 THE WITNESS: It produced there for three  
11 months, then we moved up to the upper part of the  
12 Blinebry, which did not have as much pay interval.  
13 And it was -- as we've had in other wells. But  
14 anyway, it produced for one month.

15 So the first four months of production of  
16 the Gissler B-51 was about 9,500 barrels of oil.

17 The COG 13, completed in all of that, was  
18 almost 5,000 barrels of oil.

19 TECHNICAL EXAMINER EZEANYIM: Okay. You  
20 talked at length about completions, when we were  
21 talking about, you know, the frac job and  
22 everything.

23 You see that -- you said that the COG do  
24 their perforations every 200 feet. 200 -- that's  
25 200 feet deep, and then you do yours differently.

1           What is yours called? What is your  
2 perforations called?

3           THE WITNESS: I would call -- I would  
4 refer to them as selective perforations.

5           TECHNICAL EXAMINER EZEANYIM: Okay. And  
6 then what -- is there anything wrong with COG's  
7 perforations?

8           THE WITNESS: Is there anything wrong with  
9 them?

10          TECHNICAL EXAMINER EZEANYIM: Yes.

11          THE WITNESS: I would not choose to do  
12 that. They, it appears, block perforate. And there  
13 certainly is pay up and down the -- in the well. I  
14 just prefer perforating the net pay spots versus  
15 just blanket perforating 200-foot sections.

16          TECHNICAL EXAMINER EZEANYIM: Well, that's  
17 why you're two different companies. You can do  
18 whatever you like.

19          THE WITNESS: That's true. That's true.

20          TECHNICAL EXAMINER EZEANYIM: Okay.

21          Now, let's go back to Exhibit Number 19,  
22 because I think there is -- and what I need to  
23 understand there is what was done on that chart.

24          The nine-well comparison -- I know you've  
25 been asked this question. How did you choose the

1 nine-well comparison? Or why did you choose that  
2 Section 11 and 12, 17 South, East 30? Yeah. This  
3 is a very nice pool.

4 Is there any reason why you didn't try to  
5 corroborate this area by choosing another set of  
6 data, maybe nine wells, ten wells somewhere else, to  
7 correspond to what is here?

8 I'm not saying that this is wrong, because  
9 I'm still going to -- I'm not -- that's not what I'm  
10 trying to say. But if I were working for  
11 Burnett/Hudson, I would do this here, and I would go  
12 somewhere else that I can get maybe five wells  
13 between Burnett/Hudson and this -- and do it to see  
14 how it correlates with this, because we are talking  
15 about one pool. And now you are giving me the job  
16 of deciding what should be done with this pool, so I  
17 don't want any information to be hidden.

18 I can do the -- I can go back there and  
19 choose a different section and try to do what you  
20 did to see what I did. But I don't have the  
21 information. I don't have it to compare that.

22 Is there any reason why you didn't do this  
23 somewhere else to try to convince the Examiners or  
24 the commission that this is exactly what's going on  
25 in the whole pool? Because, you know, you have five

1 pools. You came into Section 12 -- 11 and 12, 17  
2 South, 31 East. I mean, that's okay.

3 I want to convince the commission -- I'm  
4 going to go back, you know, somewhere else, you  
5 know -- I mean take your pick -- and do the same  
6 thing and see how it correlates with this.

7 You understand that I'm not -- it's just  
8 my ambition to, you know, to kind of figure this all  
9 out, so I would like to have that. So why didn't  
10 you do that?

11 THE WITNESS: The reason I chose the nine  
12 Harvard Federal in the area of our wells -- I mean  
13 our area of operation is about two sections wide --

14 TECHNICAL EXAMINER EZEANYIM: Yeah.

15 THE WITNESS: -- four or five sections  
16 north and south. It was the best area where there  
17 was a concentration of Concho wells. And we were --  
18 we had wells on three sides. Any other area would  
19 be nine wells on one side and nine wells on the  
20 other side.

21 It just appeared to me that that was a  
22 place that I could get a nice concentration of wells  
23 to show -- to try to make it as much apples and  
24 apples as I could.

25 TECHNICAL EXAMINER EZEANYIM: I understand

1 that. It wouldn't have to be nine wells. It could  
2 be two, it could be three.

3 THE WITNESS: Right.

4 TECHNICAL EXAMINER EZEANYIM: I mean it  
5 could even been two, you know? I'm trying to -- you  
6 know, I am not trying to tell you what to do, but  
7 this is what I would have appreciated. Because I  
8 want to understand this pool as much as possible, so  
9 we can make some decisions here, or recommendations.

10 So with one snapshot I have to -- I have  
11 to wonder, what do I do? Do you see what I'm  
12 saying?

13 THE WITNESS: Yes, I do. I chose nine,  
14 just to have a bigger sampling of wells versus two  
15 or three wells. I thought it would average out more  
16 having more wells in a sample.

17 TECHNICAL EXAMINER EZEANYIM: Yes, I  
18 understand that.

19 How did you obtain this data that you used  
20 to make these charts? Where did you get it? IHS or  
21 production data? How did you get those data?

22 THE WITNESS: We obtained the data from  
23 IHS.

24 TECHNICAL EXAMINER EZEANYIM: IHS. And I  
25 think if you go to IHS, you know, you could get some

1 data for other townships, sections, to be able to  
2 help you boost your argument in those charts. Okay.

3 And all of these nine wells are vertical  
4 wells, not --

5 THE WITNESS: I'm sorry?

6 TECHNICAL EXAMINER EZEANYIM: All vertical  
7 wells, right? Are they all vertical wells?

8 THE WITNESS: Vertical wells. Yes, I'm  
9 sorry. I'm sorry, I misunderstood. Yes, they are  
10 all vertical wells.

11 TECHNICAL EXAMINER EZEANYIM: And then  
12 these are nine wells. When you -- when you brought  
13 your data for these nine wells, all the nine wells  
14 for both Burnett/Hudson and COG, all nine of them  
15 are producing from the Yeso, which include the  
16 Paddock and Blinebry, all the nine wells?

17 THE WITNESS: Yes.

18 TECHNICAL EXAMINER EZEANYIM: All are  
19 drilled and completed, so you kept that and made  
20 sure that both -- all the wells have produced from  
21 those two -- and those sections of the pool?

22 THE WITNESS: Are you asking if they  
23 were -- if the Blinebry and Paddock was completed?

24 TECHNICAL EXAMINER EZEANYIM: In both --  
25 in all of the --

1 THE WITNESS: In all the wells?

2 TECHNICAL EXAMINER EZEANYIM: In all the  
3 nine wells, yes.

4 THE WITNESS: No, they were not. Several  
5 of the wells -- and I can list and give you -- I can  
6 provide you what -- how many -- what each well was  
7 completed in of each -- in each month.

8 TECHNICAL EXAMINER EZEANYIM: Okay. So  
9 the point I'm making, that to do apples and apples,  
10 both of those nine wells would be producing from  
11 those two sections of the pool so that we can --  
12 because if one of -- let's say you are --  
13 Burnett/Hudson is producing from the Paddock only,  
14 and then maybe COG is producing Paddock and  
15 Blinebry. I don't see how we can compare the two,  
16 because it's not apples to apples.

17 THE WITNESS: I would add, Mr. Examiner,  
18 that many of the Burnett wells were producing only  
19 from the Blinebry because we -- we frac and complete  
20 three or four sections and produce it for a time  
21 before we move up the hole.

22 More of COG's wells were completed in the  
23 complete -- all of the Paddock. But I can provide  
24 that information for you.

25 TECHNICAL EXAMINER EZEANYIM: So you are

1 saying that Burnett/Hudson is producing only from  
2 the Paddock, and then COG is producing from both  
3 Paddock and Blinebry?

4 THE WITNESS: No. I was -- if I  
5 misstated, I'm sorry.

6 Most of the Burnett wells were still  
7 producing from the Blinebry section --

8 TECHNICAL EXAMINER EZEANYIM: Okay.

9 THE WITNESS: -- for four months. And I  
10 can provide you exactly what well was completed in  
11 what interval.

12 As best I can tell from COG's, two or  
13 three of -- I think there were two wells of COG's  
14 the last couple of months that were not in the  
15 Paddock, at least from the records. They may have  
16 been completed and have not come into the OCD  
17 records yet.

18 TECHNICAL EXAMINER EZEANYIM: Okay. But  
19 you understand why I'm making the inquiry?

20 THE WITNESS: Yes.

21 TECHNICAL EXAMINER EZEANYIM: I'm making  
22 the inquiry, if you want to compare apples and  
23 apples, I want -- if -- well, you know, this well is  
24 producing from Paddock/Blinebry, this one  
25 Paddock/Blinebry, all of them.

1           So then did that come from there? Then it  
2 would be compared in this chart. And then in that  
3 case, I mean that would be more credible than if  
4 one -- if this is producing from the Paddock only or  
5 some are producing from the Paddock only and some  
6 are producing from both Paddock and Blinebry. Do  
7 you see? See the -- I don't -- I don't know.

8           Do you see the point I'm trying to make?

9           THE WITNESS: Yes. Yes, sir, I do. I do.

10          MR. CAMPBELL: Mr. Examiner, we will  
11 supply that comparative production zone and data to  
12 you.

13          TECHNICAL EXAMINER EZEANYIM: And to the  
14 opposing counsel?

15          MR. CAMPBELL: And to opposing counsel,  
16 yes.

17          TECHNICAL EXAMINER EZEANYIM: Okay.

18          THE WITNESS: I will.

19          TECHNICAL EXAMINER EZEANYIM: That would  
20 be helpful, because it's important. You see why I'm  
21 inquiring? I'm trying to understand the facts here,  
22 you know, to see what's going on in the pool. I  
23 need to see what's going on. You all did, so you  
24 are telling me what is happening there. I'm trying  
25 to probe to find out the facts. Okay? Very good.

1           So I am going to mark it as something  
2 that's going to be provided to the Examiners and the  
3 opposing counsel.

4           Now, under gas/oil ratio, I want to also  
5 understand -- this is my last question. I am sorry  
6 I'm taking too long. I didn't want to ask too many  
7 questions, because most of them were asked during  
8 the cross-examination.

9           Can you explain to me why the gas and oil  
10 ratio are quite different between the two operators?  
11 Is it because of 20, because of 10, or because of  
12 slickwater versus gel water? What is it?

13           THE WITNESS: Mr. Examiner, my assumption  
14 is only as the longer frac length, as I have  
15 mentioned to Mr. Brooks a while ago, that the longer  
16 frac length produces longer time in a stimulated  
17 condition before it goes into a matrix flow.

18           A shorter frac length, a gel frac, goes  
19 into a matrix flow sooner because it has a shorter  
20 frac line.

21           TECHNICAL EXAMINER EZEANYIM: That would  
22 produce the higher gas/oil ratio?

23           THE WITNESS: Yes, sir.

24           TECHNICAL EXAMINER EZEANYIM: That's --  
25 have you done something to show that?

1 THE WITNESS: When it goes to matrix flow,  
2 the bottom hole pressure, you're pulling the  
3 pressure down at the well bore to the point where  
4 gas starts breaking out.

5 TECHNICAL EXAMINER EZEANYIM: This is  
6 really a solution that is mostly -- it drops down to  
7 bubble point.

8 THE WITNESS: Yes.

9 TECHNICAL EXAMINER EZEANYIM: So I think  
10 at that point in time you see these gases, you know,  
11 in the well from the -- from the fluids.

12 So I want to understand -- I don't want it  
13 to be an assumption. I want you to tell me  
14 definitely what causes that difference. Because I  
15 don't -- I don't understand why the gas/oil ratio is  
16 so different. I know people are asking for gas/oil  
17 ratios. And when I have to make decision here, I  
18 want to understand why is that? We know there are  
19 differences, but is it because of the type of  
20 completion that is causing this problem, the  
21 difference in the gas/oil ratio?

22 THE WITNESS: My assumption is is that  
23 when you frac 500 feet on a 20-acre spacing we are  
24 contacting reservoir that's -- has no depletion  
25 whatsoever, so that it's still above the bubble

1 point, so that the frac is draining some of the  
2 reservoir, extending away from the well bore at a  
3 point where it's still above the bubble point in the  
4 reservoir.

5 TECHNICAL EXAMINER EZEANYIM: Do you know  
6 the bubble point at different levels?

7 THE WITNESS: I do not.

8 TECHNICAL EXAMINER EZEANYIM: Do you know  
9 the initial pressure?

10 THE WITNESS: I have not taken it. I have  
11 just heard reports.

12 TECHNICAL EXAMINER EZEANYIM: Most of  
13 these solutions, the initial pressure may be bubble  
14 point.

15 THE WITNESS: Yes.

16 TECHNICAL EXAMINER EZEANYIM: Unless you  
17 start, you know, at the bubble point, the mobile  
18 may -- may not -- you know, may -- gas may erupt,  
19 but not mobile immediately. But looking for the --  
20 what I understood last week, that in four months it  
21 was below bubble point, which I don't know what it  
22 is. Nobody had done any PVT analysis on this? It's  
23 very surprising nobody has done any PVT analysis.

24 How do you then conduct operations when  
25 you haven't done PVT analysis? Has anyone done PVT

1 analysis on these pools?

2 MS. MUNDS-DRY: Yes, Mr. Ezeanyim. Concho  
3 presented that to you yesterday.

4 TECHNICAL EXAMINER EZEANYIM: Oh, you did?

5 MS. MUNDS-DRY: Yes. We gave it to you in  
6 an exhibit.

7 TECHNICAL EXAMINER EZEANYIM: What exhibit  
8 number is that? COG what?

9 MS. MUNDS-DRY: Number 37.

10 TECHNICAL EXAMINER EZEANYIM: 37? That  
11 would be interesting.

12 MS. MUNDS-DRY: I'm sorry, I misspoke. 36  
13 is the composition. Mr. Prentice was prepared to  
14 testify about that yesterday, but you didn't ask him  
15 the question.

16 TECHNICAL EXAMINER EZEANYIM: Okay.  
17 But -- so there is no PVT analysis that is done,  
18 right?

19 MS. MUNDS-DRY: That has been done, yes.  
20 We can talk about that in our rebuttal time if you  
21 would like.

22 TECHNICAL EXAMINER EZEANYIM: Okay. That  
23 would be interesting. But I feel I've gotten a  
24 handle on most of the things that are being  
25 requested: Consolidation, allowables, and

1 everything. But at least I've gotten a handle, but  
2 on this gas/oil ratio I wonder why we have the same  
3 pool and we don't have the same gas/oil ratio. I  
4 need to understand, in general, why -- why that is  
5 happening.

6 I mean you see the dilemma we are in here.  
7 They're not in different pools, they are the same  
8 pool. I mean they should have identical gas/oil  
9 ratio. We are talking about 7.1 here to 2.5.  
10 That's too much. In engineering calculations that  
11 much throws me. Why is it that much?

12 Okay. Anyway, we may still have some  
13 information that might give me insight on how to  
14 deal with the gas/oil ratio in this pool. But  
15 meanwhile, I think I'm done with you.

16 THE WITNESS: Okay.

17 TECHNICAL EXAMINER EZEANYIM: Thank you.

18 MR. CAMPBELL: May I ask one follow-up  
19 question --

20 TECHNICAL EXAMINER EZEANYIM: Yeah, you  
21 may.

22 MR. CAMPBELL: -- relative to the  
23 Examiner's question here?

24 TECHNICAL EXAMINER EZEANYIM: Go ahead.  
25

## FURTHER EXAMINATION

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BY MR. CAMPBELL:

Q. Mr. Jacoby, the Examiner was asking you questions regarding your selection of the nine Burnett/Hudson wells and the nine COG wells in this area of comparison here, and inquired of you whether there was any collaboration or corroboration of your findings in this area elsewhere in the pool.

I want you to be clear to the Examiner as to why you selected these nine Concho and nine Burnett/Hudson wells, particularly in terms of the fact that this area of comparison presented the very best comparison of the slickwater 20-acre frac versus the COG 10-acre gel frac.

Could you -- could you explain that better?

A. I can. I can explain that better. The point I did not make, we have developed our field to the north. All of these wells -- all of the Burnett nine wells around the Harvard Federal have been slickwater fracked. And so --

TECHNICAL EXAMINER EZEANYIM: Where?  
Where? Which area?

THE WITNESS: The nine Burnett Gissler wells.

1 TECHNICAL EXAMINER EZEANYIM: Okay. Okay.  
2 They're all slickwater?

3 THE WITNESS: Yes.

4 TECHNICAL EXAMINER EZEANYIM: But in the  
5 rest you have gel water?

6 THE WITNESS: I have -- actually, most --  
7 many of our other -- our older wells were stimulated  
8 with hot acid treatments.

9 TECHNICAL EXAMINER EZEANYIM: Okay.

10 Q. (By Mr. Campbell) So this area is the  
11 limited area available for comparing results between  
12 Burnett/Hudson's slickwater fracking technique and  
13 COG's gel fracking technique?

14 A. That is -- that is true. Much of our  
15 lease in the middle of the field, the wells were  
16 completed and stimulated with hot acid treatments.  
17 This is an area where we've completed in the last --  
18 more recently, and have used slickwater exclusively.

19 TECHNICAL EXAMINER EZEANYIM: Yeah. Your  
20 counsel said that -- that's a word that is very  
21 interesting to me. You used the word "limited."

22 Can you explain limited to me? He said  
23 limited in that area. Yeah, that's what your  
24 counsel said, that the slickwater is limited in that  
25 area. Can you explain what "limited" means?

1 THE WITNESS: I think what he means is, is  
2 that there have not been in this area of wells.  
3 It's further south where the wells have been  
4 stimulated with hot acid.

5 All of these have been limited to  
6 slickwater treatments.

7 Q. (By Mr. Campbell) Okay. Now, how many --  
8 how many of -- how many of Burnett/Hudson's 86 wells  
9 have been subjected to slickwater fracking?

10 A. If you count all of the fracs, two, three  
11 and -- two and three. I mean most of the wells,  
12 three fracs. Probably about 75 slickwater fracs  
13 plus or minus frac treatments.

14 Q. I don't want -- there are three fracs per  
15 well?

16 A. Okay.

17 Q. Right. I want the number of wells that  
18 have been -- Burnett/Hudson's 86 wells that have  
19 been subjected to slickwater frac.

20 A. I would say approximately 25.

21 Q. All right. Okay.

22 MR. CAMPBELL: Thank you.

23 LEGAL EXAMINER BROOKS: You're passing the  
24 witness?

25 MR. CAMPBELL: Yes, sir.

1 TECHNICAL EXAMINER EZEANYIM: Anybody have  
2 anything from this witness?

3 LEGAL EXAMINER BROOKS: The time is 11:36.

4 MS. MUNDS-DRY: Nothing further for  
5 Mr. Jacoby.

6 TECHNICAL EXAMINER EZEANYIM: Nothing  
7 further?

8 MR. COONEY: Nothing further.

9 TECHNICAL EXAMINER EZEANYIM: You know, I  
10 think this is a very good time to stop because we're  
11 done with him. We have one more witness. Is that  
12 correct?

13 MR. CAMPBELL: Yes, that's correct.

14 TECHNICAL EXAMINER EZEANYIM: Then we  
15 might go to lunch and come back by 1:00? That's  
16 good.

17 (A recess was taken from 11:37 a.m. to  
18 1:07 p.m.)

19 TECHNICAL EXAMINER EZEANYIM: We're going  
20 back into the record. And at this point, we want to  
21 hear from Burnett/Hudson's last witness. Is that  
22 correct?

23 MR. CAMPBELL: That is correct.

24 Mr. Chairman, I believe I neglected to  
25 move for the introduction Burnett/Hudson's exhibits

1 18 through 20.

2 TECHNICAL EXAMINER EZEANYIM: Yeah, I  
3 think so. I thought you didn't want them. Okay.

4 So what exhibit do you want to admit at  
5 this point?

6 MR. CAMPBELL: Exhibits 18 through 20,  
7 sponsored by Mr. Jacoby.

8 TECHNICAL EXAMINER EZEANYIM: Any  
9 objections?

10 MS. MUNDS-DRY: No objection.

11 MR. COONEY: No objection.

12 TECHNICAL EXAMINER EZEANYIM: Exhibits  
13 Number 18 through 20 will be admitted.

14 MR. GRABLE: Good afternoon, Mr. Ezeanyim.

15 Let me approach. I have explained to  
16 opposing counsel and Mr. Brooks that Burnett's  
17 exhibits are in three parts.

18 TECHNICAL EXAMINER EZEANYIM: Yes, I see  
19 that.

20 MR. GRABLE: And I'm going to have to kind  
21 of walk through them. There are a handful in the  
22 prefilled booklet that we're not going to offer.

23 TECHNICAL EXAMINER EZEANYIM: Okay.

24 MR. GRABLE: There are also a rebuttal set  
25 that Mr. Campbell gave you yesterday morning that

1 should look like this (indicating).

2 TECHNICAL EXAMINER EZEANYIM: Yeah, I  
3 think -- just a moment. I think I put them together  
4 again.

5 MR. GRABLE: Okay.

6 TECHNICAL EXAMINER EZEANYIM: Let me see  
7 this one. This one (indicating)?

8 MR. GRABLE: No. No, one more.

9 TECHNICAL EXAMINER EZEANYIM: Oh, okay.

10 MR. GRABLE: This set was the set he  
11 gave -- the additional set yesterday. And we have  
12 yet again a few more today that was given.

13 Now, we're going to go through the  
14 notebook in order. And when we come to a point that  
15 we're going to insert one of these that does not yet  
16 have a number, we'll give it a letter number  
17 following the preceding numbered exhibit.

18 TECHNICAL EXAMINER EZEANYIM: Are you  
19 going to start with the Exhibit Number 21?

20 MR. GRABLE: We would, except that there  
21 was one that was in Mr. Haiduk's group, Number 17,  
22 that was not presented by him, and Mr. Gore is going  
23 to testify to that, and then we're going to come  
24 back to 21.

25 TECHNICAL EXAMINER EZEANYIM: Okay. Very

1 good. We'll figure it out.

2 MR. GRABLE: That's a way to keep  
3 everybody awake in the afternoon.

4 WAYMAN GORE,  
5 after having been first duly sworn under oath,  
6 was questioned and testified as follows:

7 EXAMINATION

8 BY MR. GRABLE:

9 Q. All right, Mr. Gore. You've been  
10 previously --

11 LEGAL EXAMINER BROOKS: Okay. We'll start  
12 the time at 1:09.

13 Q. (By Mr. Grable) You've been previously  
14 sworn.

15 Would you please state your name for the  
16 record and by whom you're employed and in what  
17 capacity?

18 A. Yes. My name is Wayman Gore. I'm a  
19 petroleum engineer with PGH Petroleum &  
20 Environmental Engineers, in Austin, Texas.

21 Q. Do you have other engineers from your firm  
22 that have been with you during the hearing?

23 A. Yes.

24 Q. Who are they?

25 A. Amy Huff and David Dennard.

1 Q. And have they assisted you in the studies  
2 of exhibits you prepared for this case?

3 A. Yes. Them, as well as some others back in  
4 Austin.

5 Q. Have you testified before the division on  
6 previous occasions? And if so, have your  
7 credentials as an expert in petroleum engineering  
8 been accepted?

9 A. Yes.

10 Q. Would you just tell the Examiners very  
11 briefly your educational and work history?

12 A. I received a bachelor of science degree in  
13 petroleum engineering in 1980 from the University of  
14 Texas.

15 I went to work right out of school for  
16 Tenneco Oil Company, in Houston in the Gulf Coast  
17 Division, as a production engineer responsible for  
18 the upper Texas Gulf Coast properties.

19 I left Tenneco in late 1981, during the  
20 Tenneco/Houston Oil and Mineral merger.

21 I went to a small independent in Houston,  
22 Sanchez-O'Brien Oil & Gas Corporation.

23 Sanchez-O'Brien had a number of ex-Tenneco people  
24 there, so it was a good fit. They were a much  
25 smaller company. My responsibilities were

1 production engineering and reservoir engineering.

2 And at Sanchez-O-Brien, we actually had  
3 properties that we operated in nine different  
4 states. Among them was New Mexico.

5 Q. Are you a registered professional  
6 engineer?

7 A. Yes, sir, I am.

8 MR. GRABLE: At this point, I would tender  
9 Mr. Gore as an expert in this proceeding.

10 MS. MUNDS-DRY: No objection.

11 MR. COONEY: No objection.

12 TECHNICAL EXAMINER EZEANYIM: He's so  
13 qualified. Go ahead.

14 Q. (By Mr. Grable) All right. Now,  
15 Mr. Gore, let me ask you if you can, at the  
16 beginning, simply to summarize the topics of your  
17 studies and your areas of testimony you will present  
18 during your detailed testimony on the exhibits.

19 A. Okay. Basically what -- what we've looked  
20 at are the -- or is the evidence of drainage areas  
21 on the Burnett properties.

22 We have calculated -- we've evaluated  
23 every Burnett well, so approximately 85 wells, made  
24 drainage area calculations from detailed well log  
25 analysis, to look at the -- not only the average

1 drainage area of the wells in the Yeso formation,  
2 but also the range of those drainage areas.

3 In addition to that, we've looked at  
4 issues of well interference, where we think we're  
5 seeing evidence of wells on drilled -- wells drilled  
6 on 10-acre spacing interfering with one another, and  
7 the effects that has on the gas/oil ratios in the  
8 field.

9 That was primarily the issues that I was  
10 charged with.

11 Q. All right. Thank you, Mr. Gore.

12 Now, will you turn now to what is -- was  
13 marked for identification as Burnett/Hudson  
14 Exhibit 17 -- it should be displayed on the  
15 screen -- which is captioned "Log Analysis Example."

16 Do you have that in front of you?

17 A. I do.

18 Q. Can you explain to the Examiners how you  
19 have evaluated logs for the purpose of your  
20 testimony?

21 A. Well, the log analysis was actually done  
22 by Burnett with their software. But I've reviewed  
23 all of that work in accordance with the formulas,  
24 the input parameters, to ensure that I agreed with  
25 those. But Burnett uses the Prism software, which I

1 think is a package of geographics.

2 And what is shown on this exhibit is the  
3 types of information that you get out of the log  
4 analysis. You know, you -- the logs obviously  
5 record porosity and resistivity, gamma ray.

6 But then going through the standard  
7 calculations for water saturation, density, porosity  
8 and the various cutoffs, the average porosity,  
9 average water saturation, and net pay was computed  
10 for both the Paddock and the Blinebry sections of  
11 the Yeso formation.

12 And this particular log -- Burnett not  
13 only runs open-hole logs on all of their wells, but  
14 they have a number of wells in which they have  
15 recovered or taken sidewall core information as well  
16 as XRMI imaging logs, which are fracture  
17 identification logs.

18 And all of that is merged into the  
19 analysis to come up with what is the basis for  
20 Burnett's well completions, so picking net pay and  
21 perforating and then designing the fracture  
22 stimulations.

23 Q. Are the -- is there a symbol or a display  
24 on this log of what would be the PHI of net pay  
25 under the Burnett analysis?

1 A. Yes, there is.

2 Q. And where does that appear?

3 A. It's going -- this is hard to read. There  
4 is a pay flag indicator -- let's see. I will tell  
5 you, it's difficult to see on this particular  
6 exhibit.

7 TECHNICAL EXAMINER EZEANYIM: Do you have  
8 a pointer? Can you give him a pointer?

9 MR. GRABLE: Yes.

10 Q. (By Mr. Grable) Does it come up into this  
11 (indicating) section of the log?

12 A. Right. The --

13 Q. It's pretty small.

14 A. Do we have a bigger copy of this, by  
15 chance, that we could look at, or...

16 Q. We'll come back to this.

17 A. Okay.

18 Q. Is there any other information on this  
19 Exhibit 7 that you have used in your studies in  
20 coming to your opinions?

21 A. No.

22 Q. All right. Now, let's turn to what has  
23 been previously marked as Burnett Exhibit 21, the  
24 drainage calculation method.

25 You were here yesterday when the COG

1 witness explained their calculation of drainage  
2 areas?

3 A. Yes.

4 I just found this net pay flag, if that's  
5 helpful, although you -- you really can't read it  
6 off the exhibit. But it's the pink right there  
7 (indicating), and it's very difficult to read. But  
8 the net pay is flagged as you go down the well log  
9 in the -- the tract with that pink header right  
10 there (indicating).

11 Q. On the -- and they show up as green flags  
12 on the left side of that vertical line?

13 A. I believe so, yes.

14 Q. All right.

15 Let's turn back to Exhibit Number 21, now.

16 Is this the same industry standard  
17 equation that Mr. Prentice testified to yesterday?

18 A. Yes. This is the standard volumetric  
19 equation for oil.

20 Q. All right. Now other than showing the  
21 full description of the various factors in the  
22 equation, I want you to focus on RF, the recovery  
23 factor. What recovery factor did you utilize in  
24 your studies?

25 A. Well, we -- we utilized 10 percent. We

1 also looked at sensitivities on 13 percent and  
2 15 percent. But in my opinion, 10 percent is  
3 probably the most applicable.

4 Q. All right. And what -- why, in your  
5 opinion was 10 percent more applicable than the  
6 15 percent utilized by Concho?

7 A. Well, what we know -- a couple of things.  
8 And one, I calculated the recovery factor based upon  
9 standard engineering calculations, a Turner  
10 analysis, which uses pressures, porosity,  
11 saturations, residual gas/oil ratios, that sort of  
12 thing.

13 And given that information, I  
14 calculated -- I think it was like 10.2 percent, so  
15 I -- I thought 10 percent was the most applicable  
16 here.

17 The --

18 TECHNICAL EXAMINER EZEANYIM: Excuse me.  
19 Can you repeat that sentence that said 10.2 percent?  
20 What did you do?

21 THE WITNESS: We actually computed the  
22 recovery factor. And the actual calculation, I  
23 think, worked out to be 10.2 percent. I don't know  
24 that we -- we have enough confidence in -- in all of  
25 the data to get that refined in our recovery factor,

1 so I thought 10 percent was probably the most  
2 applicable recovery factor percentage to use.

3 TECHNICAL EXAMINER EZEANYIM: All right.  
4 I don't want to use your time. We'll revisit that  
5 during my time. Okay? I don't want to use your  
6 time.

7 THE WITNESS: Sure.

8 The -- what we know just from experience  
9 is in solution gas drive oil reservoirs, recovery  
10 factors typically range from perhaps as low as 7 or  
11 8 percent up to an absolute max of 15, 16 percent.

12 What we know about this reservoir is it's  
13 very low porosity, permeability. I think everybody  
14 agrees with that.

15 What that tells us is it's difficult for  
16 the oil to flow through the rock. We know -- and  
17 we've had lots of testimony on the fracture  
18 stimulations that are required to get these wells to  
19 flow. So that alone, in my opinion, would lead me  
20 to the conclusion that a recovery factor on the  
21 upper end of the range for solution gas drive oil  
22 reservoirs would probably be too high.

23 We then went through the calculations  
24 and -- you know, without knowing anything else, I  
25 would typically say, well, the recovery factor is

1 going to be somewhere between 10 and 12 percent.  
2 And once we went through the calculations, again, we  
3 came out with 10 percent. And so that's what I felt  
4 was the most applicable recovery factor to use in my  
5 drainage area calculations.

6 Q. (By Mr. Grable) All right. And there's  
7 also been a good bit of testimony about porosity  
8 determinations in those reservoirs. Will we have  
9 some exhibits later that go into the porosity  
10 determinations in more detail?

11 A. We will.

12 Q. We'll come to that later. All right.

13 Any other factor in the equation that you  
14 want to comment on?

15 A. Only that you can see the -- the formation  
16 volume factor 1.29, that is what Concho used. I  
17 have also confirmed that again with standard  
18 correlations, that the B sub O, or formation volume  
19 factor, is 1.29 barrels per stock tank barrel.

20 Q. Now the net pay PHI -- the PHI-H is also a  
21 factor that's been the subject of some bit of  
22 conflict in this case has it not, Mr. Gore?

23 A. It has.

24 Q. And we will -- when we get into the  
25 computations of the exact drainage areas you've

1 computed, will you have more to say about that  
2 factor?

3 A. Yes.

4 Q. Just now to summarize, which of these  
5 various factors in this equation are those where  
6 there are major differences between drainage areas  
7 as calculated by Burnett and as calculated by  
8 Concho, to the extent that you understand the  
9 factor?

10 A. Well, I believe the -- what I understand  
11 from -- from the Concho calculations are that they  
12 have used a 3 percent porosity cutoff, a varying  
13 water saturation cutoff, of -- I think it was  
14 28 percent in the Blinebry, if I am not mistaken,  
15 and 40 percent in the Paddock. We could  
16 double-check that, but...

17 Q. That's correct.

18 A. And Burnett is using 40 percent water  
19 saturation cutoff for both.

20 I have seen PHI-H numbers from COG, in  
21 some confidential information that they provided.  
22 But really, that's all that I know about the Concho  
23 drainage area calculations. We really haven't been  
24 provided anything other than a few of the parameters  
25 used to establish some of the factors, but we really

1 don't know -- or I don't know -- how they came up  
2 with their actual averages.

3 Q. Okay. All right. Let's turn now to the  
4 next exhibit in order, which is marked 22.

5 MR. GRABLE: And I will, just for the  
6 record, say that we are not going to offer 22. It's  
7 duplicative.

8 Q. (By Mr. Grable) So let's turn now to what  
9 is marked Exhibit 23, captioned "Water Saturation  
10 and Net Pay Calculation Methods."

11 Can you explain to the Examiners the data  
12 you've displayed on this exhibit and how it's been  
13 utilized in your studies?

14 A. Yes. The water saturation calculation, or  
15 equation, is the Archie equation, which is standard.  
16 Apparent water saturation is the square root of FRW  
17 over RT. That's what Burnett has utilized in the  
18 log -- in their log analysis.

19 The Burnett net pay calculations are based  
20 upon two criteria, a density porosity cutoff of  
21 3 percent or greater, and a water saturation cutoff  
22 of 40 percent or less. So in order to be counted as  
23 net pay it would have to meet both of those  
24 criteria, and the density/porosity equation is shown  
25 there on the exhibit.

1           The RW that was used was based on actual  
2 water analysis in the field .035 oms. The density  
3 matrix of 2.84 grams per cc is based upon the  
4 Burnett core data.

5           We have talked about the cutoffs and the  
6 Archie AM&M exponents are standard.

7           So that is the input data that was  
8 utilized in the computation of net pay, average  
9 porosity, and average water saturation for the  
10 Burnett wells.

11          Q. All right. Now, do you have subsequent  
12 exhibits that go into detail on density/porosity  
13 calculation and why you use the density versus  
14 neutron porosity?

15          A. Yes.

16          Q. And do you also have detailed exhibits  
17 later dealing with the density matrix of 2.84 grams  
18 per cubic centimeter?

19          A. Yes.

20          Q. All right.

21                 Now, let's go forward to what has been  
22 marked previously as Burnett Exhibit 24.

23          A. (Witness complies.)

24          Q. Can you tell the Examiners, is this a  
25 summary exhibit of what -- of your Blinebry

1 producers, and tell them in general what you've  
2 represented in this exhibit?

3 A. Yes. This is what -- Burnett wells  
4 completed in the Blinebry only, a total of 11 wells.  
5 The three different piecharts represent the three  
6 different recovery factors, with the 10 percent  
7 recovery factor, I think, being the most applicable  
8 here at the top middle of the page.

9 Our next exhibit will detail the drainage  
10 area calculations. But what the results show is, in  
11 my evaluation of: Is 10 acres applicable or  
12 20 acres for a density? I equated that to: Are  
13 wells capable of draining more or less than  
14 15 acres? Because, to me, that's the dividing point  
15 between 10 and 20.

16 So I show on the piecharts the number of  
17 wells that would have less than 15 acres' drainage  
18 or greater than 15 acres' drainage.

19 In the case of the Blinebry zone,  
20 91 percent of the wells have drain -- or we  
21 calculated drainage areas greater than 15 acres, and  
22 only 9 percent of the wells had drainage areas less  
23 than 15 acres.

24 Q. And just eyeballing the percentages there,  
25 if it was 9 percent, that would be 1 out of 11

1 computed at less than 15?

2 A. That's correct. Actually, I've got 2 less  
3 than -- 2 of the 11 less than 15.

4 Q. On the 15 percent?

5 A. Yes -- on the 15 percent recovery factor?

6 Q. Yes. On the 10 percent and the  
7 13 percent, only 1 of the 11. Is that correct?

8 A. That is correct. Only 1 out of the 11.  
9 On the 15 percent recovery factor we have  
10 2 out of the 11.

11 Q. Okay. All right.

12 Let's turn now, then, to the following --  
13 Exhibit 25. Are these the data spreads behind the  
14 11 wells analyzed and summarized on the preceding  
15 Exhibit 24?

16 A. Yes.

17 Q. Can you walk the Examiners through that  
18 data and explain its usefulness in making their  
19 calculation?

20 A. This exhibit shows the well -- 11 wells  
21 evaluated.

22 The zone, again, is the Blinebry.

23 The oil EUR was determined for each well  
24 from declining curve analysis.

25 Then we get into the log data from the log

1 analysis on each one of the wells. We show net pay,  
2 average porosity, average water saturation, SO  
3 PHI-H, or hydrocarbon pore volume, and then PHI-H,  
4 or pore volume.

5 And then we compute the drainage area  
6 based upon the volumetric equation for the three  
7 different recovery factors.

8 Q. All right. Then the results are shown  
9 there under the three columns for 10 percent,  
10 13 percent, and 15 percent?

11 A. That's correct.

12 Q. Okay.

13 MR. GRABLE: Now, this is the first  
14 exhibit that's not in the booklet, Mr. Ezeanyim and  
15 Mr. Brooks, and I'm not sure which stack it's in.

16 If you can find the exhibit shown on the  
17 board there.

18 TECHNICAL EXAMINER EZEANYIM: It's not  
19 marked?

20 MR. GRABLE: It's not marked. It's in one  
21 of those two stacks I have handed you that are not  
22 in the booklets. It should be in the smaller stack.

23 I'm sorry for this confusion.

24 I will ask that this exhibit be marked 25A  
25 for identification, since it will fall in the

1 presentation immediately after Exhibit 25.

2 LEGAL EXAMINER BROOKS: Okay. Someone  
3 needs to make sure a marked set is available for the  
4 court reporter.

5 MR. CAMPBELL: We've got two sets with --  
6 I'm keeping track of the final consolidated set  
7 here. But may I have one back from the Examiners?

8 LEGAL EXAMINER BROOKS: You may have mine  
9 back -- now or when we get through?

10 MR. CAMPBELL: When we're finished.

11 LEGAL EXAMINER BROOKS: You may have mine  
12 back when we're finished.

13 MR. CAMPBELL: And then I will tender it  
14 and check with counsel and make sure it's complete  
15 and give it to the court reporter.

16 LEGAL EXAMINER BROOKS: Okay. I am going  
17 to mark these numbers as you call them out on here,  
18 so my set will be numbered, but I will be through  
19 with it when we finish.

20 Q. (By Mr. Grable) All right. Now is  
21 this -- is this well, which has the log and drainage  
22 area, or a decline curve shown on Exhibit 25A, one  
23 of the 11 wells included in the universe on  
24 Exhibit 25?

25 A. Yes.

1 Q. We'll refer back to 25. Where does it  
2 appear on Exhibit 25?

3 A. Almost right in the middle, the Stevens B  
4 Number 5.

5 Q. All right. Now, let's go back to 25A.  
6 Can you use this exhibit, then, and describe for the  
7 Examiners the factors included on that Exhibit 25,  
8 or the values, and how they were derived from the  
9 information shown on Exhibit 25A?

10 A. Yes. In the upper left-hand part of the  
11 exhibit are the log analysis parameters. And I want  
12 to make sure that -- we noticed a typo on some of  
13 the printouts. So if you have one that says 5.9 you  
14 should make that correction to 6.1. When we made  
15 the exhibit we just picked up the wrong line on a  
16 different well. So I wanted to make sure everyone  
17 knew that.

18 But this -- this is the log data.  
19 Again -- and here is the log analysis printout for  
20 the well from which these parameters are defined.

21 The declining curve is shown in the bottom  
22 middle portion of the exhibit. A key part of the  
23 drainage area calculation using the volumetric  
24 equation is the EUR, or the expected ultimate  
25 recovery from the well.

1           And again, we did that based upon decline  
2     curve analysis. And this is the decline curve for  
3     the Stevens B Number 5 well with our extrapolations,  
4     which yielded an oil EUR of 122,000 barrels and a  
5     gas EUR of 182 MMCF of gas.

6           And the drainage area on this well at a  
7     10 percent recovery factor was calculated to be  
8     33.3 acres, so roughly 30-acre drainage area on this  
9     well.

10          Q. All right. Now, have you made similar  
11     exhibits and similar calculations for the Paddock  
12     member of the Yeso formation?

13          A. I have.

14          Q. We'll refer the Examiners now to what has  
15     been previously marked as Burnett/Hudson Exhibit  
16     Number 26. Is this the piechart display of summary  
17     data in the same format as was previously offered  
18     for the Blinebry?

19          A. Yes.

20          Q. Would you explain the results of your  
21     calculations on the Paddock member here?

22          A. Again, the -- the results are that for a  
23     10 percent recovery factor, 69 percent of the wells  
24     had a drainage area greater than 15 acres, and  
25     31 percent of the wells had calculated drainage

1 areas of less than 15 acres.

2 And for 13 percent and 15 percent, we've  
3 made that same calculation. Those percentages are  
4 5446 for the 13 percent recovery factor. And for  
5 the 15 percent recovery factor it's 37 percent  
6 greater than 15 acres and 63 percent less than  
7 15 acres.

8 Q. Is there one of the values in the drainage  
9 area equation that influenced these Paddock wells to  
10 have smaller drainage areas than the Blinebrys? Did  
11 one factor predominate or did more than one?

12 A. I think it's primarily one factor, and  
13 that's porosity PHI, or PHI-H.

14 Q. All right. Now given these percentages,  
15 what is your opinion with respect to the appropriate  
16 drainage area, at least initially, for Paddock  
17 producers?

18 A. Well, again, based on what I feel is the  
19 most appropriate recovery factor, the majority of  
20 the wells -- in fact almost -- well, a little over  
21 two-thirds -- 69 percent of the wells exhibited  
22 drainage areas greater than 15 acres. So in my  
23 opinion, for those areas where development is going  
24 to continue that have been less developed to date,  
25 those areas, in my opinion, should initially be

1 drilled on no denser spacing than 20 acres.

2 Q. You say "at least initially." Could you  
3 explain a little bit about what the Burnett/Hudson  
4 position is with respect to the density rule between  
5 10 and 20 acres, why it's more appropriate to start  
6 at 20 than 10?

7 A. Well, we know in this consolidated area  
8 Concho has drilled up a lot of the area already on  
9 10 acres, so we can't undo what has been done.

10 But there are some areas remaining in --  
11 in the -- the application area which have not yet  
12 been developed on that dense of spacing. In fact,  
13 some of the areas haven't been developed at all.

14 So given some of the -- and we'll get into  
15 some of the -- more of the evidence. But based upon  
16 my analysis, it appears to me that wells drilled in  
17 the Yeso are capable of -- of officially and  
18 effectively draining 20 acres.

19 So the development for those areas where  
20 little or no development has occurred currently, we  
21 need to start there. We don't want to start small  
22 and realize later that we've drilled wells that  
23 weren't necessary. We need to start with a larger  
24 pattern. 20 acres, I feel, is appropriate given our  
25 analysis.

1           And then as we drill on 20 acres and we  
2           acquire the well data and we look at performance, we  
3           acquire the logs and you go through the analysis, if  
4           there are areas that demonstrate that a denser  
5           spacing is needed, you then come in and do that.  
6           You -- you just don't want to start off there, as  
7           has been done in a large part of the field already.

8           Q.     All right. Thank you, Mr. Gore.

9           Let's now go to the data display behind  
10          those summary calculations. And are there actually  
11          two pages of this?

12          A.     There are two pages.

13          Q.     And do those two pages that are Exhibits  
14          28 and 29 then contain the detailed data behind the  
15          drainage area calculations that are summarized on  
16          Exhibit 26?

17                 LEGAL EXAMINER BROOKS: It looks like  
18          they're 27 and 28.

19                 MR. GRABLE: Okay. Pardon me. I'm  
20          confusing the -- I look at the tab sometimes, and  
21          it's the next exhibit.

22          Q.     (By Mr. Grable) So 27 and 28.

23          A.     That's correct.

24                 There are a total of 35 Paddock wells that  
25          we analyzed.

1 Q. Do you think 35 wells is an adequate  
2 representative basis on which to state your opinion  
3 with respect to average Paddock area drainage in  
4 this reservoir?

5 A. I do. That's approximately a little less  
6 than half of the Burnett wells drilled. We would  
7 have evaluated more, but we only felt comfortable  
8 with those wells that -- that had sufficient  
9 production history for which we could extrapolate  
10 the decline curve. And so that's why we ended up  
11 with 35.

12 Q. Thank you. All right.

13 MR. GRABLE: Now, Counsel and Examiners,  
14 the next exhibit is -- should be the exhibit next  
15 following the one that we pulled out and marked 25A.  
16 It's a log analysis example, Paddock member. And  
17 I'll ask that it be marked Exhibit 28A.

18 Do you have that one in front of you,  
19 Mr. Ezeanyim?

20 TECHNICAL EXAMINER EZEANYIM: 28A?

21 MR. GRABLE: 28A.

22 Q. (By Mr. Grable) Now again referring back  
23 to Exhibit 28 or 27, as appropriate, can you show  
24 where this particular well is located in the data  
25 display in these two exhibits?

1           A.     Yes.  It's actually going to be on page 2  
2     of 2, or -- I think Exhibit 28.  It's going to be  
3     the very first well on the top of that page.

4           Q.     All right.  Now, can you explain to the  
5     Examiners again how you picked the factors in the  
6     drainage area calculation from the log data on this  
7     Paddock well?

8           A.     Yes.  Again, just like the similar  
9     exhibit for the Blinebry, we have our log analysis  
10    data here in the upper left corner of the exhibit.  
11    This information was derived from the log analysis  
12    which -- a log strip with the analysis is shown here  
13    on the right-hand side of the exhibit.

14                   For just the Paddock portion of the Yeso,  
15    average density porosity of 7.1, average water  
16    saturation 29 percent, the hydrocarbon pore volume,  
17    SO PHI-H is 8.67.  The total net pay computed using  
18    the cutoff parameters we have talked about is 173.

19                   So then we have to determine what is the  
20    expected ultimate recovery from the well.  And again  
21    we do that from decline curve analysis.  The decline  
22    curve is shown at the bottom of the exhibit.

23                   You know this particular well we had a  
24    good history.  It came on production in late '03 and  
25    has really exhibited a fairly exponential, or

1 straight-line decline, from, really, the beginning  
2 of 2005. So we've got six years of steady  
3 exponential decline on this well, and we have  
4 extrapolated that out. I think we've actually been,  
5 you know, somewhat conservative in our estimates.

6 But the oil EUR is 105,000 barrels, and  
7 the gas EUR is 264 MMCF.

8 So when you put all of that together, the  
9 drainage area on this well, once it drains 105,000,  
10 we have computed that that would represent an area  
11 of 20.1, or roughly 20 acres.

12 Q. All right. Now, just let me ask you  
13 generally, with respect to the factors in the  
14 drainage area calculation of estimated ultimate  
15 recovery, or EUR, porosity -- density, porosity,  
16 water saturation, PHI of oil saturated, net pay, and  
17 the sum of the net pay, what is your general level  
18 of confidence of the log analysis for those values  
19 that have gone into computing the net pays for the  
20 wells shown on the Burnett exhibits that we have  
21 just gone through?

22 A. Well, I have a high degree of confidence  
23 because we -- we have utilized the available core  
24 data, fracture identification logs, merged that data  
25 together, and then also compared that with the

1 results of the wells.

2           And so we feel like we have a very good  
3 handle on what we think the net pay is in the  
4 Burnett wells where we have open-hole logs to make  
5 those calculations.

6           Q.     Have you been able to compare each factor  
7 in the drainage area calculation used by COG and its  
8 calculations of drainage areas with the factors  
9 you've used in yours?

10          A.     Yes.

11          Q.     Okay.  And how -- how do you -- in your  
12 review of their calculations versus your  
13 calculations, can you just generally describe for  
14 the Examiners why you feel more comfortable about  
15 your analysis than their analysis?

16          A.     Well, based upon what I have heard in the  
17 testimony and seen in the exhibits, it appears that  
18 Concho is using a grain density for what I would  
19 consider a -- a standard dolomite, or 2.87 grams per  
20 cc.

21                 Part of the problem we have analyzing the  
22 Concho log analysis is we don't have it, and the  
23 witnesses that testified didn't know anything about  
24 the parameters that went into it.  Were they  
25 calibrated -- was the core data incorporated into

1 the analysis. So there's a tremendous unknown  
2 there, and so we really can't test exactly what they  
3 have done.

4 We think we have a good idea. But  
5 unfortunately, we've not been provided the  
6 information that we would need to determine if -- if  
7 their log analysis is reasonable or not.

8 Based upon what I think we do know, we  
9 have determined we don't think it is reasonable.  
10 And I'll demonstrate why, I believe, on the next  
11 exhibit.

12 Q. All right. That's what I was going to ask  
13 you.

14 MR. GRABLE: I'm going to now ask you to  
15 refer to what we've marked as Exhibit 28B, or bravo,  
16 which -- it's a two-log display like that. It  
17 should be in that same package you're looking  
18 through.

19 LEGAL EXAMINER BROOKS: In the same  
20 package is 25A and 26A and 28A?

21 MR. GRABLE: I hope so, yes.

22 LEGAL EXAMINER BROOKS: And you're going  
23 to call this what?

24 MR. GRABLE: 25B -- or 28B, bravo.

25 LEGAL EXAMINER BROOKS: 28B.

1 Q. (By Mr. Grable) Can you first, on this  
2 Exhibit 28B that's captioned "Calculated Blinebry  
3 Pay Comparison, Burnett versus COG," can you tell  
4 the Examiners where you extracted these log sections  
5 displayed on this exhibit?

6 A. This is -- this log section is for the  
7 Burnett Gissler B-49 well. And I believe this was a  
8 COG rebuttal exhibit, if I am not mistaken, where  
9 they -- they took the Burnett log data for this --  
10 or log for this well and performed an analysis.  
11 Or -- or actually, we -- we looked at the analysis  
12 compared to our analysis to try to figure out where  
13 the differences were, what --

14 Q. May I stop you a moment, Mr. Gore?

15 A. Yes.

16 Q. I believe it comes from --

17 MR. GRABLE: Do you have the COG exhibits,  
18 Examiners? I believe it comes from --

19 MR. CAMPBELL: I have the COG exhibits.

20 Q. (By Mr. Grable) I believe it's page 2 of  
21 COG Exhibit 9. It was a two-well Burnett  
22 cross-section.

23 A. Okay.

24 Q. Let me just -- for convenience, I will  
25 give you mine. And ignore my marking, but it was

1 Concho Exhibit -- at least in my -- my copies that I  
2 marked when those exhibits had gone in -- as  
3 Exhibit 9, page 2.

4 Is that the source of the top log on  
5 there, the COG log analysis of Burnett Gissler B-49?

6 A. Yes, it is.

7 Q. What is the log section on the bottom of  
8 that page?

9 A. The bottom part is the net pay that  
10 Burnett calculated for this well. And the top part  
11 would be what we believe, based upon what we  
12 understand about the COG analysis, what the net pay  
13 would be using their analysis.

14 And so the purpose of the exhibit is to  
15 demonstrate the great difference in what would be  
16 identified as net pay in this Blinebry section.

17 Q. As picked by Burnett on the log of one of  
18 its own wells versus the COG log analysis of that  
19 same well?

20 A. Right. It's -- it's the Burnett analysis  
21 using what we -- we believe to be, as best we can  
22 tell, the COG method.

23 Q. But up there under pay flag, those green  
24 flags were exactly what was shown on the Concho  
25 Exhibit 9, were they not?

1 A. I believe it is.

2 Q. Okay. You haven't added to or detracted  
3 from those picks of net pay?

4 A. No.

5 Q. Now, can you state for the record  
6 approximately, in your opinion, what's the  
7 difference in number of net pay PHI picked on this  
8 log section from this same well by Concho versus  
9 Burnett?

10 A. Well, I haven't added up the exact  
11 footage. But just visually, if you will look at the  
12 pay flags here in the depth track of the log, it's  
13 going to be the green portions.

14 It looks to me, just visually, it's  
15 probably certainly less than half the net pay using  
16 the Burnett analysis, probably closer to about a  
17 third.

18 Q. All right. What effect, if any, on the  
19 computation of a drainage area on this well would  
20 result from an increase in the net pay PHI?

21 A. Well, net pay is probably the predominant  
22 factor in a net pay, or in a drainage area  
23 computation. So if you are using a net pay that is  
24 two or three times higher than what it actually is,  
25 then you are going to underestimate the drainage

1 area for that well.

2 Q. Okay.

3 TECHNICAL EXAMINER EZEANYIM: Before you  
4 go, I want to get something straight in my head.

5 That was Exhibit 28B? Is that what you  
6 called it?

7 LEGAL EXAMINER BROOKS: 28B.

8 MR. GRABLE: 28B.

9 TECHNICAL EXAMINER EZEANYIM: Okay.  
10 That's very important. Let me ask the witness some  
11 questions. It will go to my time.

12 The series of log analysis of Burnett on  
13 this one, did you offer it to COG?

14 THE WITNESS: No, sir.

15 TECHNICAL EXAMINER EZEANYIM: How do you  
16 know how they do log analysis?

17 THE WITNESS: We don't. That's the  
18 problem.

19 TECHNICAL EXAMINER EZEANYIM: Okay. That  
20 is a good question.

21 Now -- but you did analyze this log?

22 THE WITNESS: We did.

23 TECHNICAL EXAMINER EZEANYIM: Are you  
24 assuming, then, how they do it? Because the  
25 question is that they didn't want to tell us how

1 they did this interpretation. So how do you know --  
2 you assumed how they do it. You know, I didn't want  
3 to wait to ask you, because I will forget it. It's  
4 very important for me to understand how you did this  
5 analysis based on what you think COG does.

6 THE WITNESS: Okay. What we believe they  
7 do is cross-plotting the neutron and the density  
8 porosity.

9 TECHNICAL EXAMINER EZEANYIM: Okay.

10 THE WITNESS: And using a 3 percent  
11 cross-plot porosity as the -- the net pay cutoff.

12 TECHNICAL EXAMINER EZEANYIM: Okay.

13 THE WITNESS: And also in the Blinebry,  
14 using a 28 percent water saturation cutoff. In the  
15 Paddock, it would be a 40 percent water saturation  
16 cutoff.

17 TECHNICAL EXAMINER EZEANYIM: Yes. We are  
18 going to Paddock next. That's right.

19 THE WITNESS: Right.

20 TECHNICAL EXAMINER EZEANYIM: But now, are  
21 you -- you then -- but then the analysis by Burnett,  
22 what's the difference? What do you use?

23 THE WITNESS: Well, the difference is  
24 going to be Burnett uses a straight density porosity  
25 cutoff, not a cross-plotted porosity.

1           Also what -- and also, as part of the  
2 porosity calculation, we believe that COG is using a  
3 different grain density. We don't know that. But  
4 given the pay that we're seeing and the PHI-H, we  
5 believe that the only way to get there would be to  
6 use a grain density that would be for dolomite, a  
7 straight standard dolomite grain density of 2.87.

8           That differs from Burnett, because we used  
9 2.84, which is based upon the roughly 9 or 10 wells,  
10 maybe 11 wells, in which Burnett obtained core data.

11           So we think that is one of the differences  
12 in the analysis. We can't pinpoint any other  
13 difference, because we simply don't know what they  
14 have done.

15           TECHNICAL EXAMINER EZEANYIM: That .03  
16 would not make a whole lot of difference in your net  
17 pay calculation. But anyway...

18           THE WITNESS: I'm sorry? I didn't  
19 understand.

20           TECHNICAL EXAMINER EZEANYIM: You know you  
21 have -- you said they used 2.87.

22           THE WITNESS: Yes.

23           TECHNICAL EXAMINER EZEANYIM: You used  
24 2.84.

25           THE WITNESS: Yes.

1 TECHNICAL EXAMINER EZEANYIM: That's a  
2 difference of .03?

3 THE WITNESS: Yes.

4 TECHNICAL EXAMINER EZEANYIM: Okay. I  
5 don't know how much difference. I would have to do  
6 the calculation to see how much difference that  
7 would make.

8 But my question is, you said you used the  
9 industry practice. Is that -- what do you describe  
10 as your industry practice? How do you do what you  
11 stated here? You said it's based on a proven  
12 industry standard formula.

13 THE WITNESS: Oh, I'm sorry.

14 The formula is just the density/porosity  
15 formula.

16 TECHNICAL EXAMINER EZEANYIM: Yeah. I  
17 know that formula, yeah.

18 THE WITNESS: Right. And so a key  
19 component of that is using the right input values  
20 to --

21 TECHNICAL EXAMINER EZEANYIM: I  
22 understand, yeah.

23 THE WITNESS: -- to reach that  
24 density/porosity.

25 MR. GRABLE: Mr. Ezeanyim, I don't mean to

1 interrupt you, but we do have, just coming up right  
2 after this, some details in those calculations,  
3 what -- what the differences are and what difference  
4 they make, so we're going to go into that in detail  
5 in a minute and explain it to you.

6 TECHNICAL EXAMINER EZEANYIM: Yeah.  
7 Mr. Grable, I'm sorry I interrupted. But if -- you  
8 know, I know if I don't ask it now I will just  
9 forget it. It's very important that I understand  
10 what he is trying to say here.

11 MR. GRABLE: Yes, sir.

12 TECHNICAL EXAMINER EZEANYIM: And I won't  
13 come back here again. I'm sorry about that.

14 MR. GRABLE: You're welcome to come back  
15 if it's not crystal clear after the next two or  
16 three exhibits, because my mind fogs up on some of  
17 this stuff. So...

18 TECHNICAL EXAMINER EZEANYIM: Okay.

19 LEGAL EXAMINER BROOKS: Okay. We're back  
20 on your time at 1:58.

21 Q. (By Mr. Grable) All right. Let's turn  
22 now -- again, I just want to be sure that the  
23 Examiners understand. These net pay PHI, as shown  
24 under pay flag, under the top log section, are not  
25 ones as calculated by Burnett, but rather precisely

1 what was shown on the COG log section from the COG  
2 Exhibit 9, page 2, that you have in your hand.

3 A. That's correct.

4 Q. You have not added to or detracted from or  
5 attempted to change in any way the apparent COG net  
6 pay calculations?

7 A. Correct.

8 Q. Okay. All right.

9 Let's now go to the Paddock, again on the  
10 same well. Is the source of the COG log section on  
11 top, again, COG Exhibit 9?

12 A. Yes, it is.

13 Q. And the corresponding log section from  
14 Burnett and its log analysis is the second half of  
15 this?

16 A. That's correct.

17 LEGAL EXAMINER BROOKS: I do not think  
18 this is COG Exhibit 9. I may be incorrect, but I  
19 don't think --

20 MR. GRABLE: It's 9, page 2 or 3, and I'm  
21 sorry.

22 LEGAL EXAMINER BROOKS: Because what I'm  
23 seeing as COG Exhibit 9 is this --

24 MR. GRABLE: I think it's a multipage  
25 exhibit.

1           LEGAL EXAMINER BROOKS: Well, it doesn't  
2 really matter, except it could be confusing in the  
3 record when you read the transcript.

4           MR. GRABLE: Yes. Well, I didn't have one  
5 of these pretty fold-up color-coded ones to work  
6 with.

7           (Discussion off the record.)

8           TECHNICAL EXAMINER EZEANYIM: Let's take  
9 about a 10-minute break.

10           (A recess was taken from 2:02 p.m. to 2:17  
11 p.m.)

12           TECHNICAL EXAMINER EZEANYIM: Let's go  
13 back on the record and continue with -- who is  
14 cross-examining? You're still --

15           MR. GRABLE: I'm still examining.

16           TECHNICAL EXAMINER EZEANYIM: Okay. Yeah,  
17 that's right.

18           Okay. Mr. Grable, we're on the record  
19 now. Okay. First, I'd like the record to reflect  
20 that in all my questions to Mr. Gore identifying the  
21 log sections on the top of what are Burnett Exhibits  
22 28B and 28C, when I referred to those log sections  
23 coming from Concho Exhibit 9, it should have been  
24 Exhibit 10, which I have located in Mr. Brooks'  
25 exhibit folder and handed it to him.

1           LEGAL EXAMINER BROOKS: Thank you.

2           Q.     (By Mr. Grable) All right. Now turning  
3 quickly, Mr. Gore, to this Exhibit 28C, the Paddock  
4 part of the net pay comparison on the Gissler --  
5 Burnett Gissler B-49 well, again, what are your  
6 observations about the net pay in this well as  
7 calculated, apparently by COG, and as calculated by  
8 Burnett?

9           A.     Well, again, the pay flags on either the  
10 Burnett analysis or the COG is in the depth track,  
11 and it's the green markings that -- kind of the  
12 blocks or little green points going down.

13                     And what you can see here is Burnett  
14 calculates -- again, I didn't add up the footage in  
15 either well. But just visually, it looks like it's  
16 probably half, roughly, of the pay that COG has  
17 apparently calculated in the same well.

18                     So it appears that whatever the procedure  
19 is that COG is using, it's resulting in  
20 significantly more net pay than what Burnett is  
21 calculating.

22           Q.     And as a result of overstating net pay,  
23 does that then understate the drainage area?

24           A.     If -- if the net pay is overstated then,  
25 obviously, the drainage area is understated.

1 Q. All right. Thank you.

2 Now in your response to Mr. Ezeanyim's  
3 questions on the porosity calculation, have you  
4 prepared an exhibit that explains one of the factors  
5 that we believe may differ in calculating porosity;  
6 and, therefore, calculating pay on the COG method  
7 versus the Burnett method?

8 A. Yes.

9 Q. And without having to go through the whole  
10 thing, because doesn't the top half of this repeat  
11 some of the detail of the equation, one of your  
12 earlier exhibits?

13 A. Yes, sir.

14 MR. GRABLE: Let me ask you to mark this  
15 as Exhibit 28D, 28 delta.

16 TECHNICAL EXAMINER EZEANYIM: Which?

17 LEGAL EXAMINER BROOKS: Which is "this"?

18 TECHNICAL EXAMINER EZEANYIM: Is that this  
19 one (indicating)?

20 MR. GRABLE: Yes, this (indicating) one.  
21 It should be the next one in your packet.

22 LEGAL EXAMINER BROOKS: Oh after 28 or...

23 MR. GRABLE: No, no. Not in the -- it's,  
24 again, some of these new exhibits, these responsive  
25 exhibits. And it should be in that same stack that

1 we were working with the log sections.

2 LEGAL EXAMINER BROOKS: Okay. I found it.  
3 It's one over from the next. Okay. And this is  
4 28D?

5 MR. GRABLE: D, as in delta, or dog.

6 LEGAL EXAMINER BROOKS: Okay.

7 Q. (By Mr. Grable) All right. Now, I  
8 noticed that some of the language on here has been  
9 flagged with red type. Why did you do that?

10 A. To highlight that the 2.84 grain density  
11 that Burnett is using for their analysis is -- is  
12 from -- directly from the core analysis that Burnett  
13 has obtained on, I believe, 10 or 11 wells in the  
14 Yeso, which shows a 2.87 grams per cc grain density,  
15 which is slightly lower than a -- the standard  
16 dolomite grain density of 2.87.

17 Q. Now, you were here when Mr. Prentice  
18 testified, were you not?

19 A. I was.

20 Q. And he was -- what is your recollection of  
21 his testimony when I asked him some questions on  
22 cross-examination about the grain density utilized  
23 by Concho in their density calculations?

24 A. I don't think he knew what was used.

25 Q. Okay. But from everything you've seen in

1 the Concho exhibits, and from what they have said on  
2 the witness stand, do you believe that they did use  
3 2.87 rather than 2.84?

4 A. Well, it's hard -- it's hard to know what  
5 they, in fact, used, because we haven't been  
6 provided anything.

7 But without knowing anything else, unless  
8 you have core data or something to demonstrate that  
9 the grain density should be something other than the  
10 standard grain density, then I think a reasonable  
11 assumption would be that you would use the 2.87.

12 So the purpose of this is, really, to say  
13 not -- not so much that Concho used this as a matter  
14 of fact, because we don't know. But if they did,  
15 what the result would be. And that's what we're  
16 trying to demonstrate.

17 Q. All right. And did Burnett actually input  
18 the 2.84 value derived from its log or core analysis  
19 into the computer programs on the log analysis that  
20 come up with the net pay?

21 A. Yes. All of Burnett's log analysis net  
22 pay calculations are based upon a 2.84 grain  
23 density.

24 Q. And then in your last bullet point on  
25 Exhibit 28D, have you estimated the difference in

1 porosity that would result from the overstatement of  
2 the grain density by the difference between 2.87 and  
3 2.84?

4 A. Yes.

5 Q. And what is that difference?

6 A. If you just plug the grain densities into  
7 the calculation, the result is -- and I think it's  
8 shown on -- on the next page --

9 Q. Yes.

10 A. -- the -- you get anywhere from one  
11 porosity unit up to about one and a half porosity  
12 units' difference. That's simply the difference  
13 between using 2.87 versus 2.84.

14 Now, that doesn't sound like a lot. But  
15 when you're dealing with a rock that -- whose cutoff  
16 you say is 3 percent, that's 50 percent of what you  
17 say would be net pay.

18 So even though the number itself is, on  
19 itself, small, it -- it has -- it could have a major  
20 impact on the net pay calculations and the PHI-H  
21 calculation.

22 Q. So on those net pay PHI that are just  
23 barely over the 3 percent minimum on the COG  
24 calculation, if they were overstated by around a  
25 percent from using the wrong grain density, then

1 that would result in quite a number of net pay PHI  
2 for your true net pay?

3 A. It could.

4 Q. All right.

5 Let's turn to the next exhibit now, where  
6 it displays it in a little more detail.

7 Could you explain this graph that I will  
8 ask be marked as Exhibit 28E, 28 echo?

9 A. Yes.

10 LEGAL EXAMINER BROOKS: This is the slide  
11 entitled "Density/Porosity Comparison"?

12 MR. GRABLE: Yes. And it just -- well,  
13 I'll let Mr. Gore explain it.

14 But that should also be in that same  
15 stack --

16 LEGAL EXAMINER BROOKS: It is.

17 MR. GRABLE: -- that you are working with.

18 LEGAL EXAMINER BROOKS: Yes, it is.

19 THE WITNESS: This is just -- I'm sorry.  
20 Go ahead.

21 Q. (By Mr. Grable) Would you explain how you  
22 extrapolated a graph to this difference in resulting  
23 the porosity calculated by using a grain density of  
24 2.87 or 2.84?

25 A. All right. This is just a graphical

1 representation of the difference. The Y axis is  
2 density/porosity based upon a 2.84 grain density,  
3 and the X is based upon 2.87.

4 And you can see you get two straight  
5 lines, and the differences in the two density  
6 porosities are shown in the box in the bottom  
7 right-hand corner of the exhibit.

8 Q. In that yellow box?

9 A. Yes.

10 Q. So down on this (indicating) end, the  
11 differences in this range of values you have shown  
12 are from approximately converting these decimals to  
13 percents, approximately 1 percent to 1.7 percent or  
14 9/10 of a percent to 1.7 percent?

15 A. Yes.

16 Q. And those, again -- if the true grain  
17 density is as Burnett says 2.84, and Concho has used  
18 2.87, and this is the porosity calculations, that  
19 would result in an overstatement of the calculated  
20 porosity by Concho of somewhere between 1 percent  
21 and 1.7 percent?

22 A. Yes.

23 Q. All right.

24 MR. GRABLE: At this point, we're kind of  
25 turning to a new topic, so I am going to offer for

1 the record Burnett Exhibits 17, 21, 23 through 25,  
2 25A, 26, 27, 28, and 28A through 28E as in echo.

3 TECHNICAL EXAMINER EZEANYIM: Mr. Grable,  
4 you lost me. I will ask you to repeat it.

5 MR. GRABLE: Okay. Since we're turning  
6 now to a new subject matter, I want to offer these  
7 exhibits that we've talked about to this point.

8 TECHNICAL EXAMINER EZEANYIM: Would you  
9 name them?

10 MR. GRABLE: Which are Numbers 17, 21, 23,  
11 24, 25, 25A, 26, 27, 28, and 28A, B, C, D, and E.

12 TECHNICAL EXAMINER EZEANYIM: Is that all?

13 MR. GRABLE: They are offered.

14 TECHNICAL EXAMINER EZEANYIM: Okay. Any  
15 objection too admitting those exhibits?

16 MS. MUNDS-DRY: No objection.

17 MR. COONEY: No objection.

18 TECHNICAL EXAMINER EZEANYIM: Okay. At  
19 this point, Exhibits Number 17, 21, 23, 24, 25, 25A,  
20 26, 27, 28, 28A, B, C, D, E will be admitted.

21 MR. GRABLE: Thank you, Mr. Examiner.

22 All right. Now, we have a few more of  
23 these insert exhibits. And this one should be  
24 either the top of the -- this -- it may be the  
25 last -- the top one on that page.

1 Do you have it in front of you?

2 TECHNICAL EXAMINER EZEANYIM: The small  
3 one?

4 MR. GRABLE: I believe it's on the top of  
5 the same package. And with some trepidation, I'm  
6 going to say this is a modification of Concho  
7 Exhibit 13. But if Mr. Brooks will let me, I'm  
8 going to come over and verify that.

9 LEGAL EXAMINER BROOKS: That will be fine.

10 MR. GRABLE: Yes. Okay.

11 Q. (By Mr. Grable) Mr. Gore, do you see what  
12 is displayed on the screen, and that I will ask be  
13 marked for identification as Burnett Exhibit 28F, as  
14 in foxtrot?

15 A. Yes.

16 Q. Do you remember the Concho exhibit from  
17 which this was derived?

18 A. I do.

19 Q. Do you remember the point that Concho was  
20 trying to make through their Exhibit 13?

21 A. I believe I do, yes.

22 Q. And what is your recollection?

23 A. My recollection is that it was just a  
24 generic example of two wells on 10-acre density  
25 draining with the ellipse being 10 acres and the

1 lenses, if you will, within the Yeso, whether it was  
2 Paddock or Blinebry, is, I guess, insignificant for  
3 this exhibit. But to demonstrate that this is how  
4 they would view their 10-acre density in this  
5 reservoir.

6 Q. Are the ovals, in your recollection,  
7 basically symbolic of their expected fracture  
8 penetration?

9 A. Well, I think that would be part of it,  
10 yes. And I also -- maybe incorrectly on my part --  
11 but I also thought that somehow that equated to  
12 roughly the 10-acre drainage, 9.2 in the Paddock,  
13 and Blinebry is only 4.9. But...

14 Q. I believe Mr. Midkiff testified to this,  
15 and I thought he was saying that, you know, you  
16 couldn't just judge the reservoir by what it sees  
17 there at the well bore, because it's going to  
18 fracture out and contact these other pods or lenses  
19 some distance away after it's fractured.

20 A. Right. And as a result of that, you would  
21 achieve these drainage areas.

22 Q. Right. Now is the data that Burnett has  
23 added to its Exhibit 28F, the Burnett well and the  
24 information in the middle, and then covered a larger  
25 fracture area based upon the Burnett testimony

1 regarding its slickwater frac?

2 A. Yes.

3 Q. And explain the significance of that for  
4 this ability of Burnett's wells to contact multiple  
5 discontinuous stratigraphic reservoirs within this  
6 Yeso formation.

7 A. Well, what this was meant to represent is  
8 what Mr. Jacoby described as the slickwater frac  
9 contacting more of the reservoir. And when you do  
10 that, you achieve greater production and greater  
11 drainage area. And so that's what this pink ellipse  
12 is meant to represent.

13 Q. And so in summary, would you say this is  
14 just a pictogram, or symbolic picture of a Burnett  
15 20-acre slickwater well being able to contact as  
16 much of the reservoir as two Concho 10-acre gel frac  
17 wells?

18 A. Yes.

19 Q. Let's turn now to the next exhibit --

20 MR. GRABLE: Which I believe should also  
21 be in that same stack you're working on, Examiners.

22 Q. (By Mr. Grable) And can you tell me,  
23 Mr. Gore -- we'll ask this be marked Exhibit 28G, as  
24 in golf.

25 What is this display of data intended to

1 depict, Mr. Gore?

2 A. This is a generic exhibit meant to  
3 represent the relationship between PHI-H and  
4 drainage area. And we have three curves on here  
5 which would represent three hypothetical wells.

6 LEGAL EXAMINER BROOKS: Okay. Now, I  
7 haven't found this one.

8 TECHNICAL EXAMINER EZEANYIM: Yeah, it's  
9 this -- that one (indicating).

10 LEGAL EXAMINER BROOKS: This one  
11 (indicating)? Oh, okay. Thank you. And that's  
12 28G?

13 MR. GRABLE: Yes, sir.

14 Q. (By Mr. Grable) I believe I had asked you  
15 in your testimony earlier, that as the stated PHI-H  
16 in a drainage area calculation increases the  
17 indicated drainage area decreases. Is that what  
18 this graph shows --

19 A. Yes.

20 Q. -- graphically?

21 A. Yes.

22 Q. And so if -- for a particular well on the  
23 hundred acre -- or hundred-thousand-barrel recovery,  
24 if Burnett had picked a PHI-H of 10 PHI, it would  
25 have roughly a 16- or 17-acre drainage area. But if

1 Concho had picked 20 net PHI, it would have less  
2 than 10 acres?

3 A. Correct.

4 Q. And you could pick any other numbers on  
5 either -- any one of those curves. But this is just  
6 to show graphically the relationship between PHI-H  
7 and drainage area?

8 A. Correct.

9 MR. GRABLE: Now, our final additional  
10 exhibit at this point will come from the second  
11 stack, Mr. Ezeanyim, the stack that -- it's  
12 captioned "Burnett Analysis of COG's EURs." It  
13 should be the top page on the second stack.

14 TECHNICAL EXAMINER EZEANYIM: Yes, we got  
15 it.

16 MR. GRABLE: I will ask that be marked  
17 Exhibit 28H, as in hello.

18 LEGAL EXAMINER BROOKS: And that's the one  
19 that says "Burnett Analysis of COG's EURs"?

20 MR. GRABLE: Yes, sir.

21 LEGAL EXAMINER BROOKS: And that's 28H.

22 TECHNICAL EXAMINER EZEANYIM: Mr. Grable,  
23 may I ask why these were not admitted before? You  
24 didn't want to use them before or what?

25 MR. GRABLE: No, we -- these were exhibits

1 that we created after getting their exhibits. So  
2 these are, in effect, our responsive exhibits to  
3 their case. Since the parties prefiled at the  
4 same -- simultaneously our direct case exhibits,  
5 this is, in effect, our response to the COG  
6 case-in-chief. So after getting their exhibits on  
7 the 9th, we worked last week on these responsive  
8 exhibits.

9 TECHNICAL EXAMINER EZEANYIM: Okay. Make  
10 sure you get them for the court reporter so they're  
11 part of the record.

12 MR. GRABLE: Yes. All right.

13 Q. (By Mr. Grable) Now, Mr. Gore, would you  
14 explain to the Examiners first the general purpose  
15 of this exhibit and how many you looked at and what  
16 factor or factors between the Burnett analysis of  
17 the reservoir and the Concho analysis of the  
18 reservoir you were trying to depict or compare on  
19 this exhibit?

20 A. Well, what we did is we analyzed the COG  
21 units and wells on those units in these sections.  
22 And it's primarily, I believe, the Loco Hills area.  
23 And then the bottom area is the Maljamar area.

24 And we -- we evaluated 213 wells and  
25 extrapolated decline curves and achieved that EUR in

1 the last column on the exhibit in green.

2           You can see that those EURs range from  
3 72,000 barrels per well to a low of -- it looks like  
4 52,000 per well. The average is 66,000 barrels a  
5 well.

6           So of the 213 COG wells we did decline  
7 curve analysis on, our calculations determined that  
8 the average EUR from those wells was 66,000 barrels  
9 per well.

10          Q. Now you were here this morning when  
11 Mr. Jacoby testified, were you not?

12          A. I was.

13          Q. And do you remember that he testified  
14 regarding comparison of nine COG wells in their  
15 Harvard Federal lease, that it is surrounded on  
16 three sides by some of the Burnett Gissler leases?

17          A. Yes.

18          Q. And did you include those nine COG wells  
19 in this calculation?

20          A. Those -- those nine wells, or any of the  
21 Harvard Federal wells, are not included in this  
22 exhibit. We -- we have evaluated those wells, but  
23 it was after we created the exhibit.

24          Q. And on average, were those wells greater  
25 or lesser than 66,000 barrels of oil estimated

1 earlier, ultimate recovery?

2 A. Lower.

3 Q. So if they had been included they would  
4 have lowered this average?

5 A. Correct.

6 Q. All right. Now, let's go --

7 MR. GRABLE: It should be in the same  
8 stack, the next exhibit. It's just a little box  
9 exhibit, where we have attempted to display by  
10 Paddock and by Blinebry the difference in EURs as  
11 calculated by Mr. Gore and his firm, with different  
12 stimulation methods.

13 Q. (By Mr. Grable) Is that basically the  
14 data you've gathered in this exhibit?

15 A. Yes.

16 Q. And what results did you notice, and what  
17 conclusions do you reach from the data you have  
18 analyzed on this Exhibit 28I?

19 TECHNICAL EXAMINER EZEANYIM: 28I.

20 A. What we observed is, again, the 213 wells  
21 that we analyzed that COG operates, the average is  
22 66. We believe most of those are gel fracs. I  
23 don't know that we've gone through all 213 to  
24 determine if they were, in fact, gel fracs or not.  
25 But nevertheless, the EUR is the EUR, no matter how

1 it's stimulated. And the average of those 23 wells  
2 is 66,000 barrels a well.

3 We do know, obviously with great detail,  
4 how Burnett stimulated their wells, and we were able  
5 to break that up into the different methods.

6 The hot acid treatments, which most of the  
7 wells that Burnett has drilled, that's been the  
8 method. Those wells average 115,000 barrels a well.

9 The Burnett slickwater -- I'm sorry. The  
10 hot acid, that's all in the Paddock. None of the  
11 Blinebry Burnett wells have been stimulated with  
12 acid. So 115 barrels a well for 65 wells.

13 Q. (By Mr. Grable) 115,000 barrels?

14 A. I'm sorry. 115,000 barrels per well for  
15 the 65 wells analyzed.

16 For the slickwater fracs, we have six in  
17 the Paddock and 11 in the Blinebry that we were --  
18 that we analyzed. The average is 149,000 barrels  
19 per well in the Paddock and 157,000 barrels in the  
20 Blinebry.

21 So you can see that Burnett has improved  
22 their EUR by about 50,000 barrels per well going  
23 from acid to slickwater fracs.

24 Q. Would that be about 34,000 barrels,  
25 Mr. Gore, in the Paddock?

1 A. In the Paddock it would, yes.

2 Q. Now going to the Blinebry hot acid  
3 treatments, is the reason that there really aren't  
4 any there is because the Blinebry simply didn't  
5 respond, and then they weren't -- these were the  
6 early wells, and they weren't able to make  
7 commercial wells in the Blinebry using hot acid?

8 A. That is my understanding, yes.

9 Q. And once they switched in -- after 2007,  
10 or whenever Mr. Jacoby testified, I believe it was  
11 2007 to experimenting with slickwater fracs -- they  
12 noticed very promising results in the Blinebry?

13 A. Yes.

14 MR. GRABLE: All right. We will go back  
15 to the prefiled exhibits now. I'm sorry for that  
16 long diversion.

17 Now if you are back in our prefiled  
18 notebook, I will state that we're not going to  
19 offer -- the next one in order in the prefiled  
20 notebook would be 29. And 29 and 30 we have decided  
21 not to offer, based upon subsequent data that we  
22 learned.

23 Q. (By Mr. Grable) Let's turn now, Mr. Gore,  
24 to what has been marked and prefiled as Burnett  
25 Exhibit 31. Do you have that in front of you?

1           A.       I do.

2           Q.       What is Exhibit 31, and what conclusions  
3 do you reach from it?

4           A.       This is a production decline curve on a  
5 COG-operated unit of 17 South, 30 East, Section 20C.  
6 We have the production plotted in green on semilog  
7 paper. And we also have the well count as that  
8 changed over time on this unit.

9                   LEGAL EXAMINER BROOKS: Now, you said 20C,  
10 and it says 20B.

11                   MR. CAMPBELL: Exhibit 31 in the prefiled.

12                   LEGAL EXAMINER BROOKS: Oh, 31. I was  
13 looking at the wrong one. I'm sorry.

14                   TECHNICAL EXAMINER EZEANYIM: And,  
15 Mr. Grable, you don't want to tender Exhibit  
16 Numbers 29 and 30?

17                   MR. GRABLE: 29 and 30 we are not going to  
18 offer. They are withdrawn, in effect. We're just  
19 never going to offer them.

20                   TECHNICAL EXAMINER EZEANYIM: You don't  
21 want to offer those?

22                   MR. GRABLE: We do not.

23                   TECHNICAL EXAMINER EZEANYIM: Throw them  
24 away?

25                   MR. GRABLE: Throw them away.

1 TECHNICAL EXAMINER EZEANYIM: I hope you  
2 don't have any objection to that. Any objection?

3 MS. MUNDS-DRY: No.

4 MR. COONEY: No.

5 TECHNICAL EXAMINER EZEANYIM: Go ahead.

6 Q. (By Mr. Grable) All right. Going back to  
7 Exhibit 31, is the source of the data from this data  
8 produced by COG in response to Burnett's subpoena?

9 A. Well, I suppose in a way it is. I mean  
10 they provided data on -- on their wells. I believe  
11 we actually pulled this production data off of IHS.

12 Q. Okay. Go ahead and tell the Examiners  
13 what conclusion you reach from the performance of  
14 this well with the number of wells drilled in the  
15 unit.

16 A. Well, this unit actually went off  
17 production in 2009.

18 It came on production in 1997, and it  
19 produced with one well through the latter part of  
20 1999. When the second well was drilled, you see the  
21 jump in production.

22 The unit produced with two wells and  
23 followed a pretty straight-line decline for about  
24 two years until the point in time that the third  
25 well was drilled in 2002.

1           So what we've done here is, we have -- we  
2     have ignored the production data starting with well  
3     three, and -- and so we've only looked at the  
4     production data for the two wells on the unit and  
5     extrapolated that to see what EUR you would get with  
6     two wells, had that well followed the established  
7     decline that it had established in 2000 and 2001.  
8     That would have resulted in an EUR of  
9     262,000 barrels of oil through the economic life.

10           We know that this well -- or this unit  
11    actually went off production. Nothing has been  
12    reported since '09, and it produced only  
13    245,000 barrels, even though for most of its time  
14    period either three or four wells were producing.

15           Q.     So what conclusion do you reach from that  
16    well's performance in relationship to the number of  
17    wells producing on the unit?

18           A.     Well, it appears to me, based upon this  
19    data, that two wells would have efficiently and  
20    effectively drained this unit.

21           While we didn't highlight it, we also see  
22    some pretty dramatic changes in the decline trend  
23    between -- for wells three and four. We didn't  
24    highlight it on this particular exhibit, but you can  
25    see when well three comes on, that straight-line

1 decline steepens up. And that's going to occur in  
2 2003, 2004, and 2005. So this (indicating) trend  
3 here is steeper than this (indicating) trend.

4 And again when we go to four wells, we  
5 don't have as much data with four wells, and it's a  
6 little bit inconclusive. But I think overall, the  
7 trend would be even steeper still.

8 In my opinion, that changing in the  
9 decline profile indicates that wells are beginning  
10 to interfere with one another, meaning they are  
11 competing for the same reserves. So -- we did not  
12 observe that with the first and the second well.

13 So again, my conclusion here is it  
14 appears, based upon the production data from this  
15 unit, that two wells would have efficiently and  
16 effectively drained this 40 acres.

17 Q. All right. Have you studied and charted  
18 the GOR over time of this well as -- of this unit as  
19 the number of wells increased?

20 A. Yes, I have.

21 Q. And is that shown on Burnett Exhibit 33?

22 A. It is.

23 Q. And what trends did you notice during this  
24 same period of time from this same unit?

25 Pardon me. It's Exhibit 32.

1           A.     Yeah, Exhibit 32.

2                     Well, first of all, this graph is a graph  
3 of the gas/oil ratio versus cumulative oil  
4 production for this unit, 20C.

5                     The GOR data that we've seen up until now  
6 has been GOR data on semilog paper. That's --  
7 that's really not appropriate to look at when you're  
8 looking at gas/oil ratios.

9                     The proper way is looking at that time on  
10 cartesian paper, either gas/oil ratio versus time,  
11 and more importantly, versus cumulative oil  
12 production.

13                    What we see is -- and the purpose of this  
14 is I wanted to see if there was a change in the --  
15 in the GOR profile for this unit during the time  
16 period when the unit had two wells versus four  
17 wells.

18                    We didn't look at when it was on three  
19 wells. We could have. It would have showed the  
20 same thing. But for the purpose of the exhibit, I'm  
21 concentrating on the two-well time period and the  
22 four well.

23                    And what we see is -- so taking that GOR  
24 data just during the two-well time period and  
25 putting a linear regression, a best-fit line through

1 that data, you get the -- the red line establishes  
2 that GOR trend for the two-well time period.

3 Then if we move to the four-well time  
4 period and we -- we do the same thing, look at the  
5 GOR only during that time period and put a linear  
6 regression through that data, you can see that there  
7 is a much different GOR profile.

8 In my opinion, that is a result of  
9 drilling too many wells on this unit. You increase  
10 the GOR versus the cumulative oil production. And  
11 as a result, you prematurely deplete the reservoir  
12 energy. That would directly result in, over time, a  
13 loss or a decrease in ultimate recovery.

14 Q. In other words, physical waste of  
15 producible oil?

16 A. Yes.

17 Q. Is this phenomenon you have noted on  
18 Exhibit 32 one reason you believe why GOR -- COG's  
19 wells produce at a higher average GOR than  
20 Burnett's?

21 A. Yes.

22 Q. Let's turn now to exhibit -- what has been  
23 premarked as Exhibit 33, which is a similar decline  
24 trend over time versus number of wells for another  
25 Concho unit, this one being Section 20D, 17 South,

1 30 East.

2           Would you just quickly tell the Examiners  
3 what you plotted here and if you reached similar  
4 conclusions as you did with respect to Exhibit 31?

5           A.     Yes.  Again, oil rate versus time on  
6 semilog paper.  Green is oil.  We also have the  
7 number of wells at any given point in time during  
8 the life of this unit.

9           Again, just like the other one, it appears  
10 that there has not been any reported production from  
11 this unit since, it looks like, about  
12 October/November 2010.

13           And even then, there was a couple of  
14 months that it looks like the unit basically went  
15 off production back in late 2009.

16           But if you look at the two-well time  
17 period again and extrapolate that, we get an  
18 ultimate recovery of 227,000 barrels for the unit.

19           The unit ultimately produced -- or at  
20 least through when it went off production --  
21 243,000 barrels.  So the two-well EUR would have  
22 recovered -- I don't know what that percentage is.  
23 It's probably close to 99 percent of -- of the  
24 recoverable oil that the unit ended up actually  
25 recovering.

1           And again, I didn't show it on this  
2 exhibit. But if you look at the decline profile  
3 over the time period when the unit had two wells --  
4 and we have a very nice trend established here,  
5 during the time period 2000 and 2001.

6           Then look at what happens to the decline  
7 profile when wells three and wells four come on. It  
8 appears to me that we see a steepening decline in  
9 the three-well, and especially the four-well time  
10 period.

11           Again, that would indicate interference  
12 between the four wells because they would be  
13 competing for the same recoverable oil.

14           Q. Now this graph does show that adding the  
15 extra two wells produced 16,000 barrels more oil  
16 than you estimated would have been produced with  
17 only two wells. Is adding 16,000 barrels of  
18 ultimate recovery at the cost of two wells economic  
19 or anywhere close to it?

20           A. No.

21           Q. Let's turn now and look at Exhibit 34. Is  
22 this, again, a depiction of the GOR behavior on this  
23 well over time as wells were added -- or on this  
24 unit -- as wells were added?

25           A. Yes, it is.

1 Q. And do you reach the same conclusions on  
2 this exhibit as you did on Exhibit 32?

3 A. I do. We see a noticeable change in the  
4 GOR trend from the two-well time period versus the  
5 four-well.

6 MR. CAMPBELL: Mr. Examiner, could we  
7 inquire as to the amount of time we have left?

8 LEGAL EXAMINER BROOKS: Yes, you may  
9 inquire. And the answer is, right now, you have  
10 approximately an hour and 15 minutes left.

11 MR. CAMPBELL: Thank you.

12 Q. (By Mr. Grable) Well, Mr. Gore, let me  
13 just leave it, then, on Exhibit 34.

14 Do you reach the same conclusions on the  
15 increasing GOR as a result of the additional wells  
16 added to this unit?

17 A. Yes.

18 Q. All right. Let's look at Exhibit 35,  
19 quickly, as our third and final of this set of this  
20 type of exhibits.

21 Again, can you explain what you noted here  
22 between the two-well indicated ultimate recovery and  
23 the actual recovery of four wells and your  
24 conclusions?

25 A. Again, it's a similar graph.

1           For the two-well time period we would --  
2    based upon that extrapolation over the three years,  
3    '98, '99, and 2000, that would indicate an ultimate  
4    recovery of 326,000 barrels.

5           The last reported production on this unit  
6    was in -- it looks like March/April/May time period  
7    of 2010, so about a year ago. And the total  
8    reported production to date from the unit, as of a  
9    year ago, was 309,000 barrels, even though we had  
10   four wells drilled, and three or four wells were  
11   producing over the life of this unit for the  
12   majority of the time.

13          Q.    Did you reach the same conclusions on the  
14   effect of drilling from two wells to four wells on  
15   this unit as you did on the other units that are  
16   displayed on Exhibits 31 and 33?

17          A.    I did.

18          Q.    And then turning, finally, to its  
19   companion Exhibit 36, displaying the GOR behavior  
20   versus cum oil production, do you reach the same  
21   conclusions there on Exhibit 36 as you did on  
22   Exhibits 34 and 32?

23          A.    Yes.

24          Q.    Okay.

25                MR. GRABLE: Mr. Examiners, we have also

1 elected to withdraw Exhibits 37 and 38, which were  
2 just -- and 39 and 40, which were just additional  
3 wells in this same...

4 TECHNICAL EXAMINER EZEANYIM: Which ones  
5 do you want to withdraw?

6 MR. GRABLE: 37, 38, 39, and 40 are  
7 withdrawn, or more precisely, not offered.

8 TECHNICAL EXAMINER EZEANYIM: Okay.

9 MR. GRABLE: So at this time we will offer  
10 in evidence Exhibits 28F, G, H, and I, as well as  
11 Exhibits 29, 30, 31, 32 -- pardon me -- Exhibits 31,  
12 32, 33, 34, 35, and 36. 29 and 30 were not offered,  
13 nor are 37 through 40 or 36 through -- no, 37  
14 through 40.

15 TECHNICAL EXAMINER EZEANYIM: So you want  
16 to offer in evidence 28F, G, H and I, plus 31, 32,  
17 33, 35, and 36?

18 MR. GRABLE: 31, 32, 33, 34, 35, and 36.

19 LEGAL EXAMINER BROOKS: Not 32?

20 MR. GRABLE: Yeah, 32. 31 through 36,  
21 inclusive.

22 TECHNICAL EXAMINER EZEANYIM: Okay. Any  
23 objection?

24 MS. MUNDS-DRY: No objection.

25 MR. COONEY: No objection.

1                   TECHNICAL EXAMINER EZEANYIM: At this  
2 point, Exhibits Number 28F, G, H, and I, plus 31  
3 through 36 will be admitted.

4           Q.       (By Mr. Grable) Now I'll ask you,  
5 Mr. Gore, to turn your attention to what has been  
6 marked as Burnett Exhibit 41, a four-well -- two-,  
7 three-, four-well performance graph from a COG well  
8 in Section 19, township 17 South, range 32 East,  
9 which is over in what we call the Maljamar area.

10                   Are you familiar with this graph?

11           A.       Yes.

12           Q.       What conclusion, if any, do you draw from  
13 this graph?

14           A.       Well, the only purpose of this graph is  
15 to -- to point out that we -- we did look at the  
16 Maljamar area. And what we were looking for is --  
17 was the change in decline trends, increasing GORs,  
18 with a -- either a two-well or a four-well density.

19                   What we found over there is just the way  
20 the wells have been drilled, in terms of timing and  
21 how quick they have been drilled, we really didn't  
22 find any data that we could work with.

23                   This is an example of, you know, you went  
24 from two wells to four wells in a very short time  
25 period, and we just can't get anything out of the

1 data.

2 So the point is, we -- we looked at  
3 Maljamar, the timing of the wells being drilled and  
4 the quickness of the wells being drilled. The data  
5 just didn't lend itself to any sort of  
6 interpretation.

7 Q. Thank you.

8 MR. GRABLE: Now, Examiners, we're going  
9 to go through the other exhibits that are in the  
10 second stack you received this morning that aren't  
11 in the book, starting with the scatter plot graph.

12 Have you located that? It should have  
13 been the third sheet in the second stack.

14 TECHNICAL EXAMINER EZEANYIM: These  
15 (indicating) ones?

16 MR. GRABLE: Thank you.

17 And again I'll represent, I believe, this  
18 is a modification of what was offered and admitted  
19 into evidence as Concho Exhibit 14.

20 While I'm attempting to confirm that, I'll  
21 walk over here.

22 It is Concho Exhibit 14.

23 Q. (By Mr. Grable) Mr. Gore, can you briefly  
24 tell the Examiners your understanding of what --

25 TECHNICAL EXAMINER EZEANYIM: Just a

1 moment. I haven't gotten that yet.

2 (Discussion off the record.)

3 Q. (By Mr. Grable) Mr. Gore, could you tell  
4 the Examiners briefly your recollection of what  
5 Concho concluded from the data displayed on this  
6 Exhibit 14, and what additional information you have  
7 added in red up in the upper left corner, and your  
8 comments on this exhibit?

9 A. Well, if I understood their -- their  
10 testimony correctly, the conclusion was that they  
11 saw no correlation between the productivity of oil  
12 and PHI-H. And -- and they indicated that this plot  
13 of initial 12-month cum production versus PHI-H, the  
14 data is scattered, indicating no correlation.

15 I think there are several things that we  
16 need to know about these data points before we can  
17 reach any conclusions. And we don't know those,  
18 because they haven't been provided.

19 Number one, PHI-H is pore volume. What's  
20 important here is hydrocarbon pore volume.

21 We don't have any information regarding  
22 saturation. So I think it would be important to  
23 know that.

24 Also, we don't have any indication of  
25 where these particular points are in relationship to

1 the trend. Are they higher on structure or lower?  
2 Are they to the east or to the west? So I think  
3 that would be important.

4 Are they on units with four wells, or two  
5 wells?

6 Do these points represent the first well  
7 drilled on a unit or the fourth well?

8 All of those things I think we need to  
9 look at before we can conclude that there is no  
10 relationship. Because obviously what we want to do  
11 is compare apples to apples. And so we don't want  
12 to compare first wells and fourth wells or wells  
13 high on structure versus wells low on structure or  
14 wells with high water saturations or low water  
15 saturations.

16 So that is the problem I have with this  
17 exhibit, is there are just too many variables that  
18 COG hasn't provided us in order for us to determine  
19 is that, in fact, a correct conclusion?

20 Q. And if these other factors were known and  
21 were comparable, such as structural location,  
22 first/fourth-well type of stimulation, oil-saturated  
23 PHI-H versus gross PHI-H, would you expect to see a  
24 relationship between oil-saturated PHI-H and  
25 cumulative production?

1           A.     I would expect to see a correlation there.

2           Q.     All right.

3                     Now let's turn to Exhibit 41B which,  
4 again, I believe to be a Burnett markup of what was  
5 Concho Exhibit 23.

6                     LEGAL EXAMINER BROOKS: Okay. Now, is  
7 this (indicating) Exhibit 42? It has a 42 down  
8 there, but it's not --

9                     MR. GRABLE: That was our production  
10 number. It was 14.

11                    LEGAL EXAMINER BROOKS: Okay. So COG  
12 Exhibit 14 is -- are you marking yours with --

13                    MR. GRABLE: It's 41 alpha.

14                    LEGAL EXAMINER BROOKS: 41A.

15                    MR. GRABLE: They're going to be inserted  
16 after Exhibit 41 in our notebook.

17                    LEGAL EXAMINER BROOKS: Okay.

18                    MR. GRABLE: And the next one I believe --  
19 23. Yes, that's it.

20                    LEGAL EXAMINER BROOKS: 23.

21                    MR. GRABLE: Okay. We ask this next one  
22 be marked Burnett Exhibit 41B, bravo. And it's a  
23 markup of Concho Exhibit 23.

24           Q.     (By Mr. Grable) Can you tell the  
25 Examiners, as quickly as you can, what you have

1 observed from the Concho exhibit and what different  
2 conclusions you reach from the data displayed on  
3 that exhibit?

4 A. Yes. This exhibit, Concho -- their  
5 conclusion was there was an incremental recovery of  
6 247,000 barrels due to 10-acre infill drilling. And  
7 it was based upon these two, what I would refer to  
8 as decline profiles, which would be some sort of  
9 normalized curve from other data.

10 A couple of problems. Number one,  
11 normalized data is applicable when you don't have  
12 information on a particular well, if you have  
13 insufficient production data on a well, or a unit,  
14 to make an extrapolation.

15 If you do, I don't see the validity in  
16 using a normalized curve from other data, when you  
17 have sufficient data on your well or your unit from  
18 which to make that extrapolation. So that's problem  
19 number one.

20 But also, when I look at the two-well time  
21 period and the four-well time period, if you are  
22 just trying to extrapolate when this unit was  
23 producing on two wells, while the data is pretty  
24 erratic, it starts to flatten out right in here  
25 (indicating). That, to me, looks like a fairly good

1 trend, even though we do acknowledge some erratic  
2 production.

3 But I could see putting a straight-line  
4 decline through that data, because it's honoring the  
5 actual data from the well, not other wells, and  
6 extrapolating that.

7 The same with the four-well time period.  
8 Let's look at that production. It's going to be the  
9 last -- roughly, it looks like a year worth of data.

10 This, to me -- we have this low spike here  
11 (indicating), which is probably some sort of  
12 operational issue, I don't know for sure. But  
13 without that, I mean we see a pretty good trend here  
14 of declining oil production over that 12-month time  
15 period. And that looks to be a pretty straight  
16 line.

17 And if you extrapolate that, what you see  
18 is a change in the slope, indicating interference.  
19 And you're not going to get anywhere close to an  
20 incremental recovery, if you get any incremental  
21 recovery, based upon those two decline profiles.

22 Q. All right. Thank you, Mr. Gore.

23 Let's now go to what we asked be marked  
24 Exhibit 41C, or Charlie, which I believe was Concho  
25 Exhibit 32 as the underlying. I believe it to be

1 Exhibit 32.

2 MR. GRABLE: Well, we'll try to find it.  
3 It's somewhere in the record, but I believe it to be  
4 Exhibit 32.

5 Q. (By Mr. Grable) Would you again tell the  
6 Examiners, from this exhibit, how you differ from  
7 the opinions expressed on it by the Concho witness  
8 and why?

9 A. This particular production graph for 30  
10 East, 15G, I note that you have got several  
11 well-established long decline trends.

12 This well -- or I'm sorry -- this unit  
13 produced for approximately five years with two  
14 wells. This time period here is two wells.

15 Well, when we get out after about a year  
16 to a year and a half, maybe -- really, probably a  
17 year -- this is a very straight exponential decline.  
18 It fits the data very well, and we can extrapolate  
19 that to an EUR.

20 Then if we look, Concho -- well, yeah, it  
21 would have been Concho. Well, I'm assuming it would  
22 have been Concho then that would have drilled that  
23 well. I forget the timing of their involvement.  
24 But a third well on the unit was drilled in late  
25 2007.

1           And so we have almost two years, probably  
2 a good 18 months, of three-well data. We see two  
3 peaks during this time period. That's probably some  
4 operational change.

5           But when we go up, we've got a good  
6 probably six months -- six to nine months of  
7 decline. And it looks -- again, a very nice  
8 straight-line trend.

9           But note that the trend is much steeper  
10 than what we had seen with two wells.

11          Q.     What do you see on the four-well decline?

12          A.     In mid '09 the fourth well on the unit is  
13 drilled. We have about 18 months -- well, not quite  
14 that long, maybe 14 months of data once the fourth  
15 well is drilled. Production goes up, as you would  
16 expect. But then immediately the well begins to  
17 decline.

18           And if you compare the four-well trend,  
19 it's steeper than the three-well trend, which is  
20 much steeper than the two-well trend.

21          Q.     And what conclusion do you reach from  
22 those steepening decline trends as wells are added?

23          A.     To me, this indicates the third and the  
24 fourth wells are competing for reserves from the  
25 original two wells, indicating well interference,

1 and that the wells would be draining more than  
2 10 acres.

3 Q. All right.

4 I'll now ask you to turn to what we would  
5 ask to be marked as Exhibit 41E, as in echo.

6 TECHNICAL EXAMINER EZEANYIM: This one is  
7 41E.

8 LEGAL EXAMINER BROOKS: This is 41C.

9 MR. GRABLE: Okay. Then 41D, then, delta.  
10 Pardon me.

11 LEGAL EXAMINER BROOKS: That's --

12 MR. GRABLE: Which I believe is on the  
13 base of Concho Exhibit 31.

14 Q. (By Mr. Grable) Mr. Gore, let me ask you  
15 just to comment quickly. Do you reach essentially  
16 the same conclusion here as to the effect of adding  
17 additional wells on the decline curve on this -- on  
18 this Concho unit?

19 A. Yes, I do.

20 Q. And does adding wells three and four  
21 steepen the decline?

22 A. It steepens the decline, again an  
23 indication that the wells are competing for the same  
24 recoverable oil.

25 Q. All right. Now let's look at what

1 is Exhibit 41E, echo, which I believe is on the base  
2 of Concho Exhibit 24.

3 I will ask you: Do you agree with the  
4 conclusion reached by Concho that adding four  
5 wells -- wells three and four results in an  
6 incremental recovery of 232,000 barrels as claimed  
7 by Concho?

8 A. Yes, I disagree.

9 Q. And why do you disagree?

10 A. Well, number one, for the four-well time  
11 period, which is going to be about the last nine  
12 months, this -- the actual data looks to be a pretty  
13 straight exponential decline, which is going to be  
14 much different than a normalized curve from other  
15 well data.

16 The other thing is, for the two-well time  
17 period, there's simply not enough data in there to  
18 draw any conclusion. I can't put a decline trend on  
19 there, and I don't think anyone reasonably can.

20 So in my opinion, there's no way you can  
21 reach a conclusion that there's incremental reserves  
22 because you just don't have the data to do that.

23 Q. All right. Now finally, on these insert  
24 exhibits, we'll turn to what I will be asking to be  
25 marked as Exhibit 41F for identification.

1           And, frankly, I haven't located the  
2 underlying Concho exhibit, but I'll try to do so  
3 during the remainder of your testimony.

4           Oh, it's Apache, pardon me, Apache  
5 Exhibit 6. That's why I couldn't find it in Concho.

6           Do you believe this is a valid two-well  
7 versus four-well comparison? And if not, why not?

8           A. I don't believe it's valid. We went back  
9 and checked the stimulations that were reported on  
10 these four wells. And you can see that the first  
11 two wells had stimulations that were less than half  
12 the size or approximately half the size that the  
13 last two wells did.

14           So I think you -- those much larger frac  
15 jobs, slickwater frac jobs, would, in my opinion,  
16 account for this big jump in production. So I don't  
17 think you would be comparing apples to apples here.

18           You would need to know what would these  
19 wells, the three and the four wells, do with  
20 stimulations like the first two wells or vice versa  
21 before you could reach any conclusion.

22           Q. All right. We're about to move to our  
23 final two topics, quickly.

24           So at this point, I'm going to offer into  
25 evidence Exhibits 41, 41A, B, C, D, E and F.

1 TECHNICAL EXAMINER EZEANYIM: Any  
2 objections?

3 MS. MUNDS-DRY: No objection.

4 MR. COONEY: No objection.

5 TECHNICAL EXAMINER EZEANYIM: Okay. At  
6 this point, Exhibits Number 41 and 41A through 41F  
7 will be admitted.

8 Q. (By Mr. Grable) Let me ask you to  
9 refer --

10 MR. GRABLE: Now we are back in the book  
11 of our prefiled exhibits, Examiners.

12 Q. (By Mr. Grable) -- at Exhibit 42. I hope  
13 everybody recognizes the base by now, the color code  
14 of the tracks by Burnett/Hudson.

15 MR. GRABLE: Have you found it? 42 is in  
16 your book.

17 TECHNICAL EXAMINER EZEANYIM: Yes, it is.  
18 I've got it.

19 Q. (By Mr. Grable) Now, here I note that the  
20 well code colors are different than the earlier  
21 display, which I believe was our Exhibit 3.

22 How are the wells color coded on this  
23 graph, and what conclusions do you draw from the  
24 display of color on the graph?

25 A. Each well is labeled with a color that

1 corresponds to its cumulative GOR as of January 1st  
2 of this year.

3 So the wells in the darkest green would  
4 have the lowest GORs, proceeding up to the wells  
5 with the highest GORs are going to have the purple  
6 color.

7 Q. And where do you find most of the high GOR  
8 wells to be located?

9 A. The high GOR wells are going to be located  
10 on the COG acreage where they have drilled on  
11 10-acre density.

12 Q. And how do the Burnett wells appear, in  
13 general, on this chart?

14 A. The Burnett wells, in general, have a GOR  
15 between a thousand and 2,000. They're in the  
16 acreage that's shaded in yellow.

17 But you can see that, you know, the  
18 lighter the color, the green colors are the lower  
19 GORs. And this is the area that Mr. Jacoby  
20 discussed the Harvard Federal having those higher  
21 GORs right there (indicating). So...

22 Q. That is a Concho lease within and  
23 surrounded by Burnett leases?

24 A. Correct.

25 Q. All right. And again, in the areas

1 between the east boundary of the Burnett Loco Hills  
2 properties extending over to the Maljamar  
3 properties, where it's more or less on 20 acres,  
4 does that appear to be that those GORs are also, on  
5 average, substantially lower than over here in the  
6 western portion where it's drilled down pretty much  
7 to 10-acre spacing?

8 A. That's correct.

9 When you look at the Concho acreage that  
10 hasn't been as densely developed, you see much lower  
11 producing gas/oil ratios.

12 Q. And then going further east, east of the  
13 Maljamar acreage where there are some areas over  
14 here that had been drilled down to 10 acres, but not  
15 consistently to 10 acres, what conclusions do you  
16 draw over there?

17 A. Again, you see a mixture. You see very  
18 high and very low GORs associated with, in my  
19 opinion, the density of development.

20 Q. And then in your opinion, is there a  
21 relationship in this reservoir in these pools  
22 between the density of drilling and the resulting  
23 producing GORs of the wells?

24 A. Yes.

25 Q. And what is that relationship?

1           A.     That relationship is not only based on  
2     this map, but the other GOR data that we've seen,  
3     that as you drill wells three and wells four on a  
4     unit, you see a change in the GOR profile with --  
5     with the GOR trend increasing much more steeply than  
6     under either one or two wells.

7           Q.     And do you have an opinion as to whether  
8     or not this increase in GOR with increased density  
9     of development will lead to loss of producible  
10    reserves from these reservoirs?

11          A.     I do.

12          Q.     What is that opinion?

13          A.     I think everyone agrees it's a solution  
14    gas drive reservoir.  If you deplete that energy  
15    prematurely the result is going to be lower ultimate  
16    recoveries and physical waste.

17          Q.     And do you believe, or do you have an  
18    opinion, as to whether or not the commission  
19    should -- or the division should remain with the  
20    state-wide rule of GOR of 2,000 to 1, as proposed by  
21    Burnett, or abandon any GOR rule, as proposed by  
22    Concho?

23          A.     I think if -- if you're interested in  
24    maximizing recovery, preventing waste, protecting  
25    correlative rights, there has to be a gas/oil ratio

1 limit in this field.

2 Q. Now, I recall Mr. Cooney asked Mr. Jacoby  
3 a question or two on the nine-well comparison up  
4 here in the Harvard Federal area that showed that  
5 Burnett's wells were producing at a GOR of around  
6 2,500, whereas I think the Concho wells were up to  
7 7,000 or so.

8 But does the mere fact that a unit is  
9 producing at a GOR slightly above 2,000 mean that  
10 the well is -- that the unit is violating the  
11 allowable rule, even if its GOR rule is 2,000 to 1?

12 Does it depend on the oil production? If  
13 the unit is producing at less than top oil  
14 allowable, but at slightly greater than 2,000 to 1,  
15 is it still within the rules?

16 A. No.

17 Q. All right. Let's say there's a unit  
18 that's producing at -- let's say allowable is  
19 187 barrels a day and it's producing at 150 barrels  
20 a day, but it's producing at a GOR of 2,100. Would  
21 it still be within allowable?

22 MR. COONEY: Mr. Hearing Officer, I  
23 hesitate to object, but isn't this a legal issue to  
24 be determined by looking at the rules, as opposed to  
25 this witness' opinion of what the rules might say?

1 MR. GRABLE: It's an application of the  
2 rules to fact.

3 LEGAL EXAMINER BROOKS: Okay. Well, I  
4 think we should have the rule in front of us.

5 Do you happen to know the number?

6 MR. GRABLE: No. I will come back to  
7 that. I don't have it, and I don't want to waste  
8 time.

9 (Discussion off the record.)

10 LEGAL EXAMINER BROOKS: Okay.

11 MR. GRABLE: My point -- and maybe it is a  
12 legal argument. But I was going to use this  
13 witness, since we have a couple of exhibits on  
14 allowable calculations. But my understanding of the  
15 way the rules work, that if you have got an oil  
16 limit of 80 barrels a day and a GOR of 2,000 to 1  
17 your gas limit's 160.

18 LEGAL EXAMINER BROOKS: Well, I'm going to  
19 overrule the objection on the basis that it's a  
20 technical rule, so it's appropriate to have  
21 technical testimony to us to interpret it. But I do  
22 think we need to have the rule in front of us so we  
23 can see exactly what language he's interpreting.

24 MR. GRABLE: I'll see if I can find it.

25 LEGAL EXAMINER BROOKS: Okay. It is

1 part -- or Title 20 -- no, Part 20, Section 8 --  
2 Section 12. Part 20, Section 12, 19.15.20.12 of the  
3 code.

4 Q. (By Mr. Grable) Mr. Gore, let me ask it  
5 simply this way.

6 If a unit is producing within its oil  
7 allowable and below the gas limit for the unit, even  
8 though it's producing at a GOR greater than the GOR,  
9 is that unit producing lawfully?

10 A. I believe it is, yes, if I understand your  
11 question correctly.

12 TECHNICAL EXAMINER EZEANYIM: Can you  
13 repeat that question?

14 Q. (By Mr. Grable) Yes. If a unit is  
15 producing oil in an amount below the oil -- at or  
16 below the oil allowable, which here in my  
17 hypothetical is 100 barrels -- or 80 barrels -- and  
18 is producing gas at or below the gas limit, which in  
19 mine is 2,000 to 1 on 80 barrels is 160 MCF per day.

20 So if you have a well that's producing at  
21 3,000 to 1, but only producing 40 barrels, so it  
22 would be producing 40 barrels of oil and 120 MCF of  
23 gas at a ratio of 3,000 cubic feet per barrel, is  
24 that well producing lawfully within the rules?

25 A. Well, in that situation you would have a

1 new oil allowable which would be three -- or in your  
2 example, I think, 2,000 divided by 3,000 times 80.

3 Q. Yes. Which is 60.

4 A. Which is 60. So if it's producing  
5 30 barrels -- if it's producing below 60, then it  
6 would be producing lawfully.

7 I think I understood that correctly.

8 Q. So -- and that's background for asking:  
9 If -- if Mr. Cooney's question to Mr. Jacoby was  
10 that the mere fact that the Burnett wells were  
11 producing at a ratio slightly above 2,000, does not  
12 automatically mean they're producing unlawfully?

13 A. That is correct.

14 Q. Okay.

15 Now, I don't want to spend much time at  
16 all on these next exhibits, because they go to the  
17 same point.

18 But Exhibit 43, do you have an example  
19 here of how to calculate an oil allowable for a unit  
20 that's producing at a gas/oil ratio in excess of the  
21 producing gas/oil ratio for the field?

22 A. I do.

23 Q. Could you explain that to the Examiners?

24 A. Yeah. Item Number 1 in our example -- in  
25 our situation, 80 barrels a day is the top oil

1 allowable, and the GOR limit is 2,000 to 1. Then  
2 the gas limit would be 160 MCF per day.

3 If, in this example, a well had a 4,000 to  
4 1 GOR, then the top allowable no longer is  
5 80 barrels a day, but is rather 80 times the ratio  
6 of 2,000 to 4,000, so it would be half of 80, or  
7 40 barrels a day.

8 Q. And that's another example of -- besides  
9 my hypothetical question that I asked you about in  
10 my previous question, is it not?

11 A. That's correct.

12 Q. All right. Now, is Exhibit 44 applying  
13 that to how one would calculate overproduction for a  
14 well that is producing at -- or a unit that's  
15 producing at a high GOR?

16 A. Yes.

17 Q. And then let me refer you to Exhibit 43.

18 Do you recall the testimony of COG in the  
19 earlier hearing on how they computed their  
20 overproduction?

21 A. Exhibit 43 or 45?

22 Q. 45, pardon me.

23 But if Concho or any operator simply  
24 calculated their overproduction on oil based upon  
25 80 barrels a day and gas based upon 160 MCF per day

1 without regard to the producing GOR, would they be  
2 doing it correctly?

3 A. No, they wouldn't.

4 Q. And have you looked at how Burnett would  
5 calculate its overproduction and COG's  
6 overproduction according to the way you have  
7 described the rule should work under Exhibits 43 and  
8 44?

9 MR. COONEY: Mr. Hearing Officer, again I  
10 don't mean to be obstreperous, but I didn't think we  
11 were going into oil production.

12 MR. GRABLE: I am doing this only for  
13 method, not for numbers. Because if we get into  
14 calculating, and asking the operators to calculate  
15 overproduction, I think the method by which an  
16 operator calculates it is important --

17 LEGAL EXAMINER BROOKS: Well --

18 MR. GRABLE: -- if they're using different  
19 methods than --

20 LEGAL EXAMINER BROOKS: -- let me -- let  
21 me interrupt here, because I -- these are fairly  
22 complicated rules, and I haven't had occasion to  
23 deal with them very often, so I'm not following what  
24 he is saying in the rules.

25 And I think if we're going to talk about

1 the rules we should talk about the specific rules  
2 and what the particular provision says.

3 MR. GRABLE: All right. We will do that,  
4 and I think that may be legal argument. His  
5 testimony is in. I will leave -- I think I'm going  
6 to just withdraw an offer of -- well, I haven't  
7 offered them yet, but I am not going to offer 45 or  
8 46 or 47 at this point. Nor am I going to offer 48  
9 or 49.

10 So I do want to offer at this point --

11 Mr. Ezeanyim, what was the last  
12 exhibit that was admitted?

13 TECHNICAL EXAMINER EZEANYIM: It was -- it  
14 would be Number 41A through F. 41, then 41A through  
15 F.

16 MR. GRABLE: Okay. I am going to offer  
17 Exhibits 42, 43, and 44. And I will withdraw and  
18 not offer 45, 46, 47, 48, 49, and 50.

19 TECHNICAL EXAMINER EZEANYIM: So you only  
20 want to admit 42, 43, and 44?

21 MR. GRABLE: Yes. Because the others, 46,  
22 47, 48, 49, and 50 go to calculating the amounts --  
23 they go to the results, not the methods. And I'm  
24 not going to offer those at this time.

25 TECHNICAL EXAMINER EZEANYIM: Okay. Any

1 objection on those three?

2 MS. MUNDS-DRY: No objection.

3 MR. COONEY: No objection.

4 TECHNICAL EXAMINER EZEANYIM: Okay.

5 Exhibits 42, 43, and 44 will be admitted.

6 Okay. You may proceed, Mr. Grable.

7 MR. GRABLE: Let me go with what has been  
8 marked as Exhibits 50 and 51.

9 TECHNICAL EXAMINER EZEANYIM: No, you took  
10 off 50.

11 MR. GRABLE: Okay. I want to put 50 back  
12 in. I'm sorry. 49 is the last one I do not offer.  
13 50 and 51 I do want to talk about very briefly and  
14 offer.

15 TECHNICAL EXAMINER EZEANYIM: Okay.

16 Q. (By Mr. Grable) Mr. Gore, do you see  
17 Exhibit 50, the simple schematic diagram of a  
18 40-acre unit with four drilling pads?

19 A. Yes, I do.

20 Q. And have you computed the amount of  
21 acreage disturbed or consumed for surface use with  
22 four drilling pads --

23 A. I have.

24 Q. -- in a 40-acre unit?

25 What percentage of the unit is that?

1           A.     Yeah.  That would be -- for four  
2     locations, a total of 12 acres, or 30 percent of the  
3     unit.

4           Q.     And with a drilling program of two drill  
5     pads, two wells per 40, is that cut in half to  
6     6 acres, or 15 percent?

7           A.     It is.

8           Q.     Are you aware that there are threatened or  
9     endangered species in this area, specifically the  
10    lesser prairie chicken and the desert sand lizard,  
11    which are proposed for addition to the endangered or  
12    threatened species list?

13          A.     I am aware of that.

14          Q.     And are you aware that surface disturbance  
15    or use by oil operators is a matter of contention  
16    with the environmental authorities in this area,  
17    specifically with respect to those two species?

18          A.     That is my understanding.

19          Q.     And what effect on environmental  
20    disturbance and surface use would be caused by four  
21    wells per 40 versus two wells per 40?

22          A.     You would disturb less land, obviously,  
23    with two wells per 40 than you would with four wells  
24    per 40.

25          Q.     Mr. Gore, let me ask you to summarize now

1 on the competing special field rule proposals  
2 between Burnett and Hudson on the one hand, and COG,  
3 Apache, Premier, and others who support those on the  
4 other hand.

5 With respect to, first, the allowable  
6 issue -- we haven't talked about that much. Have  
7 you done a calculation of -- based upon the best  
8 wells rule so far and the one-year balancing done by  
9 Burnett, to determine what top allowable would be  
10 necessary to accommodate production -- oil  
11 production at or near capacity over a 12-year  
12 period?

13 A. Yes.

14 Q. 12-month period, pardon me.

15 A. 12 months, that's correct.

16 Q. And do you believe that 187 barrels a day  
17 with annual averaging would be adequate to  
18 accommodate, without restriction, oil production of  
19 the better wells in the field?

20 A. I believe it would, yes.

21 Q. Do you believe a 300-barrel-a-day  
22 allowable is necessary, even for the very best wells  
23 in the field, if we have annual averaging?

24 A. No, I don't.

25 Q. And would the effect of having a higher

1 oil allowable with a gas/oil ratio be to increase  
2 the gas limit?

3 A. It would increase the gas limit.

4 Q. So with a 300-barrel-a-day top oil  
5 allowable and a 2,000 to 1 gas limit, are you -- a  
6 40-acre unit would have a 600-MCF-a-day allowable?

7 A. It would.

8 Q. And with 187 barrels a day and 2,000 to 1,  
9 the gas limit would be double that, double 187?

10 A. Yes.

11 Q. Which is 374, I believe?

12 A. Right.

13 Q. And what effect would that have on  
14 restricting high ratio gas wells -- gas/oil wells in  
15 the field, having a lower gas limit?

16 A. Having a lower gas limit would restrict  
17 the oil allowable on those wells that are high  
18 ratio.

19 Q. Okay. And thereby, also restrict the  
20 total amount of gas produced from the well?

21 A. Correct.

22 Q. And thereby -- is restricting the high  
23 ratio wells preferentially to low ratio wells, in  
24 your opinion, beneficial for the reservoir?

25 A. Since this is a solution gas drive

1 reservoir, we need to conserve the energy. And so  
2 it would be beneficial to those wells drilled on  
3 20 acres.

4 Q. In your -- do you have an opinion with  
5 respect to whether 187 barrels a day or 300 barrels  
6 a day is appropriate as an oil limit for this field?

7 A. Well, based upon production data that  
8 we've looked at, and the peak production data, it --  
9 it looks like 187 barrels a day would -- would be  
10 sufficient to accommodate the new drilling in the  
11 field with the new rates, the horizontal wells, and  
12 balancing that out over a year. So I believe the  
13 187 would be sufficient to accomplish that.

14 Q. All right.

15 Now turning to the debate over whether or  
16 not a GOR limit is indicated, and if so what your  
17 limit -- should it be, from all the work you have  
18 done in this field, what is your opinion with  
19 respect to whether or not a producing GOR rule is  
20 indicated as appropriate for this field to prevent  
21 waste, and if so, what that GOR should be?

22 A. Based upon my study, it does appear that  
23 as areas are more densely drilled the gas/oil ratio  
24 goes up dramatically, the trend of the gas/oil  
25 ratio. And -- and that's not a good thing in a

1 solution gas drive reservoir.

2 So I think it demonstrates that a -- a  
3 gas/oil ratio limit is necessary to provide for the  
4 efficient and effective drainage of the field and  
5 protect correlative rights and prevent waste.

6 Q. Finally, turning to the density rule, I  
7 want to ask you, over this rather large consolidated  
8 area Burnett has proposed, let's ask it this way.

9 If you were kind of starting fresh --  
10 well, we have proposed -- Burnett has proposed a  
11 density rule of two wells per 40, versus Concho  
12 staying with the state-wide rule of four wells per  
13 40. And Burnett has also proposed that all existing  
14 wells before the final order's effective date be  
15 grandfathered.

16 As between those two proposals, which do  
17 you think is better for the prevention of waste in  
18 this field?

19 A. The Burnett proposal.

20 Q. For the reasons you've testified with  
21 respect to the earlier exhibits in your testimony?

22 A. Yes.

23 Q. Now, if there is -- we're not starting  
24 from fresh, and recognizing that the western part of  
25 this area is already largely developed, at least on

1 the Concho properties on 40 acres, would Burnett  
2 have an alternate proposal, hearing the testimony  
3 that we have heard from Concho, Apache, and Premier,  
4 with respect to perhaps dividing this consolidated  
5 area in two and having 20 acres effective in some  
6 portion and 10 acres effective in another portion?

7 A. Well, I think as I stated earlier, most of  
8 the field to the west is already drilled up on  
9 10 acres, and we cannot undo that.

10 There -- there is two areas, primarily in  
11 the field, that have yet to be drilled up on  
12 10 acres, so it's not too late there.

13 And so if the commission wanted to adopt  
14 an alternative proposal, then at a minimum, the  
15 areas of the field that are still going to be  
16 developed, that should be on the 20-acre density  
17 with -- with the GOR limit, because it's not too  
18 late there.

19 MR. GRABLE: Examiners, not to be  
20 confusing, we may, when we close, amend our proposal  
21 to chop the consolidated area in two along the west  
22 boundary of Maljamar, that includes some of these  
23 other undeveloped sections, and propose the 20-acre  
24 density on these undeveloped sections and let the  
25 rest of it stay on 10, given the state of

1 development.

2 I just wanted to ask this witness about  
3 that, so if we make that proposal in our closing,  
4 it's not a surprise to everybody.

5 Thank you, Mr. Examiners.

6 And I pass the witness.

7 I need to offer Exhibits 50 and 51.

8 MR. COONEY: No objection.

9 MS. MUNDS-DRY: No objection.

10 TECHNICAL EXAMINER EZEANYIM: Okay.

11 Exhibits 50 and 51 will be admitted.

12 At this point, let's take a break before  
13 we cross -- cross, right?

14 MS. MUNDS-DRY: Thank you.

15 LEGAL EXAMINER BROOKS: Okay. Pass the  
16 witness at 3:45.

17 (A recess was taken from 3:47 p.m. to 4:04  
18 p.m.)

19 TECHNICAL EXAMINER EZEANYIM: Let us go  
20 back onto the record.

21 Mr. Grable, have you passed the witness?

22 MR. GRABLE: I have passed the witness.

23 TECHNICAL EXAMINER EZEANYIM: Okay.

24 Ms. Munds-Dry?

25 MS. MUNDS-DRY: Thank you, Mr. Ezeanyim.

## EXAMINATION

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BY MS. MUNDS-DRY:

Q. Good afternoon, Mr. Gore.

A. Hello.

Q. Let's go -- start at the beginning, how about that? Let's go to Exhibit 17.

A. (Witness complies.)

Q. As I understand your testimony, you explained the whole suite of logs that Burnett does in its well. Do you know if it has run these same set of logs on all 85 or 86, however many it has in this application?

A. All of the open-hole logs that Burnett has, they have gone through the same analysis, yes.

Q. And let me make sure I understand your answer. You say "all the open-hole logs."

Has Burnett run open-hole logs on all of its 80-plus wells?

A. I believe so.

Q. Do you know what costs are for running that whole suite of logs?

A. No, ma'am.

Q. Does Burnett collect any pressure data?

A. No.

Q. One thing I didn't see here, and I

1 wonder -- I just don't know if it's an exhibit or if  
2 it's not shown here. In this log are the  
3 perforations shown?

4 A. I don't -- well, I would need a bigger  
5 section to see. Generally, I would think they would  
6 be on here.

7 And just so we're clear, these are the log  
8 analysis results, so these aren't the well logs  
9 themselves that were run in this well but, rather,  
10 the interpretation of those in a log format.

11 Q. Okay. I understand that. I just  
12 wondered. I couldn't tell, really -- it's really  
13 more of a question -- it's so condensed that I can't  
14 see if the perforations are on there or not. And I  
15 wondered if you could point that out to me if they  
16 were on there.

17 A. I don't see them, but I probably would  
18 need to look at a better scale.

19 Q. Okay.

20 Let's go to Exhibit 21, Mr. Gore.

21 A. (Witness complies.)

22 Q. I don't recall from your testimony. Was  
23 the formation volume factor that you show here,  
24 1.29 -- I believe your testimony is that you got  
25 that from Concho, that number. Is that correct?

1 A. Two sources.

2 Q. Okay.

3 A. One, that is what Concho used.

4 Q. Uh-huh.

5 A. And then I went through some calculations,  
6 some correlations, and confirmed that 1.29 was a  
7 reasonable value, so I confirmed the Concho number.

8 Q. So you don't disagree with using that 1.29  
9 number?

10 A. No, I don't.

11 Q. Actually, before we leave that side, you  
12 said -- I believe your testimony was something to  
13 the effect that you -- you were a little uncertain  
14 as to what the recovery factor should be when you  
15 were first analyzing this area. Is that correct?

16 A. Well, that's not exactly correct.

17 Q. What -- I think you said it was a little  
18 hard for you to determine what the recovery factor  
19 was, so you ran a Turner calculation to determine  
20 that?

21 A. I don't think that's what I have  
22 testified.

23 Q. Okay.

24 A. I knew going in, a solution gas drive  
25 reservoir should have a range of recovery factors

1 from 7 or 8 percent up to -- 15 is probably getting  
2 close, very close, to the upper end.

3 Because we know what sort of reservoir  
4 this is, low perm, low porosity, the -- in fact, you  
5 know, 10 years ago or more, this probably wouldn't  
6 have even been considered a reservoir.

7 Q. True.

8 A. But knowing those factors, you know, my --  
9 my inclination was to -- to think that I'm going to  
10 be on the lower end of the range that I would expect  
11 for solution gas.

12 And then I went through some calculations  
13 to see what the recovery factor would calculate to  
14 be, and it confirmed my initial impressions.  
15 10 percent is probably in the lower half of the  
16 range, and I calculated that 10 percent would be the  
17 appropriate value. So that's kind of how I came up  
18 with it.

19 Q. Are you aware of any other operators that  
20 use a recovery factor as low as 7 percent in this  
21 Yeso shelf?

22 A. No.

23 Q. Do you know what other operators use as a  
24 recovery factor in this Yeso shelf?

25 A. No, I don't.

1 Q. Would it surprise you to learn that most  
2 use 15 percent?

3 A. I guess if most of those are public  
4 companies, then that would not surprise me.

5 Q. Mr. Gore, if we could go to Exhibit  
6 Number 24.

7 A. (Witness complies.)

8 Q. If I understand this graph correctly, 11  
9 wells went into your graphic representation here?

10 A. Yes.

11 Q. And this is for Blinebry producers?

12 A. Correct.

13 Q. This is -- 11 wells is 1 percent of the  
14 wells that Concho used for its range calculations,  
15 do you agree, approximately?

16 A. I don't know what Concho used, as far as  
17 the total number of wells. I haven't been provided  
18 that data.

19 Q. Were you here and present for the  
20 testimony of Mr. Reyes?

21 A. Yes.

22 Q. And did you hear his testimony about the  
23 approximately 12- to 1,600 wells that they have in  
24 their inventory?

25 A. Yes.

1 Q. So 11 into 1,200 is approximately  
2 1 percent?

3 A. If you did that math that would be  
4 1 percent.

5 Q. Would you also agree with me that these  
6 drainage areas would depend largely on your oil in  
7 place numbers, your volumetrics? That if your oil  
8 in place numbers went up or down, that would affect  
9 your drainage calculations?

10 A. Yes. But taking a step back, the oil in  
11 place is a result of the porosity, the saturation,  
12 that sort -- the EUR, so it would change.

13 Q. And just to be clear, these are  
14 volumetrics on your -- on Burnett wells only?

15 A. That is correct.

16 Q. And I'm curious. You show a recovery  
17 factor of 10 percent, and you give a chart for that  
18 and a recovery factor of 13 percent. But you have  
19 no change in the percentage of drainage for the --  
20 well for any of them, for drainage over 15 acres or  
21 under 15 acres.

22 Can you explain why there is no change,  
23 even though the recovery factor has changed?

24 A. I'm not sure I understand your question.

25 Q. Okay. Well, you use a recovery factor of

1 10 percent.

2 A. Okay.

3 Q. And you have -- you show a drainage of  
4 greater than 15 acres is 91 percent of the 11 wells?

5 A. Yes.

6 Q. When you go to a recovery factor of  
7 13 percent, you show the same percentage.

8 A. Yes.

9 Q. Why is there no change?

10 A. If you look at the table, which is the  
11 next exhibit, and you compare the drainage area  
12 calculations for the 11 wells, there's only one well  
13 in either circumstance that calculates below  
14 15 acres. So that would be the same percentage.

15 Q. Okay.

16 Now, you do show here that there are  
17 9 percent of your wells for both the 10 percent  
18 recovery factor and 13 percent recovery factor that  
19 do produce less than 15 acres?

20 A. Yes.

21 Q. And if you go to a recovery factor of  
22 15 percent you have 18 percent that produce less  
23 than 15 acres?

24 A. Correct.

25 Q. And so those are reserves that are left in

1 the ground?

2 A. No.

3 Q. How do you figure?

4 A. Well, the reserves are in the ground and  
5 they can be recovered through getting a density  
6 exception to drill the wells in the areas where you  
7 think there is still sufficient recoverable oil to  
8 go drill economically, so they're not left in the  
9 ground. They are in the ground ready to be produced  
10 once a well is drilled.

11 Q. But under what Burnett has proposed, two  
12 wells per 40, those reserves would be left in the  
13 ground, correct?

14 A. I don't think you can make that  
15 assumption, because everyone still has the option to  
16 drill those exception wells when needed. So I don't  
17 think you can make that statement.

18 Q. Mr. Gore, have you ever participated in an  
19 application to get a density exception with the OCD?

20 A. No, I haven't.

21 Q. So you don't know whether that's an easy  
22 or a difficult process?

23 A. I do not.

24 Q. Under the existing rules you can choose to  
25 drill however many wells you want, up to four. Is

1 that correct?

2 A. The existing rules do give you that  
3 option.

4 Q. If we could please go to 25, please,  
5 Mr. Gore.

6 LEGAL EXAMINER BROOKS: I'm sorry?

7 MS. MUNDS-DRY: Exhibit Number 25.

8 LEGAL EXAMINER BROOKS: 25.

9 Q. (By Ms. Munds-Dry) This shows the  
10 drainage area calculations for Blinebry producers.  
11 And it shows here you get some pretty big drainage  
12 numbers towards the bottom of the table, if I am  
13 reading that correctly.

14 A. You do.

15 Q. Under any of the recovery factor  
16 percentages you use?

17 A. That's correct.

18 Q. Some of these would argue that you need  
19 maybe only one well per a spacing unit.

20 A. In those isolated cases, that would  
21 probably be correct.

22 Q. In fact, if we look at the Jackson A-37,  
23 you see a recovery factor of 10 percent. It shows a  
24 drainage of 73 acres. So arguably, you would  
25 need -- you would need one per 80?

1 A. Correct.

2 Q. Do you know -- Mr. Gore, I don't know if  
3 you know this. If -- in any of these wells, if a --  
4 say, for example, let's pick one -- Gissler B-59 --  
5 whether a second well was drilled in that spacing  
6 unit?

7 A. I do not know off the top of my head.

8 Q. Is there a way that we can find that out?

9 A. I am sure there is.

10 Q. Is that something that you or someone from  
11 Burnett can provide to us?

12 MR. GRABLE: We could probably get that  
13 answer from Mr. Jacoby.

14 MS. MUNDS-DRY: Mr. Jacoby might be our  
15 man to answer that?

16 MR. GRABLE: Yes. Which unit was that?

17 MS. MUNDS-DRY: Gissler B-59.

18 Q. (By Ms. Munds-Dry) While they're looking  
19 for that, Mr. Gore, if we can go on with  
20 Exhibit 25A, please.

21 A. Okay.

22 Q. Now in your curve that you built here  
23 using a 10 percent recovery factor, why did you use  
24 a 10 percent here rather than a 13 or 15 percent  
25 recovery factor?

1           A.     Well, the -- the recovery factor doesn't  
2     have anything to do with the curve.  But in the  
3     drainage calculations for this well, I use a  
4     10 percent recovery factor because I think that is  
5     what the data indicates is probably the most  
6     realistic recovery factor.  The curve just  
7     represents the EUR.

8           Q.     Well, now, would you agree with me that if  
9     the EUR goes up or down that would change your  
10    drainage curve here?

11          A.     Absolutely.

12          Q.     Also on that note, with respect to these  
13    drainage exhibits, I assume these drainage  
14    calculations are based on what obviously can be seen  
15    in the log.  You can't extrapolate out beyond what  
16    you can't see, in other words.

17          A.     The log analysis is based upon the data  
18    that you acquire from the logs.  That radius of  
19    investigation is probably anywhere from 24 to 36  
20    inches.

21                 The EUR from the well is obviously over  
22    the area that that well is recovering from.  So it  
23    would see out, but the log data is obviously limited  
24    to the logging tool itself.

25          Q.     Okay.  On Exhibit Number 26, Mr. Gore, you

1 have done the same process for the Paddock for  
2 Burnett's wells. It's 37 at this time, I believe.

3 A. Yes, ma'am.

4 Q. Now, this shows significantly more wells  
5 that drain less than 15 acres. If we look, for  
6 example, at 15 percent, you show that 63 percent of  
7 Burnett's wells drain less than 15 acres.

8 A. Have a drainage area of less than  
9 15 acres. That's correct.

10 Q. Now, doesn't this support 10-acre  
11 development?

12 A. I don't think it does when you -- when you  
13 take into account that you are also developing the  
14 Blinebry together. So you would really need to look  
15 at those together.

16 And I believe that -- so you're really  
17 looking at 82 percent -- I'm sorry -- 63 percent  
18 less than 15, and 18 percent less than 15.

19 So when you average those numbers out, you  
20 are -- I think you're still going to be greater than  
21 50 percent on -- on wells that would drain greater  
22 than 15 acres.

23 Q. So that's, by your calculation -- I'll  
24 trust your math, because I'm a lawyer and I don't --  
25 I won't try to guess with you on that.

1           But that's still 50 percent that you would  
2 not be able to develop if you get two wells per 40?

3           A.     And if you drill those wells, and once  
4 you've got your performance data and your logging  
5 data, and you went through the similar calculations  
6 that would suggest there is still recoverable oil on  
7 that unit, then Burnett or anyone -- what I would  
8 recommend is you then go in for an exception to  
9 drill those additional wells to recover that oil  
10 that the two wells would not be recovering.

11          Q.     Okay. So Burnett apparently, from what  
12 you're saying, is okay with having to seek an  
13 exception every time it -- and apparently imposing  
14 that on all the other operators to seek an  
15 exception, rather than the statewide rule now.  
16 Isn't that what you're suggesting?

17          A.     No, not exactly. What I'm saying is a  
18 large percentage of the wells that we have analyzed  
19 indicate drainage areas greater than 15 acres, so  
20 that is where the development should start.

21                 And you drill your wells, you evaluate the  
22 performance of those wells, and you see what  
23 ultimate recovery is going to be. And as you get  
24 that data, you -- you update your studies. And if  
25 you reach the conclusion that those wells are not

1 recovering everything, then you go and request that  
2 exception.

3 But it's -- you know, you have to start  
4 big and then evaluate before you go small, in my  
5 opinion. Otherwise, you're going to drill a bunch  
6 of unnecessary wells and produce at high GORs and  
7 lower your ultimate recovery.

8 So you really have to analyze what your  
9 wells are telling you before you go in and -- and  
10 just do a -- a denser spacing.

11 Q. And that's assuming that an operator  
12 doesn't analyze the drainage in that spacing unit  
13 before they decide to drill a third and fourth well,  
14 correct? That's assuming that they just drill four  
15 on a 40 without any analyzation of -- is that a  
16 word? -- whether analyzing -- analyzing whether they  
17 need more wells to drain that 40?

18 A. I would certainly think that any prudent  
19 operator is going to analyze a situation before they  
20 go out and drill wells that they don't know if they  
21 need or not.

22 Q. We would both hope so, correct?

23 A. I would certainly hope so.

24 Q. Also on Exhibit 27, Mr. Gore, you are  
25 comparing how, I believe, Concho and Burnett

1 calculate their drainage. And you were saying  
2 Concho -- you had too many unknowns with how to  
3 exactly do Concho's calculations, correct?

4 A. I can't do Concho's calculations. I don't  
5 have any knowns, so everything is unknown.

6 Q. And did you hear Mr. Reyes' testimony that  
7 the core analysis and the logs do go into their  
8 calculations?

9 A. Well, my recollection is he thought they  
10 did. I don't believe he knew exactly what went into  
11 the calculations.

12 Q. Okay. Well, I guess the record will  
13 reflect what the record will reflect.

14 A. Absolutely.

15 Q. If we could go to Exhibit 28, please,  
16 Mr. Gore. I want to make sure I understand this.

17 In your curve here, you show a drainage  
18 area of 20 acres on a 10 percent recovery factor for  
19 this Paddock Jackson A-26 well.

20 A. I'm sorry, I'm not with you yet. Which  
21 exhibit?

22 Q. Oh, okay. Sorry. Exhibit 28A. It's the  
23 log analysis example for the Paddock member. Do you  
24 have that now?

25 A. Yes.

1 Q. And again, I'm not good with numbers, but  
2 it looks to me like this is a 6,000 to 1 GOR in this  
3 well?

4 A. Based on the EURs?

5 Q. Yes.

6 A. Well, the -- based on --

7 Q. Well it shows here, if you look -- I think  
8 you have your oil -- it shows your oil numbers on  
9 the right in the green, is that correct, and your  
10 gas on the left?

11 A. Yes.

12 Q. So if you do your gas/oil ratio, it looks  
13 like 6,000 to 1?

14 A. You're talking about the two EUR numbers,  
15 correct?

16 Q. No. Just looking at your curve here  
17 between your gas production and your oil production.

18 A. Okay. Oh, I'm with you.

19 It looks like we're at about -- a little  
20 over 300 barrels per month.

21 The gas is about 1,900 MCF for the month.

22 That would be about 6,000.

23 Q. And it looks like you used a relatively  
24 flat GOR in this curve, pretty consistent in your  
25 forecast?

1           A.     Well, typically when you forecast gas,  
2     it's usually a ratio based on the history.  So  
3     typically, your gas forecast will mirror your oil  
4     forecast.

5           So what we're doing is forecasting out  
6     that same GOR into the future.

7           Q.     Now, what about taking into account this  
8     kind of reservoir, which I understand we all agree  
9     it a solution gas drive reservoir.  Shouldn't you  
10    see the GOR going up?

11          A.     It could go up.  Generically speaking, a  
12    solution gas drive ratio, or solution gas drive  
13    reservoir, you will see a slight increase in the GOR  
14    over time to some point, at which it will actually  
15    flatten out and then decline.  So that's what  
16    happens in -- in theory.

17          Then we would have to look at the PVT data  
18    on this well, to the extent we had it, to see where,  
19    in that cycle, this particular well was.  It may  
20    already be to the point that you should be producing  
21    at a flat or even at a declining GOR.

22          Q.     So this is a -- I don't want to put words  
23    in your mouth -- but I think you said sort of a  
24    generic forecast.

25          A.     No.  The -- when I used "generic," it was

1 describing the general trend that you would expect a  
2 gas/oil ratio to have on a well in a solution gas  
3 drive reservoir. And that would be increasing  
4 slightly over time to a point that you would  
5 actually flatten out and then decline.

6 Q. Using the EUR and the PHI-H SO numbers  
7 you've listed here for the Paddock, do you say -- do  
8 you see a linear or easily-seen trend that supports  
9 a good correlation between these two factors?

10 A. On this well?

11 Q. Yes.

12 A. Okay. I'm sorry. Your question again was  
13 SO PHI-H?

14 Q. And the EUR --

15 A. Okay.

16 Q. -- for this Paddock.

17 A. Okay.

18 Q. Do you see a linear, or an easily-seen  
19 trend that supports a good correlation between those  
20 two factors?

21 A. I don't think you can establish a trend  
22 from one well, if that's your question.

23 Q. What if we go to your Paddock drainage  
24 calculations on Exhibit 28?

25 A. Yes.

1 Q. The same question. Can you use those two  
2 factors to establish a linear trend in the Paddock,  
3 based on these numbers?

4 A. For this well?

5 Q. For all of these wells.

6 A. Oh, I'm with you.

7 Well, we also have the wells on the  
8 exhibit before it. Those are Paddock as well.

9 Q. Is that 27?

10 A. Yes. I haven't looked at that to know if  
11 I could establish a trend or not.

12 Q. So as we sit here today you just don't  
13 know?

14 A. I haven't done that work.

15 Q. Okay.

16 On Exhibit 28C, Mr. Gore, which is the  
17 calculated Paddock pay comparison --

18 A. Okay.

19 Q. -- of the COG log and the Burnett log?

20 A. Yes.

21 Q. I believe you were asked by Mr. Grable  
22 that if -- if the net pay is overstated, then  
23 your -- that affects your drainage area. It will go  
24 down?

25 A. Yes.

1 Q. Conversely, if the net pay is understated,  
2 then your drainage area will go up, correct?

3 A. Correct.

4 Q. And you're not suggesting that different  
5 operators can't interpret their logs as they see  
6 fit?

7 A. Well, I suppose operators could interpret  
8 their logs however they see fit. The trouble I have  
9 with that is, if how they see fit doesn't bear on  
10 reality, then, you know, it doesn't show you  
11 anything.

12 So I think you have to use good judgment,  
13 good tools, all of your data, you know, core data,  
14 mud log data, all of that, and do the best analysis  
15 you can.

16 That doesn't mean any analysis, that means  
17 an industry-accepted well-established analysis that  
18 would give you those results.

19 Q. And so I guess the point of your slide  
20 here is to suggest that Concho is not doing a log  
21 analysis on an industry standard?

22 A. No. My -- my suggestion on this  
23 exhibit is, when you compare the net pay that  
24 Burnett calculates on this well to what COG has  
25 calculated, there's a huge difference.

1           And we know how we calculate our net pay.  
2           We can take you through foot by foot, well by well,  
3           and get you exactly the numbers.

4           What we don't -- we don't know that on the  
5           COG calculations because they haven't provided  
6           those. But we do know that there's a big difference  
7           in net pay. And that --

8           Q.     Based on this log that you provided us?

9           A.     Based upon the COG exhibit that they  
10          presented.

11          And so in trying to figure out what would  
12          account for that big difference -- and it's a big  
13          difference -- it appears that that could be one of  
14          the reasons COG is calculating such low drainage  
15          areas, because they're calculating a huge net pay.

16          But again, we don't know how they're  
17          calculating that so, you know, we really don't know.  
18          All I can tell you is what I observe when we look at  
19          how we do it, and we know how we do it, and compare  
20          it to the results of the well.

21          Q.     Okay. If we could go to Exhibit  
22          Number 28D, please, Mr. Gore. That's the  
23          density/porosity calculation.

24          A.     Yes.

25          MR. GRABLE: The calculation or --

1 MS. MUNDS-DRY: Yes. The -- well, the  
2 page that gives a description of the calculation.

3 A. Yes.

4 Q. (By Ms. Munds-Dry) I believe you stated  
5 that you assumed that Concho used a 2.87 grain  
6 density.

7 A. That was my assumption. Because, you  
8 know, that is the standard dolomite grain density.

9 But again, we were attempting to try to  
10 reconcile these numbers, and so we had to start  
11 somewhere. And so what I was curious about was if  
12 there is a very slight difference in the grain  
13 densities, what -- could that account for part of  
14 this?

15 And I think what this exhibit was intended  
16 to represent is it could account for part of it.

17 Q. So in your opinion a .03, which I think is  
18 what you're trying to illustrate here, could be a  
19 significant difference in the outcomes of your data  
20 versus Concho's?

21 A. .03?

22 Q. You used 2.84, and you assumed 2.87.

23 A. Oh, I'm sorry. You're correct.

24 That -- that difference in grain density  
25 can result in a porosity difference of one to about

1 one and a half percent.

2 Q. Can the grain density change in a well?

3 A. Depending -- in these wells or in any  
4 wells?

5 Q. In these wells.

6 A. Within the same formation?

7 Q. Within the Yeso formation.

8 A. I suppose there could be variations.  
9 That's why you would take measurements at different  
10 points and see if there's a trend and an average.

11 But I don't think it is going to be  
12 necessarily repeatable, but you're looking at the  
13 overall interval from what the core data is telling  
14 you.

15 Q. And you, I assume, examined Burnett's core  
16 data?

17 A. I did.

18 Q. And what range did you see in -- grain  
19 density did you see in the cores that you examined?

20 A. Gosh, I would just have to pull that out.  
21 I don't recall.

22 Q. Is that something you have with you that  
23 you can pull out at a break or at some point?

24 A. I -- I could probably get to that.

25 MR. GRABLE: Maybe we can find that for

1 you.

2 MS. MUNDS-DRY: Thank you very much.

3 Q. (By Ms. Munds-Dry) Do you know, Mr. Gore,  
4 if that grain density data was provided to Concho?

5 A. I don't know.

6 Q. Were you responsible for any of the  
7 production to Concho? That way it helps me limit  
8 some of my questions.

9 A. No, I wasn't.

10 Q. Okay.

11 Moving on to Exhibit 28F, please.

12 A. (Witness complies.)

13 Q. Do you know, Mr. Gore, if -- I see the  
14 representation you have given here of these sort  
15 of -- I would call them ellipse -- of -- of an  
16 example of a Burnett well, the drainage that you  
17 might get from a Burnett well using its completion  
18 techniques?

19 A. Yes.

20 Q. And do you get the same sort of height out  
21 of slickwater fracs as you do out of a gel frac, a  
22 gel water frac?

23 A. I would just have to defer that to  
24 Mr. Jacoby.

25 Q. Mr. Jacoby is the slickwater expert guy?

1 A. He --

2 Q. He's writing a paper on it.

3 A. He's the frac expert of the group.

4 Q. Okay. So you don't know if the ellipse  
5 that you've drawn here is, in fact, accurate as to  
6 whether you can get the same height as from a gel  
7 frac which Concho uses?

8 A. This is really just a cartoon sketch, and  
9 it's not meant to be to scale or anything like that,  
10 but rather just a very generic depiction of what  
11 Burnett thinks results from its completion and  
12 stimulation techniques, where they contact  
13 additional reservoir and achieve greater drainage  
14 areas.

15 Q. If I understand here correctly, this shows  
16 you -- and I understand this is a carton -- the  
17 drainage area average of 20 acres for Paddock and 35  
18 acres for Blinebry?

19 A. This does not show that.

20 Q. That's what you have here in the red box.

21 A. Well, those numbers are from the drainage  
22 area information that we previously discussed. So  
23 we just posted those averages --

24 Q. Okay.

25 A. -- on this exhibit.

1 Q. So based on this average you posted here,  
2 then, is the suggestion that you only need one well  
3 for the Blinebry?

4 A. The average drainage area of the wells we  
5 evaluated is 35 acres. So if that average holds up,  
6 then, that would be true. You would only need one  
7 well.

8 Q. Now you understand that Burnett is asking  
9 for two wells per spacing unit, although you can  
10 have two Paddocks and two Blinebrys, as I understand  
11 this computation.

12 A. Correct. But also keep in mind our data  
13 sample on the Blinebry is rather small, only 11  
14 wells to analyze.

15 So I think as we get additional wells  
16 drilled, so we have a good sample or a larger  
17 sample -- not a good sample, but rather a larger  
18 sample, you know, that -- that number may change.

19 I would -- I would think that as you drill  
20 more wells and get that data, that that average will  
21 change.

22 But based upon what we have today as we  
23 sit here those are the results.

24 Q. Well, based on that answer, isn't it then  
25 not a far assumption to suggest that your

1 application is premature, because we don't know what  
2 the drainage will be?

3 A. No. In fact, I think we touched on this  
4 earlier. If we go back and look at the Paddock  
5 drainage, and then we look at the Blinebry drainage,  
6 these wells -- you know, I think most operators in  
7 the field now are going to where they are  
8 commingling the two.

9 So we would really need to look at both of  
10 those together and maybe do some sort of averaging,  
11 which would bring that overall average down.

12 But you know, if you just average 20 and  
13 35, what's that going to give you, about -- probably  
14 28?

15 So I don't think we're premature because  
16 we are starting off at a higher density. I think  
17 what's premature is starting off on a lower density,  
18 when the data we have does not suggest that that's  
19 applicable.

20 Q. For Burnett wells and Burnett acreage?

21 A. Correct.

22 Q. Okay.

23 A. Well, as well as the -- the interference  
24 that I believe we have observed in some of the  
25 10-acre units, units that have been drilled up on

1 10 acres.

2 Q. Okay. And we'll get to that here. We  
3 have got, I think, a little ways in the numbers to  
4 get to that.

5 A. Okay.

6 Q. Now are you suggesting with this  
7 depiction, also, that Concho's drilling unnecessary  
8 wells and wasting a whole lot of money by its  
9 current operations?

10 A. I do believe that Concho is drilling  
11 unnecessary wells. I believe the oil that Concho is  
12 recovering, based upon the data that I have seen,  
13 they could recover with two wells, not four. So --

14 Q. Is that assuming a different completion  
15 technique than they use now?

16 A. Yes, it would. I think they would have to  
17 get up on the technology scale and use the best  
18 available technology. And when they did that, they  
19 would be able to drill two wells instead of four.

20 So if you can recover the same wells  
21 with -- the same reserves with two wells instead of  
22 four, then those last two wells, in my opinion,  
23 would be unnecessary wells.

24 Q. But you have already stated you're not the  
25 expert in completion techniques. Mr. Jacoby is

1 the --

2 A. He is the --

3 Q. -- the frac guy?

4 A. He is the frac guy, yes.

5 Q. So you wouldn't know if there are any  
6 potential negatives to slickwater fracking, why a  
7 company, for example, may choose not to use  
8 slickwater fracking?

9 A. I don't know of any.

10 Q. If we could please go to 28H, as in Henry,  
11 please, Mr. Gore.

12 A. (Witness complies.)

13 Q. You provided data from 213 of Concho's  
14 wells for listing its EURs here?

15 A. Yes.

16 Q. Okay. So this is only approximately  
17 20 percent of Concho's wells in this area, from  
18 doing my math.

19 A. And "this area" being --

20 Q. The subject of Concho's application, the  
21 12 pools.

22 A. The 1,200 wells or...

23 Q. Approximately 1,200 wells.

24 A. Yes. That would be...

25 Q. Now, do you know if these are Paddock-only

1 wells?

2 A. I do not.

3 Q. Do you know if these are Blinebry-only  
4 wells?

5 A. I do not.

6 Q. If they were Paddock only, wouldn't that  
7 affect your EURs?

8 A. No.

9 Q. Well, if they were completed in all of the  
10 Yeso, wouldn't the EURs be different?

11 A. No.

12 Q. How is that?

13 A. The EUR is determined on well  
14 performance --

15 Q. Okay.

16 A. -- and the production that's achieved,  
17 whether it's from one zone, two zones or 100 zones.

18 The production doesn't know where it's  
19 coming from. It's just produced, and there is a  
20 decline trend associated with that.

21 So we've extrapolated the decline trends  
22 for these Concho wells. And the EUR is, on average,  
23 as I have listed there on the exhibit. Where the  
24 wells are completed, for the purpose of the EUR, is  
25 irrelevant.

1 Q. Referring now, Mr. Gore, to Exhibit 28I.

2 A. (Witness complies.)

3 Q. You have these boxes here of the EUR  
4 comparison, and now you've broken it out by operator  
5 and well treatment?

6 A. Yes.

7 Q. Do you know how the Concho 213 wells were  
8 treated?

9 A. I do not.

10 Q. If we could please go to Exhibit  
11 Number 31, Mr. Gore.

12 A. (Witness complies.)

13 Q. I think you admitted that -- and I think I  
14 wrote this down correctly -- that this is a little  
15 bit inconclusive because of the sharp decline at the  
16 end.

17 A. I remember talking about inconclusive. I  
18 don't recall it being about this exhibit.

19 Q. Are you aware that this well in -- or this  
20 production decline chart exists in Section 20C, is a  
21 part of a water flood?

22 A. I believe this is in the area that is part  
23 of the pilot flood of COG.

24 Q. So the fact that this has been water  
25 flooded, how does that -- how is this helpful in

1 determining primary recovery production decline?

2 A. Well, the -- about 90 percent of the data  
3 on the graph was before any pilot water flood.

4 If I recall correctly, I think there has  
5 been three years of water injection, if I recall  
6 correctly. So if you look back -- so you would look  
7 back at the curve before 2007, and that would be  
8 under primary production. And that's what I'm  
9 representing as the two-well EUR of 262,000 barrels.

10 Q. I'm with you there.

11 A. Okay. The --

12 Q. How do you get your actual ultimate  
13 recovery for four wells, if in that time period you  
14 had a water flood intervening in that process?

15 A. Well, I don't know the operational history  
16 of this unit in the last couple of years. We do see  
17 that in -- starting in 2006, there begins a pretty  
18 steep decline once the fourth well is drilled. And  
19 then we see the production drop off completely.

20 There hasn't been any reported production  
21 since about the middle part of 2009. So based on  
22 that, the -- the total cumulative production from  
23 this unit is 245,000 barrels. We don't see anything  
24 to indicate that this unit will ever produce any  
25 more oil.

1 Q. Do you know when water flood operations  
2 began in this unit?

3 A. All I know is what was testified to. I  
4 think the first water injection, I believe, started  
5 in 2007. I don't believe it was discussed exactly  
6 where it started, so I -- I don't know specifically.

7 Q. Okay. Now in fact, I think the next  
8 series of slides, where you've given your production  
9 decline charts and your GOR versus cum oil graph,  
10 are all in this same area.

11 So if we look at 31, we see it's 20C.

12 Exhibit 32, is that -- is that GOR versus  
13 cum oil graph which is representing a well that you  
14 were discussing here, correct?

15 A. Yes.

16 Q. And do you have any idea what was going on  
17 with the lease that might affect these GOR numbers?

18 A. Well, we do know that in terms of how many  
19 wells are producing. We -- we show, when there are  
20 two wells, three wells, four wells, and then we go  
21 back to three and then to two.

22 You can see that when you go back to --  
23 from four wells back down to three and compare that  
24 three-well time period to the previous, that there's  
25 a big change. So if -- if there was water being

1 injected in this time period and this decline in  
2 production is related to water injection, the water  
3 flood isn't working. It's doing the wrong thing.

4 Q. I don't think anybody would argue with you  
5 there.

6 A. So -- but other than that, I don't know  
7 specifics about the history of this lease or unit.

8 Q. So besides the water flood, there could be  
9 other issues, correct, like mechanical issues,  
10 operational issues with this well that my affect  
11 this trend?

12 A. Right. And by "this trend" I'm assuming  
13 you're talking about where we drop off and  
14 production literally goes to zero.

15 Q. Yeah. And I'm really looking at 31 and 32  
16 together. But I mean we can look at either one.

17 A. Oh, okay. I'm sorry.

18 There could be operational issues. But I  
19 would expect that if there were operational issues  
20 those would be rectified through some sort of  
21 remedial procedure to get the wells back on  
22 production to the extent they were capable of it.

23 But I -- I don't have specifics.

24 Q. And, Mr. Gore, we don't really need to  
25 spend any time on them. I see Exhibit 33 is another

1 production decline chart in a -- in the unit letter  
2 over in Section 20D?

3 A. Yes.

4 Q. Are you aware that that is also in the  
5 water flood?

6 A. I'm aware that it's in the area. I don't  
7 specifically know where the water injection is  
8 occurring within that area.

9 Q. And your answer would be the same for  
10 Exhibit Number 34?

11 A. Yes, ma'am.

12 Q. And for Exhibit Number 35, it's another  
13 unit letter over 20F: Are you aware of whether that  
14 area is in the water flood?

15 A. I believe it may be in the area.

16 Q. The same answer?

17 A. The same answer.

18 Q. Same for Exhibit Number 36?

19 A. Yes. But you know, I'm -- I want to point  
20 out that the area of the curve that we are looking  
21 at here is really prior to any water injection that  
22 may have occurred occurring. So...

23 Q. You believe; you don't know?

24 A. No, I do know. Because -- well, what I  
25 know is it was stated in testimony yesterday that

1 water injection commenced in 2007.

2 Let's just take Exhibit 35, for example.

3 Q. Okay.

4 A. If you look at the production prior to  
5 water being injected, you see trends being  
6 established. That's during the primary production,  
7 assuming after '07 would be considered secondary.

8 But you can still draw conclusions prior  
9 to '07, in terms of -- of decline trends and gas/oil  
10 ratio trends, which will not be affected by any sort  
11 of pilot water flood operations.

12 Q. But you said you didn't know if you were  
13 aware that there were any other issues, operational  
14 and mechanical issues, with these wells.

15 A. That's correct.

16 Q. Okay. Have you given any -- I know we're  
17 going to get to Exhibit Number 41 in a second.

18 Have you given any production decline  
19 charts for any other areas other than this -- what  
20 we call the Jenkins flood area? Or have you focused  
21 these production decline charts on that one area?

22 A. I think we had some others that we took  
23 out. But I think this is all -- well, we have the  
24 ones later that I've annotated, that I believe were  
25 COG exhibits.

1 Q. Okay.

2 A. But I think these are the only -- these  
3 three were the only ones that I've offered.

4 Q. Okay. Mr. Gore, Exhibit 41.

5 A. (Witness complies.)

6 Q. On Exhibit 41, I'm sorry, Mr. Gore. I'm a  
7 little puzzled why you offered this one, given  
8 your -- given that you said that there's really not  
9 a lot of data to work with, and you can't interpret  
10 much from this.

11 Is there -- is there -- I guess I'm just  
12 puzzled as to what you think you're showing from  
13 this, if you're not -- if you don't have very much  
14 data.

15 A. That is really the only purpose. I wanted  
16 the commission to know that we looked heavily at the  
17 Maljamar area. But the way -- the timing of the  
18 wells being drilled and looking at the production  
19 data, it really doesn't lend itself to any sort of  
20 interpretation. So the fact that we didn't submit  
21 anything on Maljamar isn't -- doesn't necessarily  
22 mean that there's no data there to suggest well  
23 interference on 10 acres.

24 Rather, there is no data presented there  
25 because the data that we have does not lend itself

1 to interpretation. That's the only --

2 Q. Okay. Mr. Gore, I'm sorry to do this, to  
3 back up for a second.

4 If we could go back to Exhibit 27, please.

5 I'm sorry to take these out of order.

6 MR. GRABLE: Which one is 27?

7 MS. MUNDS-DRY: It's this Paddock drainage  
8 area, Paddock producers, page 1.

9 THE WITNESS: Okay.

10 Q. (By Ms. Munds-Dry) Or 2, is it?

11 A. 27 would be 1 of 2.

12 Q. Well, we'll come back to that a little  
13 later, when I can figure out what they are asking me  
14 to ask you.

15 A. Okay.

16 Q. Okay. Where were we? Exhibit 41A,  
17 please.

18 A. (Witness complies.)

19 Q. These are some annotations you did of a  
20 Concho exhibit, correct?

21 A. Yes.

22 Q. And you noted here that there are several  
23 variables that would be helpful to know to help  
24 support the data that Concho has presented?

25 A. Yes.

1 Q. You've indicated structure is an important  
2 variable.

3 Why is structure important?

4 A. Well, it could be important.

5 Q. Is it important for this Yeso shelf?

6 A. I think that we see saturations -- as we  
7 go down structure we see changes in saturations to  
8 the east, so I think in that regard it's important.  
9 That would kind of be: Where is the well physically  
10 located in the area? But then also structurally,  
11 where is it located?

12 If it's to the west, then perhaps you are  
13 looking at higher water saturation or higher oil  
14 saturations, lower water saturations, versus a well  
15 to the east that may have the converse.

16 So I think it could be important.

17 Q. Now, I believe both Burnett and Concho  
18 agree that there are no real structural issues in  
19 this shelf that affect that -- have any great effect  
20 on production, correct?

21 A. Right. I don't think that from a well,  
22 necessarily in the heart of the trend, necessarily  
23 structure plays a huge role. However, we do know as  
24 we go to the east and we go lower structurally we  
25 have a higher water saturation.

1           So that's why where the location of these  
2 dots representing wells are, I think, would be  
3 important to know before reaching the conclusion  
4 that there is no correlation.

5           Q.     So really, that addresses your variable  
6 here, the water saturation question, your last point  
7 here?

8           A.     I -- I think location/structure and water  
9 saturation or oil saturation, those are  
10 interrelated.

11          Q.     Okay.

12           MR. GRABLE: Pardon me. Mr. Ezeanyim,  
13 Mr. Gore had informed us at break that he needed to  
14 take a short break around 5:00. Is that true or...

15           MS. MUNDS-DRY: We can do that now if he  
16 needs to do that.

17           MR. GRABLE: Are you okay or --

18           THE WITNESS: We could keep going for a  
19 little bit. I just, you know, needed to --

20           MS. MUNDS-DRY: What time do you need a  
21 break?

22           TECHNICAL EXAMINER EZEANYIM: Are you  
23 okay, Mr. Gore?

24           THE WITNESS: Yeah, I'm good for right  
25 now.

1 TECHNICAL EXAMINER EZEANYIM: We can take  
2 a break.

3 THE WITNESS: No, that's fine.

4 TECHNICAL EXAMINER EZEANYIM: Like I told  
5 you before, we are rather informal here.

6 THE WITNESS: Sure.

7 TECHNICAL EXAMINER EZEANYIM: Okay. Do  
8 you want to go a little longer?

9 THE WITNESS: Yeah, we can go a little bit  
10 further.

11 Q. (By Ms. Munds-Dry) Please, Mr. Gore, tell  
12 me when you need a break.

13 A. Okay. I will. Thank you.

14 Q. Let's go to Exhibit 41B, please.

15 A. (Witness complies.)

16 Q. I'm curious as to how you forecasted this.  
17 Help me understand this.

18 I believe Burnett's -- and I don't recall  
19 at this point whether it was Mr. Haiduk or  
20 Mr. Jacoby, so I apologize. But I believe Burnett  
21 testified that they used -- similar to Concho, they  
22 have an initial period where they use a hyperbolic  
23 curve and then they use an exponential curve,  
24 correct?

25 A. We do see that.

1 Q. So I'm curious as to how you forecasted  
2 this. Would you call this an exponential curve that  
3 you used here?

4 A. Well, the red-dashed lines that I put on  
5 there do represent an exponential decline. And the  
6 way I have forecasted it is that the first part is  
7 the two-well part of the graph when two wells are  
8 present.

9 So just this (indicating) part of the  
10 curve, if you look at that -- in other words, put  
11 yourself back in time.

12 Q. Is your laser working? I'm not sure  
13 it's --

14 A. Yeah, mine was.

15 Q. Okay.

16 A. So did you see where I was talking about?

17 Q. Yes, thank you.

18 A. Right in there (indicating).

19 If you put yourself back in time, and all  
20 the production data that you had on this well  
21 stopped right there, what I'm saying is you would --  
22 you would put a line on -- on that production  
23 history that would be similar to this red-dash line  
24 that I've placed on there.

25 That does not -- the well data does not

1 exhibit, in my opinion a hyperbolic component there.

2 Similarly, when you go to the other red  
3 line, that's only for this period of time with four  
4 wells, so you're looking at this production data in  
5 isolation.

6 And if you look at that trend, again, we  
7 don't see, given the data, a hyperbolic component.  
8 While we do see that generally across the field,  
9 that doesn't mean you always have to see it. But  
10 this, to me, appears to be -- in fact, I have -- I  
11 probably could have been a little bit more  
12 pessimistic. But that, to me, appears to be a  
13 pretty good -- with the exception of the one low  
14 point -- a pretty good straight-line decline through  
15 roughly that 9 to 12 months' worth of data.

16 Q. Now, why did you start the forecast, the  
17 red -- the first red dotted line on the top red line  
18 there (indicating), why did you start it there?

19 A. I didn't really start it there.

20 Q. Is that just a function of the --

21 A. Yes, the --

22 Q. -- program you used?

23 A. The important part is -- is -- is the  
24 trend through this data. What is the production  
25 from this well telling you? It's telling you that

1 the trend is more like this (indicating), as opposed  
2 to some curve.

3 So my point is, if you look at just the  
4 two-well and the four-well, you wouldn't get  
5 anything near an incremental recovery of 247,000  
6 barrels if you honor the data from this well -- or  
7 I'm sorry, this unit.

8 Q. So in your opinion, you don't see a  
9 hyperbolic decline, so you went straight to an  
10 exponential decline?

11 A. We went straight to -- I don't see, in  
12 either one of these areas, any hyperbolic component  
13 to the decline from those wells.

14 Q. Okay.

15 Let's go to Exhibit 46C, please.

16 A. (Witness complies.)

17 Q. The same question here, Mr. Gore. Why do  
18 you use an exponential decline? Do you not see  
19 hyperbolic behavior here, if you're looking at the  
20 beginning of this well here (indicating)?

21 A. Sure. You -- I mean you see a hyperbolic  
22 component for probably nine months. And then once  
23 we get to late 2003, about right there (indicating),  
24 that well flattens out and goes on a very -- very  
25 much a straight line or exponential decline trend.

1 And we can extrapolate that red-dashed line back all  
2 the way through that data.

3 So that is a well-established trend for  
4 the two wells that were producing on the unit at  
5 that point in time.

6 When we go to three wells, again we see  
7 the -- the well jumping around here (indicating),  
8 and then it -- there's an increase, probably some  
9 sort of operational issue, whether they -- it was  
10 another stimulation, changing the pump or something.  
11 But anyway, we jump up.

12 But from that point where we jump up in  
13 mid 2000- -- mid 2008, we've got -- we've got about  
14 12 months of very steady exponential decline there.  
15 So we could feel real comfortable with that  
16 extrapolation.

17 Q. Now, I'm curious about your third line  
18 that I'm sure you are going to get to here.

19 Why didn't you use that last data point  
20 where it sort of jumps up?

21 A. Well, typically, when you're projecting  
22 decline curves, you're not going to change your  
23 projection based on one point.

24 What we would want to see, for example, is  
25 what is it going to do two or three months after?

1 If this keeps going up, then perhaps we would make a  
2 change.

3 But look over in this (indicating) area.  
4 You can see that it is not unusual to -- to get some  
5 spikes, if you will, both high and low. So with  
6 simply one data point I didn't feel it was  
7 reasonable, because we had almost 12 data points  
8 prior to that that established a very good trend.

9 Q. Now, why did you stop the production graph  
10 there (indicating)? Why didn't you include the  
11 production after January of -- late January -- late  
12 in 2010?

13 A. This -- this was a Concho exhibit. So I  
14 guess the question is, why did they stop the  
15 production there?

16 Q. Okay. That's fair.

17 A. All I did was take their exhibit and place  
18 these trends on there which, again, my conclusion is  
19 highlighted there in the yellow box.

20 Q. Are you aware whether these wells were  
21 shut in for any period of time?

22 A. I do not know.

23 Q. Would that affect your decline curve, if  
24 the wells were shut in for a period of time?

25 A. No.

1 Q. Could we please go to Exhibit Number 42,  
2 please, Mr. Gore?

3 A. Okay. The GOR map?

4 Q. Yes, sir.

5 A. Okay.

6 Q. How did you come to these averages that  
7 you've listed here in the red box? Are these cum or  
8 current averages?

9 A. Oh, here (indicating)?

10 Q. Yes.

11 A. I'm sorry. That's simply an average of  
12 the Concho wells in this area, their cumulative  
13 production through January 1st.

14 So cum oil or gas/oil ratio cum gas  
15 divided by the cum oil for both COG and Burnett, all  
16 the COG wells and all the Burnett wells.

17 Q. I believe you used this exhibit to show  
18 that, in your opinion, you're seeing higher GORs on  
19 10-acre density?

20 A. Yes.

21 Q. Wouldn't older wells also show a higher  
22 GOR?

23 A. You're going to see a higher GOR,  
24 generally, but it's going to be very slight. You're  
25 not going to see wells typically going from, you

1 know, 1,800/2,000 to 1 to 20,000 to 1. You may see  
2 them go from 2,000 to 1 to 2,500 to 1, 3,000 to 1.

3 So you -- while you will see some  
4 increase, it's not going to be dramatic, or it  
5 should not be dramatic unless there is something  
6 else going on.

7 Q. We get to go all the way to Exhibit 51,  
8 please.

9 A. Okay.

10 Q. Your counsel asked you if you were aware  
11 of surface disturbance issues on some of Burnett's  
12 lands. Is that right?

13 A. In the area, yeah.

14 Q. In the area?

15 I believe you answered you were aware that  
16 there were endangered species issues?

17 A. I was aware that there are issues related  
18 to that issue.

19 Q. Are you aware of whether BLM, in fact,  
20 restricts surface use because of these endangered  
21 species, namely the lizard and the chicken?

22 A. I'm not aware if they actually restrict at  
23 this point or not. I think it's an issue that may  
24 be pending, but I don't know the answer to that  
25 question.

1 Q. Are you aware of whether Burnett has a  
2 conservation agreement with the BLM that would allow  
3 it to drill any wells on its acreage?

4 A. I don't.

5 Q. Now, we're going to go back to 27 or 28.  
6 We're going to have to look for that. I apologize.

7 Exhibit 28, please.

8 A. Okay.

9 Q. I'm looking at the Gissler A-19 well. Do  
10 you see that almost at the bottom?

11 A. I do.

12 Q. And you show, using the various recovery  
13 factors, anywhere from 25 to 37 acres, correct?

14 A. I do.

15 Q. Are you aware of whether there has been an  
16 offset well drilled from the Gissler A-19?

17 A. Specifically, no, I'm not aware.

18 Q. Do you know if it was the Gissler A-26?

19 A. I do not know.

20 Q. At the end of the exhibits, Mr. Gore, your  
21 counsel asked you some opinions about what you  
22 thought the allowable and the GOR should be.

23 A. Yes.

24 Q. Do you know if Burnett has overproduced  
25 the 187 allowable that's been proposed by Burnett?

1           A.     I believe they have, yes, for -- during  
2     the initial cleanup phase of a well after it was --  
3     after it would have been fracture stimulated. While  
4     it was cleaning up, I believe they probably have  
5     produced over the 187.

6           Q.     And do you believe that damage was caused  
7     to the reservoir when Burnett overproduced?

8           A.     Initially, no. We don't see any GOR  
9     issues during -- during that period, to my  
10    knowledge, or that I have seen. So I -- I don't  
11    believe there was any reservoir damage caused.

12          Q.     Do I understand correctly that the 187  
13    allowable is for two wells?

14          A.     The 187 would be for a 40-acre unit. So  
15    that would apply, whether it was -- whatever the  
16    density was. Now we're advocating 20 acres, so  
17    under our proposal, that would be for two wells.

18          Q.     So it wouldn't change, in your mind, if  
19    you had four wells on a 40-acre spacing unit?

20          A.     No.

21          Q.     Have you done any calculations to  
22    determine, if the division doesn't accept the annual  
23    balancing rule, whether Burnett could meet the 187  
24    allowable that you've proposed?

25          A.     I have not.

1 Q. Have you done any calculations to  
2 determine, if the division does not accept the  
3 balancing rule that Burnett has proposed, that you  
4 could meet 2,000 to 1 GOR?

5 A. Well, the 2,000 to 1 GOR would be met,  
6 because that's a gas limit that you can't exceed.  
7 If your wells did exceed that your oil allowable  
8 would be penalized. So I don't -- I don't think  
9 that would have anything to do with the GOR limit.

10 Q. What evidence have you shown here today  
11 that a high GOR negatively affects the reservoir  
12 energy?

13 A. Well, we know in a solution gas drive  
14 reservoir, basic reservoir engineering principles  
15 are that you want to preserve the reservoir energy.

16 What that means is producing at the lowest  
17 gas/oil ratio possible. And what we've demonstrated  
18 is, as you downspace to 10 acres we see increases in  
19 the -- dramatic increases in the GOR trend.

20 And then when we look back at the map,  
21 cumulatively speaking, the areas of the field that  
22 have been drilled on a denser spacing exhibit higher  
23 GORs.

24 What that means is they are producing more  
25 gas, they are drawing more reservoir energy in those

1 areas. And what that directly results in is a lower  
2 ultimate recovery. And that's just a basic  
3 reservoir engineering principle.

4 Q. Wouldn't that also mean that you are  
5 depleting the area around that well bore, so you are  
6 getting a higher GOR?

7 A. You absolutely are depleting the area  
8 around the well bore. The problem is that you are  
9 depleting it, in effect, too fast from the gas  
10 standpoint. You're taking the gas off and you're  
11 not producing all the oil that should be coming with  
12 it. But you absolutely are depleting the area  
13 around the well, and that's the problem.

14 Q. If you have a lenticular reservoir, as we  
15 do here, how do you know that you're affecting the  
16 reservoir energy elsewhere?

17 A. You are going to be affecting the  
18 reservoir energy, and I'm -- I guess I'm talking  
19 generally here, because we haven't seen any data on  
20 how these lenticular bodies within the Yeso  
21 interconnect.

22 But if you are in a lenticular body that  
23 has a larger aerial extent, then you'll be affecting  
24 that area. If you are communicated either naturally  
25 or through your fracture stimulation to other

1 lenticular members, then all of that is going to be  
2 acting as one reservoir.

3 So if your GOR trend in the area that  
4 you've contacted is increasing abnormally, then by  
5 definition, you're going to have to be depleting the  
6 reservoir energy in those members; and, therefore,  
7 lowering the ultimate oil recovery in those members.

8 Q. Is it fair to say that what you call a  
9 member is what we may call a lens?

10 A. The same thing, yes.

11 Q. So for those lenses, you're depleting  
12 reservoir energy, in your opinion, if you have too  
13 high of an allowable?

14 A. No.

15 Q. Okay.

16 A. If you are producing at an abnormally high  
17 gas/oil ratio then you are depleting the reservoir  
18 energy within those lenses or members.

19 Q. Okay. Mr. Gore, I want to make sure I  
20 understand what you're asking for. Because towards  
21 the end of your testimony you noted that there was a  
22 number of areas, a lot of areas, in fact, that are  
23 already in 10-acre density.

24 A. Yes.

25 Q. And I believe your testimony was that at

1 least let us, for those undeveloped areas, start on  
2 20s.

3 A. Yes.

4 Q. And if we could pull up that map that  
5 showed -- I think it's 15.

6 If we are looking at this map here,  
7 Mr. Gore, we see what I would characterize as an  
8 undeveloped area in Sections 12, 13, 24, 25, and 17  
9 South, 31 East. Do you agree?

10 A. I'm not sure. Could you point those out  
11 on the big one?

12 Q. Yes, right here (indicating).

13 A. Oh, yes.

14 Q. Is that the area you would like to see  
15 developed on 20-acre spacing?

16 A. That's an area of the field that has not  
17 yet been developed. Development there is just  
18 starting, so that would be an area where instead of  
19 starting low and realizing later that you've drilled  
20 too densely, my recommendation would be to start  
21 higher, evaluate your wells before you decide if it  
22 needs to be drilled on a denser pattern, as the data  
23 in the Loco Hills area indicates.

24 Q. Are you aware, Mr. Gore, of any precedent  
25 that the division has set that actually decreases

1 density in any 40-acre spacing units?

2 A. No. I don't know one way or the other.

3 TECHNICAL EXAMINER EZEANYIM: Please ask  
4 that question again.

5 MS. MUNDS-DRY: I asked him if he was  
6 aware of any precedent set by the division in  
7 decreasing density in any 40-acre oil pool?

8 TECHNICAL EXAMINER EZEANYIM: Okay.

9 MS. MUNDS-DRY: I pass the witness.  
10 Thank you.

11 TECHNICAL EXAMINER EZEANYIM: Okay. At  
12 this point, I think Mr. Gore wants to take a break.  
13 I think everybody wants to take a break here.

14 (A recess was taken from 5:24 p.m. to 5:40  
15 p.m.)

16 TECHNICAL EXAMINER EZEANYIM: We'll go  
17 back on the record.

18 And, Ms. Munds-Dry, you passed the  
19 witness?

20 MS. MUNDS-DRY: Yes sir.

21 TECHNICAL EXAMINER EZEANYIM: So,  
22 Mr. Cooney.

23 MR. COONEY: Thank you, Mr. Hearing  
24 Examiner.

25

## EXAMINATION

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BY MR. COONEY:

Q. Good afternoon, Mr. Gore.

A. Hi, Mr. Cooney.

Q. Have you done similar work in calculating drainage areas in the Yeso formation in New Mexico before?

A. No, sir.

Q. Have you done similar work calculating allowables or gas/oil ratio in the Yeso formation in New Mexico before?

A. No.

Q. Now I was struck as a layperson, not an engineer, by the number of variables that go into calculation of the drainage area: Recovery factoring -- or factor, excuse me -- the grain density, the oil in place, and the estimated ultimate recovery.

And isn't it true that engineers can have different opinions on those factors?

A. They can have different opinions.

Q. Operating in good faith and trying to do the best job they can?

A. Hopefully so.

Q. All right. Now, would you bring up

1 Exhibit 15 please?

2 A. (Witness complies.)

3 Q. Now, we're going to turn to -- not right  
4 now, but in a while we're going to turn to exhibits  
5 25, 27, and 28, which are the listings you put  
6 together of the Blinebry and Paddock producers of  
7 the Barnett -- excuse me -- Burnett Oil Company and  
8 the drainage areas that you calculated for them.

9 A. Okay.

10 Q. You described the four-section area over  
11 near a Maljamar pool as being undeveloped. Is that  
12 correct?

13 A. That's correct.

14 Q. But the other portions of the field out  
15 here embraced within this consolidated area you have  
16 drawn, or that Burnett has drawn, you believe has  
17 been largely developed?

18 A. It has been developed primarily on 10s  
19 with -- with the other area, or a couple of areas  
20 here in yellow, and there (indicating), on a less  
21 dense pattern.

22 Q. Okay. And that when you say "here,"  
23 that's the middle part that I have just tried to  
24 illustrate are where Burnett has a number of wells?

25 A. Correct.

1 Q. And Burnett has wells that -- in that area  
2 that are on a two-well per 40-acre proration unit  
3 basis?

4 A. Yes, sir.

5 Q. So many of the wells -- if we could go  
6 now, please, to Exhibit 25.

7 A. (Witness complies.)

8 Q. Many of the wells listed on Exhibit 25,  
9 for which you have calculated drainage areas, are  
10 located in 40-acre proration units in which Burnett  
11 has two wells?

12 A. I believe that's correct.

13 Q. All right. Now if we look down towards  
14 the bottom of that chart, for example, we see the --  
15 I don't know whether it's Gissler or Geesler -- I  
16 have heard it both ways -- A-35, for example, you  
17 have calculated using the recovery factor you  
18 favored of 10 percent of 60.5 acres, and that's per  
19 well, isn't it?

20 A. That is per well. Well -- yes. These --  
21 these drainage areas are for those specific 11  
22 wells.

23 Q. Okay. So if there are -- if that well is  
24 located in a proration unit that has two wells, two  
25 Burnett wells, depending upon what the other well's

1 drainage area calculation may be, it could be  
2 draining well in excess of the 40-acre proration  
3 unit?

4 A. One, if you assume there is a second well.

5 And, two, if you assume that it has a  
6 similar drainage area, then you are correct. It  
7 would be draining in excess of the 40-acre proration  
8 unit.

9 Q. In fact, other than the very first well  
10 listed, the next one is 21 acres. So we add 60 and  
11 21, I get to 81, that's two 40-acre proration units,  
12 if there is another well in the same proration unit  
13 where that Gissler A-35 is?

14 A. Again, with those same assumptions, that's  
15 correct.

16 Q. And if those assumptions are correct and  
17 your calculation is correct then, and this is in the  
18 developed area, wouldn't that be adjoining  
19 offsetting proration units in which there is already  
20 development?

21 A. We would just have to look at where those  
22 are on a map. It could be, but I couldn't tell you  
23 for sure.

24 Q. But if it's in the area where the wells  
25 have been developed -- and there are no Burnett

1 wells we know over near the Maljamar. If they are  
2 in the middle of the map area which is largely  
3 developed by Burnett on two wells per 40, and  
4 everyone else mostly on four wells for 40, the  
5 probabilities are that those proration units in  
6 which Burnett's wells are located, for which you  
7 have calculated drainage areas, are next to a  
8 proration unit which have been developed by somebody  
9 else on a 10-acre -- or excuse me -- yeah, on four  
10 wells per 40 acres?

11 A. That's possible. But one thing you need  
12 to keep in mind is we're talking about the Blinebry  
13 section of the Yeso.

14 Q. That's right.

15 A. And Burnett has just started to complete  
16 the Blinebry. So I -- I think it would be -- we  
17 would have to look, but I think it would be very  
18 possible that there wouldn't be a second Blinebry  
19 well on the same unit, since we are in the early  
20 stages of the Blinebry development.

21 So -- but assuming all of those things  
22 that you just gave me, it is possible, but I don't  
23 expect that would be the case.

24 Q. Okay. We'll get to the Paddock in a  
25 moment.

1           If that -- if those -- if my assumptions  
2 are correct, and I believe they are based on the  
3 evidence, then you would expect to see a substantial  
4 impact on the production of the wells in the  
5 offsetting proration units by the drainage being  
6 caused by the Burnett wells on two wells per 40-acre  
7 proration units, wouldn't you?

8           A.     If you have a unit -- 40-acre unit with  
9 two Blinebry producers both draining in -- together  
10 in excess of the 40, and then the offset unit also  
11 has Blinebry production, then perhaps you would see  
12 that effect.

13           But again, there are a lot of assumptions  
14 there that would have to hold up to see if that  
15 would, in fact, be the case.

16           Q.     Well, wouldn't that be a way to validate  
17 your drainage area calculations, to go and look to  
18 see if there are adjoining proration units and  
19 whether the production in those adjoining proration  
20 units had been affected by the large drainage area  
21 of the two wells per 40-acre proration unit drilled  
22 by Burnett?

23           A.     It would -- it could. Assuming those  
24 assumptions are correct, it certainly could be one  
25 way.

1 I think there could be many ways that we  
2 could go about looking for interference drainage  
3 areas. I think we have presented some of those  
4 here. We are not saying what we've done is the only  
5 way. What you -- you bring up a good suggestion.  
6 That could be another way. We didn't do that, but  
7 that is something you could do.

8 Q. And you didn't do that?

9 A. No, sir.

10 Q. Okay. Now, let's turn to Exhibit 27 -- or  
11 rather Exhibit 28.

12 A. (Witness complies.)

13 Q. Now looking down towards the bottom  
14 portion of this chart at the recovery factor of  
15 10 percent, starting here with the Gissler B-35 and  
16 actually a little further up, you also get the  
17 situations, wouldn't you, where if there are two  
18 Burnett wells in the Paddock in this developed area  
19 in a 40-acre proration unit they would be draining  
20 more than that 40-acre proration unit?

21 A. Again, if -- if there are two Paddock  
22 wells and you had your analysis, and those both  
23 showed greater than -- in summation, greater than 40  
24 acres, then, yes. Those two wells would be draining  
25 more than the 40-acre proration unit.

1 Q. Well, if we look -- and we don't have to  
2 go back to it -- but Exhibit 27, towards the bottom,  
3 we're looking at 16, 17, 18 acres of drainage here  
4 in the Paddock. Is that correct?

5 A. I'm sorry. You're looking where?

6 Q. At the previous exhibit, 27.

7 A. Okay. I'm with you.

8 Q. Okay. So it wouldn't take much, if you  
9 have a Paddock well with a drainage area of  
10 48.9 acres, right there you're more than the 40-acre  
11 proration unit?

12 A. That's correct.

13 Q. And if you had, for example, the 30.5-acre  
14 drainage area for a Paddock well and you added that  
15 to 14 or 15 or 16 or 17, you would be beyond the  
16 40-acre proration unit?

17 A. You're correct.

18 Q. And you mentioned a little while ago that  
19 Burnett has just started developing the Blinebry?

20 A. It's been recently.

21 Q. But that's not true of the Paddock, right?

22 A. No, sir. That's correct.

23 Q. It's been developed for quite some time by  
24 Burnett?

25 A. Yes.

1 Q. And in fact, the producers on offsetting  
2 locations, offsetting proration units, you also  
3 understand have been producing from the Paddock?

4 A. Correct.

5 Q. So once again, sir, wouldn't you expect to  
6 see, if the Burnett wells are draining more than the  
7 proration unit 40 acres, an effect on the production  
8 of the adjoining or offsetting proration units which  
9 are also producing from the Paddock?

10 A. Again with all of your assumptions, if  
11 those are true, then you may see that effect on the  
12 offsetting units. It would -- it would be dependent  
13 upon where or how those wells are completed, their  
14 location. Are they a direct offset, you know, or  
15 are they off center a little bit. So you would have  
16 to take that into consideration.

17 But again, under all of your assumptions,  
18 that is possible.

19 Q. And in fact -- we don't have to go back to  
20 it. But isn't it true that if we look at  
21 Exhibit 15, a large portion of the acreage operated  
22 by Burnett, with the two wells per 40, adjoins  
23 proration units developed by others on a four-wells  
24 per acre [sic] with wells close to the line, close  
25 to the boundary?

1           A.     I lost you there. I'm sorry. Could you  
2 repeat that?

3           Q.     Okay. There are proration units adjoining  
4 the Burnett proration units which are developed on a  
5 four-well per proration unit basis?

6           A.     Okay.

7           Q.     And you would expect many of those to be  
8 330 feet from the line?

9           A.     I would, yes.

10          Q.     Okay. And that would have been another  
11 way for you to validate these drainage area  
12 calculations, would it not, with respect to the  
13 Paddock?

14          A.     That would have been another way, yes.

15          Q.     And you didn't do that, did you, sir?

16          A.     I didn't do that. We did the other work  
17 that we presented.

18          Q.     All right. Now, had Burnett done any  
19 drainage calculations before this hearing?

20          A.     I -- I could not answer that. I'm not  
21 sure what all work they had done in that regard  
22 prior to the hearing.

23          Q.     Have you advised Burnett that, on the  
24 basis of your drainage area calculations, they may  
25 be producing other folks' oil?

1 MR. GRABLE: Objection. Any offset  
2 acreage would lawful under the rule of capture.  
3 There is nothing illegal about producing across the  
4 lease line if it's done lawfully.

5 LEGAL EXAMINER BROOKS: Well, yeah. I  
6 think that it's obviously intended to be a  
7 prejudicial question, so I will ask you to rephrase.

8 MR. COONEY: All right.

9 Q. (By Mr. Cooney) Let's turn now to  
10 Exhibit 41C.

11 A. Okay.

12 Q. I don't think that's 41C. 41C is entitled  
13 "17 South, 30 East, Section 15G, Yeso production  
14 Dale H. Park lease."

15 I just have a few followup questions to  
16 Ms. Munds-Dry's questions on this exhibit, if you  
17 will bear with me, sir.

18 A. Okay.

19 Q. I understood you to say that you didn't  
20 think that this curve I'm trying to illustrate right  
21 here (indicating), after the drilling of the fourth  
22 well --

23 A. Third well.

24 Q. -- the third well, was a hyperbolic curve.

25 A. It does not exhibit that, no.

1 Q. Because you don't always see a hyperbolic  
2 component in all areas of the Yeso formation in  
3 New Mexico?

4 A. Well, I haven't evaluated all areas of the  
5 Yeso formation in New Mexico. But I have seen, in  
6 what I have looked at, that you don't always see a  
7 hyperbolic component. And sometimes you do,  
8 sometimes you don't.

9 Q. And that would vary area to area within  
10 the Yeso formation in this area that we are talking  
11 about?

12 A. I would suspect it could. But again, I --  
13 I haven't looked at all areas.

14 Q. Okay. Well, let's look at this area.

15 A. Okay.

16 Q. Let's look at the drilling of the first  
17 well.

18 Doesn't that look like a hyperbolic curve  
19 to you?

20 A. Yes.

21 Q. And if you were to use that curve to  
22 construct a red line, wouldn't it just -- I'm being  
23 blocked by the computer here, plus, I'm not very  
24 good at this -- wouldn't that show that red line  
25 going down a lot further?

1           A.     I'm sorry.  If you project this  
2     (indicating)?

3           Q.     Yes.  If you project it -- we look here  
4     from the start there (indicating), out to that  
5     point, it looks like about six or eight months'  
6     worth of production, right?

7           A.     Okay.

8           Q.     And if we just stopped there and took that  
9     trend, wouldn't that line just trend on down that  
10    way (indicating)?

11          A.     It would.  I don't think it would be a  
12    proper decline trend with that limited amount of  
13    data.  But if you put a line through there, ignoring  
14    everything else that's happened, then, yeah, it  
15    would.

16          Q.     Okay.  Let's move over here now to the  
17    drilling of the third well.  And that looks to me  
18    also to be about six or eight months' worth  
19    production.  Would you disagree?

20          A.     I would disagree with the six to eight  
21    months.  It looks like it's closer to 10 or 12 to  
22    me, but this area right here (indicating)?

23          Q.     Yeah.  If we compare the -- from here  
24    (indicating) to there (indicating) --

25          A.     Right.

1 Q. -- with from here (indicating) to there  
2 (indicating), they look pretty comparable?

3 A. Time-wise, I would agree, yes.

4 Q. Okay. But while this (indicating) is a  
5 hyperbolic curve, that's (indicating) not?

6 A. Correct. What you see here is --  
7 hyperbolic is -- obviously, the hyperbolic exponent  
8 is the curvature of the line. So when you see that  
9 changing, then you don't know where it's going to  
10 flatten out.

11 When we -- when we have, you know, 10 or  
12 12 months of data that line up in almost a straight  
13 line, then you know that is a well-established  
14 trend.

15 Right here (indicating), we haven't  
16 established what that trend is. You wanted me to  
17 put a line through there, and I told you I did not  
18 think it would be proper to do so.

19 But that (indicating) definitely is  
20 hyperbolic. This (indicating) is not, in my  
21 opinion.

22 Q. Okay. Now, if that -- if the fourth well  
23 had not been drilled, you don't know where that  
24 curve would have gone, do you?

25 A. Well, I don't know, because the fourth

1 well was drilled.

2 Q. Right.

3 A. But in decline curve analysis you project  
4 future production based upon history. And so the  
5 recent history that we had for the three wells is  
6 this 10- to 12-month period. And so your projection  
7 would extend the line, as I have. And so we would  
8 project that this is what those three wells would  
9 have done.

10 Q. Okay. Because you see no hyperbolic curve  
11 there.

12 Let's go over to the next well, the fourth  
13 well. We've also got a comparable period of time,  
14 don't we, to the hyperbolic period of time over here  
15 (indicating) and the nonhyperbolic period of time  
16 over here (indicating). Now we have maybe a couple  
17 more months of production, but very close?

18 A. Very close.

19 Q. Okay. And that's not a hyperbolic curve  
20 either?

21 A. No, it's not.

22 Q. Even though it's in the same area, it's in  
23 the same proration unit?

24 A. Oh, yes, absolutely.

25 Q. Okay. And it is not a hyperbolic curve

1 because it's different than that (indicating) curve.

2 Is that right, sir?

3 A. Absolutely. It's different.

4 Q. Okay. Now, would you turn to Exhibit 25A  
5 please?

6 Before we leave this, let's see if we can  
7 agree that this Exhibit 41C relates to a well in 17  
8 South, 30 East, Section 15G, Unit G. Is that right?

9 A. Yes. All four of those wells are on that  
10 unit.

11 Q. Okay. Now, let's turn to Exhibit 25A.

12 I have one more question.

13 It's your testimony here that in this  
14 particular proration unit two wells are going to  
15 produce more gas than four wells and more oil than  
16 four wells?

17 A. Well, I didn't say that, because I -- I  
18 did not calculate the EUR with these three curves.  
19 But what we do know, when we look at the trends, we  
20 were talking about the differences.

21 Q. Right.

22 A. And they are different. Keep in mind that  
23 this trend was early in the life of this section.  
24 The Yeso had not been produced, it was an undrained  
25 area.

1           What we see here -- the reason these go --  
2   in my opinion, the reason these go exponential at  
3   increasing rates is wells three and four begin to  
4   compete with wells one and two for the same  
5   reserves. So that's why you -- you're not  
6   necessarily going to see or expect this to be  
7   hyperbolic at four wells or three, if those wells  
8   are in competition for the very same reserves. And  
9   that's what we observe here.

10          Q.     And that's dependent upon your assumption  
11   of the drainage area?

12          A.     No, it's not. It is directly dependent on  
13   the actual well performance of the four wells on  
14   this section. It doesn't have anything to do with  
15   the drainage area calculation.

16          Q.     You can tell from these curves and the  
17   fact that you don't interpret them as being  
18   hyperbolic that the drainage areas of these four  
19   wells are such that they're competing for reserves?

20          A.     One more time. I didn't --

21          Q.     You can tell from these curves, which you  
22   tell us are not hyperbolic, although this  
23   (indicating) one is, that the drainage areas of  
24   these four wells are such that they're competing for  
25   the same reserves?

1           A.     Yes, sir.  If you recall -- I believe he  
2 was an Apache witness, Mr. Barnes, I believe the  
3 engineer, reservoir engineer.  He stated that what  
4 he would expect, if there is well interference,  
5 meaning wells are competing for reserves, a change  
6 in the decline profile.

7                     That's exactly what we're observing here  
8 (indicating), in my opinion.

9           Q.     Well, if we accept your opinion that this  
10 is not a hyperbolic curve.

11                     Let's move on.  Let's look at Exhibit 25A.

12           A.     (Witness complies.)

13           Q.     Now the previous exhibit, 41C, was -- I'm  
14 sorry.  Let me wait until he gets to that exhibit,  
15 sir.

16                     Now we agreed the exhibit we just spent a  
17 little time on, 41C, was Section 15, 17 South, Range  
18 30 East.  Is that correct?

19           A.     Yes.

20           Q.     Now this one has to do with a well in  
21 Section 13, Township 17 South, Range 30 East,  
22 two miles away.

23           A.     Okay.

24           Q.     This shows, in your calculation of the  
25 EUR, a pronounced hyperbolic curve changing into an

1 exponential curve, does it not, sir?

2 A. Yes, it does.

3 Q. So in this area two miles away, you do  
4 encounter the hyperbolic curve. But you don't  
5 with -- over in Section 15?

6 A. Right. And what we're saying is that the  
7 well performance dictates to you whether it's  
8 hyperbolic or exponential.

9 And so in my opinion, this well is  
10 exhibiting a hyperbolic component. And this is an  
11 individual well as opposed to a unit.

12 Q. I understand.

13 A. Yes.

14 Q. Okay. Now, let's turn to Exhibit 41F.

15 A. Okay.

16 Q. That's it. This was your critique of  
17 Mr. Barnes' exhibit, Apache Exhibit 6.

18 A. Yes. Was he the one who sponsored this?

19 Q. He was.

20 A. Okay.

21 Q. And your critique was that he didn't take  
22 into account, or that somehow the accuracy of this  
23 exhibit was affected by the fact of how these wells  
24 were fracked.

25 A. Okay.

1 Q. Is that correct?

2 A. Well, I think -- I think I recall that he  
3 testified that -- that the early part for one and  
4 two wells, when you -- when you drill -- well, yeah.  
5 When you go from two wells to four wells you see  
6 this big jump. And -- and apparently it -- it  
7 didn't have any impact on -- on the -- the previous  
8 two wells.

9 And he was drawing some, as I recall, some  
10 distinction about this large increase in production.  
11 And then -- and then the trend from that point on.

12 And -- and my point on this exhibit was  
13 that, you know, these wells were completed in  
14 different manners, and I think that should have been  
15 considered in any sort of conclusion reached on this  
16 exhibit.

17 Q. On this exhibit it does show that the  
18 drilling of wells three and four found substantial  
19 new oil, correct?

20 A. The drilling of wells three and four  
21 dramatically increased the production from the unit,  
22 realizing that the frac jobs were twice as big as --  
23 as the other two wells.

24 So what we don't know is if these first  
25 two wells had been fracked in a similar manner would

1 they have recovered the oil that wells three and  
2 four are now seeing?

3 Q. And this kind of goes back to the -- your  
4 desire that everybody producing in the Yeso has to  
5 use Mr. Jacoby's slickwater frac formula?

6 MR. GRABLE: Objection, argumentative.

7 LEGAL EXAMINER BROOKS: Sustained.

8 Q. (By Mr. Cooney) Now, sir, it's true that  
9 the wells three and four encountered substantial new  
10 oil reserves. Is that correct?

11 A. They substantially increased the  
12 production, yes.

13 Q. Okay. Do you recall Apache Exhibit 5  
14 sponsored by Mr. Barnes?

15 A. Not right off the top of my head.

16 Q. Well, rather than put it up, I'm going to  
17 hand it to you.

18 I've drawn a little circle around part of  
19 it.

20 A. Okay. Oh, yeah. I recall this.

21 Q. Okay. Doesn't that show that the drilling  
22 of wells three and four had no impact on the  
23 production of wells one and two?

24 A. It -- that's what it appears to show, yes.

25 TECHNICAL EXAMINER EZEANYIM: I don't know

1 what you're looking at.

2 MR. COONEY: Pardon me?

3 TECHNICAL EXAMINER EZEANYIM: I don't know  
4 what you are looking at. I need to see what you're  
5 looking at.

6 MR. COONEY: Okay. It is Apache  
7 Exhibit 5. And rather than --

8 TECHNICAL EXAMINER EZEANYIM: I just want  
9 to have a look. And I may have it, but I don't  
10 know.

11 MR. COONEY: I know you have it, but I  
12 didn't want to take the time to put it up here.

13 TECHNICAL EXAMINER EZEANYIM: What was  
14 your question?

15 MR. COONEY: That the drilling of wells  
16 three and four --

17 TECHNICAL EXAMINER EZEANYIM: Okay.

18 MR. COONEY: -- did not affect the  
19 performance of the existing wells one and two.

20 TECHNICAL EXAMINER EZEANYIM: Okay.

21 THE WITNESS: And I think you're correct,  
22 that's what he said. And it was because these wells  
23 continued on their same decline trend and he didn't  
24 see any change in that.

25 MR. COONEY: Okay. I pass the witness.

1           TECHNICAL EXAMINER EZEANYIM: Thank you  
2 very much, Mr. Cooney.

3           Redirect? Do you want to redirect? I can  
4 go ahead and ask questions.

5           MR. GRABLE: I may have one question,  
6 but...

7                           FURTHER EXAMINATION

8 BY MR. GRABLE:

9           Q. Mr. Gore, I have one question for you.

10           In Mr. Cooney's questions he asked you a  
11 series of questions going to the issue of the  
12 drainage areas in the Blinebry, in particular, was  
13 large, as you had calculated, and wouldn't you  
14 expect to see some interference in offsetting units,  
15 and -- without giving you any more details.

16           But I wanted to ask you simply: Isn't  
17 time a function of how far out in a drainage area a  
18 well's withdrawal of fluids from the reservoir will  
19 affect it, and isn't the outer boundaries of that  
20 drainage area effected later than the immediate  
21 areas closer to the well bore?

22           A. Absolutely. And that's a very good point  
23 to remember on those drainage area calculations.  
24 That is the drainage area at the end of the economic  
25 life of these wells, so it's many, many years out

1 into the future.

2 You would not necessarily expect to see in  
3 the early life of the well, whether it be a well on  
4 the same unit or an offsetting unit, affected.

5 So I'm glad you brought that up, because  
6 that's a very good point.

7 MR. GRABLE: That's all I have. Thank  
8 you.

9 TECHNICAL EXAMINER EZEANYIM: When you are  
10 using an EUR, we know it's at the end of the useful  
11 life of the well.

12 Okay. Let me give an opportunity to COG  
13 or Apache, any redirect?

14 MS. MUNDS-DRY: No questions, sir.

15 MR. COONEY: No more questions.

16 TECHNICAL EXAMINER EZEANYIM: And you are  
17 done?

18 MR. GRABLE: I am done.

19 TECHNICAL EXAMINER EZEANYIM: Okay.

20 LEGAL EXAMINER BROOKS: I have no  
21 questions.

22 TECHNICAL EXAMINER EZEANYIM: Okay.

23 Mr. Gore, I think like I told you, I think  
24 we want to have fun. And I have, you know, tons and  
25 tons of questions, but I don't think I'm going to

1 ask you all of those questions. Most of them have  
2 been mentioned. But still, I need to mention  
3 something.

4 See, I was afraid that this hearing would  
5 produce this effect, there would be a dichotomy in  
6 data analysis. I mean as you all can see now, you  
7 put me in a difficult position, because you didn't  
8 send it and state to us what you want.

9 And the other guy, we take the same data,  
10 state to us what they want, and then I'm in the  
11 middle to make a determination here, which one do I  
12 believe? Who will answer that question except me?  
13 Okay.

14 Other than that, I'm going to have to make  
15 some -- you know, ask you little questions and then  
16 go back and assimilate whatever your data is.

17 What I'm going to do is to maybe -- if I  
18 have data I can try to fix in the -- you know, put  
19 in this data, do some calculation to see who's  
20 saying a little -- giving me a little truth.

21 Because as you know now, if you were  
22 sitting here where I am sitting, what are you going  
23 to be talking -- you know, talking about this.  
24 Okay. You are giving the same data but you're  
25 getting different results. Which one do you trust?

1 Do you see my predicament? But we're  
2 going to come with a decision.

3 Anyway, I don't want to put you there, and  
4 everybody is tired. But however, I am going to ask  
5 you -- there were a lot of questions I wanted to  
6 ask, but I'm not going to ask you all of them. I  
7 think I have heard enough to be able to go back and  
8 do some determination.

9 However, I am going to ask you some few  
10 questions, because you've been there for a long  
11 time, and I don't want you to think I didn't notice.

12 What I really want to ask you, some may be  
13 conventional, some of them are conventional. In a  
14 way, you are trying to deplete porosity. You use  
15 the letter F. I don't see anywhere where we use the  
16 letter F. Sometimes you use the letter PHI in the  
17 designation, sometimes in the -- it confuses me,  
18 because I'm traditional. That's what we were  
19 taught, you know.

20 We're talking about porosity. I look with  
21 that zero with the cross, and I can see where you  
22 use that F, is that fractional recovery? Is that --  
23 you know?

24 If you do say "porosity," I will be  
25 wondering, what is that?

1           There are some conventions when we -- in  
2 different areas of what we use in some of your  
3 calculations what you use is PHI, is PHI-H, you  
4 know, whatever, which is very important for volume  
5 calculation.

6           It's not anything, but you define it as an  
7 F. Of course you can use this as an S or a Y or  
8 anything. But to be in, you know, compliance with  
9 the -- what we know, you know, of course you -- you  
10 know. The reason is -- I think you should know  
11 that.

12           THE WITNESS: Yes, sir. I've never used F  
13 either. I'm -- I'm with you on the convention. It  
14 was simply a formatting issue with the software.

15           TECHNICAL EXAMINER EZEANYIM: Okay.

16           THE WITNESS: So the only reason F was  
17 used, I think, was for the letter PHI, so -- it  
18 sounds like an F.

19           TECHNICAL EXAMINER EZEANYIM: Yeah.

20           THE WITNESS: But that's the only reason.

21           TECHNICAL EXAMINER EZEANYIM: I am glad  
22 you told me that. Because when I see that I -- you  
23 know -- I don't know.

24           Okay. Let's go back to this. You know,  
25 the object of contention here is what recovery

1 factor. We're talking about recovery factor,  
2 because the recovery factor that was used is  
3 different. The other party used 15 and the other  
4 party used 10.

5 In this original it was -- I mean the --  
6 the range is from -- and I realize the condition is  
7 from 10 to 25 percent. That's the lowest recovery  
8 factor of all the drive mechanisms, all of you know  
9 that. That is -- all of you know that.

10 So the range is from 10 to 25. So it's up  
11 to the operator to see from the geology, from their  
12 logs, and what recovery factor they think they have.  
13 And those recovery factors will play a very large  
14 part in the ultimate recovery and all kinds of  
15 things. So I don't know. I will have to go back  
16 and look at the recovery factor and see who is using  
17 the correct recovery factor.

18 As I told you, you just put me on that  
19 corner now, because there's no information that is  
20 really correlating with the other. Everybody is --  
21 you know, they are running from the other. So it's  
22 for me now to piece this together to see what is  
23 correct, or what I think is correct, because I am  
24 not working that pool myself. I have to depend on  
25 what you give me.

1 Mr. Gore, when you were calculating your  
2 recovery, you used this BO. Is that BO or BOI? As  
3 you know, those things depend on the -- the BOI, I  
4 think, is 1.29. BO may be 1.1. So what do you use  
5 in your calculation here on your drainage area? Do  
6 you use BO or is that BOI?

7 THE WITNESS: BOI.

8 TECHNICAL EXAMINER EZEANYIM: It should be  
9 BOI.

10 THE WITNESS: Yes.

11 TECHNICAL EXAMINER EZEANYIM: Because we  
12 don't know what BO is --

13 THE WITNESS: Correct.

14 TECHNICAL EXAMINER EZEANYIM: -- at this  
15 point.

16 THE WITNESS: It's the initial -- the  
17 initial conditions.

18 TECHNICAL EXAMINER EZEANYIM: You see? So  
19 that's why I went in there and put BOI, because you  
20 said BO was 1.29. And I'm not working that pool, so  
21 I'm thinking that BOI is 1.29.

22 THE WITNESS: And you're correct.

23 TECHNICAL EXAMINER EZEANYIM: Okay. In  
24 calculating your -- in looking at Exhibit Number 23.  
25 There's some differences between 2.84 and 2.87, and

1 then also the -- okay.

2 Well, anyway, I don't know. Exhibit  
3 Number 28D, we have the grain density is 2.87, the  
4 other is 2.84.

5 And then your low fluid is 1.0. In most  
6 cases it's more than 1.0. It's like 1.05. It  
7 depends on the validity of the information, so I  
8 don't know.

9 But we -- we're taking that low F is 1.0.  
10 That's where -- you know, the water.

11 And then -- then we're going to compare it  
12 now, the calculations here on your log, the bulk  
13 density and all kinds of things, to calculate the  
14 porosity. Because there is -- there is your  
15 calculation of porosity.

16 I see the other party used at least  
17 3 percent cutoff, and your porosity is up to 8  
18 percent, 10 percent in some cases.

19 So I will go back and see what porosity is  
20 more believable. Because those that we add in to  
21 your calculations are those that have a higher  
22 porosity in this. So I'm trying to make that point,  
23 so that you understand we can put it in that simple  
24 equation to calculate your density.

25 THE WITNESS: Yes, sir.

1                   TECHNICAL EXAMINER EZEANYIM: On these  
2 Exhibit Numbers 24 and 26, where you use your  
3 drainage area to show how much -- I think you use  
4 the wells on the Blinebry and Paddock, right?

5                   THE WITNESS: Yes. 24 is Blinebry and 26  
6 is Paddock.

7                   TECHNICAL EXAMINER EZEANYIM: Okay. So I  
8 can use them. I think I understand, but what are  
9 you trying to demonstrate there?

10                  THE WITNESS: Really, all I'm trying to  
11 demonstrate here is give you a graphical  
12 representation of the actual drainage areas.

13                  So the Blinebry piecharts are the -- show  
14 the statistical variation in piechart form from the  
15 very next exhibit -- I'm assuming it is 25.

16                  So all we do is add up the number of wells  
17 that have drainage areas less than 15 acres and more  
18 than 15 acres and graph those and calculate the  
19 percentage. So it's just a graphical representation  
20 of the tabular data.

21                  TECHNICAL EXAMINER EZEANYIM: Okay. And  
22 you got those numbers from those wells -- where did  
23 you get those? IHS? Where did you get the  
24 information on these wells?

25                  THE WITNESS: These wells -- those wells

1 are the Blinebry wells that we calculated drainage  
2 areas for.

3 TECHNICAL EXAMINER EZEANYIM: Oh, okay.

4 THE WITNESS: I think it -- yeah, it's --  
5 I show it to be Exhibit 25 --

6 TECHNICAL EXAMINER EZEANYIM: Okay.

7 THE WITNESS: -- that table. So you can  
8 see here on the piechart we have 11 wells. So if  
9 you go to Exhibit 25 there are 11 wells on this  
10 exhibit. So it's the same 11 wells. So...

11 TECHNICAL EXAMINER EZEANYIM: Okay. That  
12 makes it clear.

13 You know, like I said, I didn't want to,  
14 you know, be asking you all of these questions. But  
15 the question was asked about the decline curve, for  
16 instance, this reservoir, from hyperbolic to  
17 exponential. And are you of the opinion that there  
18 is no hyperbolic decline in these pools?

19 THE WITNESS: No.

20 TECHNICAL EXAMINER EZEANYIM: There is no  
21 hyperbolic decline?

22 THE WITNESS: No, I'm not of that opinion.

23 TECHNICAL EXAMINER EZEANYIM: Okay. So --

24 THE WITNESS: There is a hyperbolic.

25 TECHNICAL EXAMINER EZEANYIM: Okay.

1 THE WITNESS: Or there can be. I'm sorry.

2 TECHNICAL EXAMINER EZEANYIM: All declines  
3 are exponential. Is that what you're saying?

4 THE WITNESS: I'm sorry?

5 TECHNICAL EXAMINER EZEANYIM: All of the  
6 declines from this pool are all exponential  
7 declines?

8 THE WITNESS: No, sir. There is a  
9 hyperbolic component, or there can be. And we see  
10 that, and we saw it in a lot of the wells we  
11 analyzed.

12 My point was every well does not have to  
13 exhibit a hyperbolic component, especially when we  
14 believe the wells are competing for reserves. But  
15 all the wells are not hyperbolic and all of the  
16 wells are not exponential. You can have a mixture.

17 TECHNICAL EXAMINER EZEANYIM: I understand  
18 that. But as you learn now, most of these wells,  
19 they only decline for, if you see, some 12 months.  
20 So if you see some for 18 months, you can't begin to  
21 imagine what the decline is going to do. You know,  
22 I see a short span of production and people will  
23 extrapolate into the future without hyperbolic or  
24 exponential, you know. Or, by law, no hyperbolic,  
25 using exponential.

1           So it bothers me that we don't really know  
2 what these wells are doing, you know, because of the  
3 shortness of production. We need to have about 6  
4 months to be able to know what that unit is doing.  
5 If you have a 6-month production you can then  
6 extrapolate whether it is exponential or hyperbolic  
7 or both.

8           But now we have a very short period of  
9 production. Some of you extrapolate after 6 months,  
10 when the well has not even stabilized, so we don't  
11 know what that well is going to do.

12           THE WITNESS: And that is a very good  
13 point, and you're exactly right.

14           When you go back and look at our  
15 Burnett -- our analysis on the Burnett wells, we  
16 only analyzed 35, 45 -- 46 wells total, so that's  
17 about half.

18           TECHNICAL EXAMINER EZEANYIM: Uh-huh.

19           THE WITNESS: The reason we didn't  
20 evaluate the other half is because I was not  
21 comfortable, because of what you just said. We have  
22 a very short time period, and I did not believe it  
23 would be reasonable to project those. So that's why  
24 we didn't present drainage areas on all 85 wells.

25           So you bring up a very good point. I only

1 extrapolated those wells that I thought we had  
2 sufficient data from which to determine a reliable  
3 trend.

4 TECHNICAL EXAMINER EZEANYIM: Okay. In  
5 some of your explanation, this is just  
6 typographical, or I don't know. If you use a  
7 capital M, that means a thousand. If you use two  
8 capital Ms that means million.

9 But if you use one small M, that's not  
10 million right there. You know, once you say MM,  
11 small letter MM, that's a billion, a billion  
12 something, when you use that small MM. I think in  
13 convention it's M.

14 I'm saying this because when I read small  
15 letter MM I will not know it's one million, because  
16 that's how it is. But if I see capital letter MM,  
17 that's million in what we're talking, and that's the  
18 Roman numerals.

19 But if you use a small letter -- and  
20 people make mistakes in using that. In convention  
21 you don't use a small letter for thousand. That  
22 means million. This capital letter is what we use  
23 in this convention.

24 I think most of you -- anybody would  
25 realize that M, you know, that is what we use to say

1 I got 1,000, it could be feet of gas, you know, or  
2 1,000, you know, barrels of oil, it's capital M.

3 So when I go through this, and when I see  
4 a small letter M, I have to take it that it means  
5 thousand, right?

6 THE WITNESS: Yes, sir.

7 TECHNICAL EXAMINER EZEANYIM: That's why I  
8 say a small letter M, it was -- I am very meticulous  
9 about this is the way you do it.

10 Okay. On this 28G, is this accurate or  
11 fictional the -- on this, you know, the PHI-H?

12 THE WITNESS: It's just a generic example,  
13 so it's not actual. It is not any actual well or  
14 data.

15 TECHNICAL EXAMINER EZEANYIM: What are you  
16 trying to demonstrate?

17 THE WITNESS: What I'm trying to  
18 demonstrate here -- let me, if I could, find it.

19 This one (indicating), correct?

20 TECHNICAL EXAMINER EZEANYIM: Yes.

21 THE WITNESS: What I'm trying to  
22 demonstrate here is the effect of PHI-H on drainage  
23 areas.

24 TECHNICAL EXAMINER EZEANYIM: Uh-huh.

25 THE WITNESS: So in our assumption, I've

1 assumed hy- -- three hypothetical wells, with the  
2 red square, the blue diamond, or the green triangle.

3 And these hypothetical wells have  
4 different EURs.

5 TECHNICAL EXAMINER EZEANYIM: Uh-huh.

6 THE WITNESS: 50,000 barrels,  
7 100,000 barrels, 200,000 barrels. And we graph that  
8 against PHI-H, assuming a constant water saturation.

9 And so what we show is we see that at a  
10 lower PHI-H you're going to calculate -- or I'm  
11 sorry, at a higher PHI-H. So a PHI-H of 20, you're  
12 going to calculate a very low drainage area as  
13 opposed to a PHI-H of 10, where you are going to  
14 calculate a much higher drainage area.

15 So I'm just trying to demonstrate the  
16 effect that PHI-H has on your drainage area  
17 calculations.

18 TECHNICAL EXAMINER EZEANYIM: Yeah.

19 THE WITNESS: And so if you underestimate  
20 or overestimate PHI-H, that could have a big impact  
21 on what you calculate.

22 TECHNICAL EXAMINER EZEANYIM: That is the  
23 problem here. Because I know PHI-H is universally  
24 proportional to drainage area.

25 THE WITNESS: Correct.

1           TECHNICAL EXAMINER EZEANYIM: Of course if  
2 you do that, that's what you're trying to show here,  
3 I mean, I think everybody knows that.

4           Please bear with me. Because since you  
5 put me here, I need to get some information to be  
6 able to make some of the decisions here.

7           Let's go to Exhibit Number 41B.

8           Mr. Gore, that's where we are at. Did you  
9 get that, 41B?

10          THE WITNESS: Yes.

11          TECHNICAL EXAMINER EZEANYIM: Okay. If  
12 you look at that now, if you look at the way you  
13 drew your red lines, you know, it appears that if  
14 you have two wells, if you have a higher EUR than  
15 four wells, for the way the red lines are drawn, did  
16 you calculate any EUR when you drew those red lines?

17          THE WITNESS: I did not on these exhibits,  
18 because this was just rebuttal to a Concho exhibit.

19          TECHNICAL EXAMINER EZEANYIM: Oh, okay.

20          THE WITNESS: I do have -- or we did do  
21 that exercise on some other units, which I didn't  
22 present to you, but we could certainly pull those  
23 out if you wanted to. But for this particular  
24 example, I did not do that.

25          But when these trends cross over, what

1 that says is, you know, you're going to minimize  
2 that incremental recovery, if there is any  
3 incremental recovery.

4 TECHNICAL EXAMINER EZEANYIM: Yeah. If  
5 you extend all of those to an X axis, those two  
6 lines, I anticipate you'll get more possibly from  
7 two wells than for four wells. Is that possible?

8 THE WITNESS: Yes, it is.

9 TECHNICAL EXAMINER EZEANYIM: How?

10 THE WITNESS: Because we have -- it is  
11 possible because, in my opinion, if you drill four  
12 wells and they start interfering with one another  
13 and competing for the same reserves --

14 TECHNICAL EXAMINER EZEANYIM: Yeah.

15 THE WITNESS: -- what we have seen is, we  
16 see that increase in the GOR trend.

17 In my opinion, when you see that decrease  
18 in ultimate recovery from when -- you go from two to  
19 four, it's because the four wells are producing at  
20 increased gas/oil ratios. In the area of that unit  
21 you're depleting the reservoir energy and you are  
22 actually lowering your ultimate recovery. So by  
23 drilling more wells than are necessary, you are  
24 causing physical waste.

25 TECHNICAL EXAMINER EZEANYIM: But

1 initially, when you add those four wells, it seems  
2 to go up?

3 THE WITNESS: It goes up immediately.  
4 Because if you imagine when you put those wells  
5 three and four, you put those holes in the ground,  
6 those wells are encountering rock that no -- that  
7 are not right next to a well bore, so you see that  
8 incremental increase.

9 But what you see is that dramatic decrease  
10 in -- or increase in decline, or a rapid dropoff,  
11 like -- this isn't the best example, but you see  
12 that the flush production, when you drill wells  
13 three and four. And if the wells three and four  
14 were not competing for the same reserves, they're --  
15 they're going to decline on the same trend.

16 But when you see this dramatic change and  
17 steepening in decline, those wells are competing for  
18 what those wells are already producing.

19 So after you get out -- and timing is  
20 critical. Once you get out several months you're  
21 going to see this peak production, this increase in  
22 production, rapidly drop off. That's how that can  
23 occur.

24 TECHNICAL EXAMINER EZEANYIM: See, the  
25 data there is not really conclusive because you

1 don't have enough.

2 THE WITNESS: I think we actually have  
3 some better examples, but that -- that is how that  
4 occurs.

5 TECHNICAL EXAMINER EZEANYIM: Okay. Like  
6 I said, I don't want to -- if I start asking  
7 questions on all of these, we're not going to go  
8 home until 12:00 midnight, and I don't want that to  
9 happen. I think I've heard enough.

10 But I want to remind you that when I start  
11 looking at these, it means that I'm trying to do  
12 some calculations and I might need some more data.  
13 So in that case, you know, we do have to send  
14 e-mails to everybody saying I need this data, you  
15 know.

16 If we have -- even if it's confidential,  
17 we're not going to divulge it to whoever is not  
18 supposed to see anything. But I don't think there  
19 is anything confidential here that we haven't taken  
20 care of, you know. So I might be needing some more  
21 information, you know, to be able to come to a  
22 conclusion on this case.

23 Mr. Gore, you testified that sometimes you  
24 have a declining GOR. On what stage of depletion do  
25 you have a declining GOR?

1 THE WITNESS: Well, if you look at, for  
2 example, Craft & Hawkins, on -- for solution gas  
3 drive reservoirs, you'll see a typical GOR profile.

4 And what you see for -- you know, I will  
5 just try to draw it. You will see a very small,  
6 slight increase over time in the GOR. And it gets  
7 to the point -- and it's all dependent on reservoir  
8 pressure. The GOR will flatten out.

9 And then at the end of the life of the  
10 well, when pressure has been reduced and you have  
11 actually produced that gas, so there's -- there's  
12 not much, if any, gas left in the reservoir, you'll  
13 actually see that GOR start to decline. I think  
14 that's just a textbook generic description of a  
15 solution gas drive reservoir.

16 TECHNICAL EXAMINER EZEANYIM: You are  
17 right. That's the first stage. But most operators  
18 don't even get to that first stage. Before you get  
19 to the first stage you are already doing water  
20 flood, because you don't want to get to that stage.

21 Most operators don't get to the fourth  
22 stage. The fourth stage is -- you know, before you  
23 get to that fourth stage most operators are  
24 interested in water flood, which is more prevalent  
25 in the solution gas drive.

1           So -- but, yeah, you're right. Sometimes  
2 it might decrease, but that -- the fourth stage is  
3 very way back in the future. But I don't think it's  
4 correlated right here in this reservoir. It's not  
5 there yet.

6           THE WITNESS: We've not reached that  
7 point. You're correct.

8           TECHNICAL EXAMINER EZEANYIM: We haven't.  
9 But before we get there, I think even Burnett/Hudson  
10 will put in their water flood before we get to that  
11 stage you're talking about.

12          THE WITNESS: Well, I would disagree with  
13 you there, because Burnett/Hudson have no plans for  
14 a water flood. So...

15          TECHNICAL EXAMINER EZEANYIM: Oh, okay.  
16 Yeah. I mean --

17          THE WITNESS: But you're right. Assuming  
18 that a water flood -- the reservoir that you are  
19 talking about is a good candidate, you're right.  
20 You would implement that before you get to that  
21 point.

22          TECHNICAL EXAMINER EZEANYIM: Yeah.  
23 That's what I'm saying. But I am not telling  
24 Burnett/Hudson to do what I'm talking about.

25          THE WITNESS: Oh, sure. I understand.

1                   TECHNICAL EXAMINER EZEANYIM: Okay. Now  
2 we come to the crux of the matter. This may be the  
3 last question before we wrap it up here.

4                   The fourth application that was filed by  
5 Burnett/Hudson, there was a request for 240 barrels  
6 of oil per day, and then it was amended to 187.

7                   I didn't see something today to see how  
8 Burnett/Hudson had arrived at 187 or, for that  
9 matter, 240.

10                  Let's forget about 240, because they're  
11 not talking about 240 now. You took it off.

12                  But I would like to know why you changed  
13 your mind. Isn't that going to help me? But now  
14 you're asking for 187. I didn't see any evidence  
15 presented today to show that that's what exactly the  
16 pool is going to make.

17                  So did you have any study to demonstrate  
18 why -- how did you come up with 187? That's a  
19 simple question.

20                  THE WITNESS: We looked at -- I believe it  
21 was the first 12 months of production on all the  
22 wells, to look at the peaks. And to -- and also  
23 what's important is how those decline off.

24                  And what we observed is that if you had an  
25 allowable that was 187 barrels a day, you would

1 account for those peaks with the initial decline,  
2 and that would give you sufficient production  
3 averaged over a 12-month time period and balance,  
4 where operators would not have overproduction  
5 issues.

6 But that's -- that was the basis for the  
7 187, by just looking at the first 12 months of  
8 production for the Burnett wells and -- and seeing  
9 where, given the decline of the wells, where those  
10 would fall off. And 187 looked to be about the  
11 average rate.

12 TECHNICAL EXAMINER EZEANYIM: Oh, yeah.  
13 Is that the average -- average of the production?

14 THE WITNESS: It wouldn't be the exact  
15 average. Rather, it would be the rate at which the  
16 peak rates that we saw would -- would -- again,  
17 balanced over 12 months.

18 If you were able to produce at 187 barrels  
19 a day for 12 months, you would -- you would account  
20 for not only the peaks but the decline. And so in  
21 effect, it would be an average. It's not a  
22 mathematical average.

23 TECHNICAL EXAMINER EZEANYIM: Okay.

24 THE WITNESS: But in effect, it would be  
25 an average over those 12 months.

1 TECHNICAL EXAMINER EZEANYIM: Okay. Is  
2 there any harm -- if you are asking for 187 and I  
3 give you 200, is there any harm to you if I give you  
4 200?

5 THE WITNESS: No, sir.

6 TECHNICAL EXAMINER EZEANYIM: I mean it's  
7 an example.

8 THE WITNESS: As an example, I don't think  
9 200 would be any harm. The key, in my opinion, is  
10 the gas/oil ratio limit. If you went to 200 with a  
11 2,000 to 1, I don't think there would be any harm in  
12 that. The gas/oil ratio is the key component here.

13 TECHNICAL EXAMINER EZEANYIM: I understand  
14 that. We're talking about -- we are going to come  
15 back to the gas/oil ratio. We are going to come  
16 back to that.

17 But let me see if I have something else  
18 here.

19 So actually, the 187 was just peaked by  
20 looking at the data, the production data?

21 THE WITNESS: The first 12 months.

22 TECHNICAL EXAMINER EZEANYIM: It wasn't  
23 just a calculated?

24 THE WITNESS: That's correct.

25 TECHNICAL EXAMINER EZEANYIM: Okay.

1 I have a bunch of questions, but I don't  
2 want to keep asking you. Let me make some  
3 statements here.

4 Okay. I don't want to go back to you. I  
5 think you have been there for a long time, and I  
6 don't want to ask you more questions.

7 But I want to make a statement before  
8 closing statements, before we talk about closing  
9 statements, unless anybody has anything else to say  
10 before I say what I want to say now.

11 MS. MUNDS-DRY: Mr. Ezeanyim, we do have  
12 two witnesses we'd like to call in rebuttal.

13 TECHNICAL EXAMINER EZEANYIM: To what?

14 MS. MUNDS-DRY: To do rebuttal.

15 TECHNICAL EXAMINER EZEANYIM: Oh.  
16 Rebuttal on what?

17 MS. MUNDS-DRY: On their presentation  
18 today, as we discussed.

19 TECHNICAL EXAMINER EZEANYIM: How long is  
20 that going to take?

21 MS. MUNDS-DRY: I have cut it down to the  
22 bare bones. It will take 15 minutes.

23 TECHNICAL EXAMINER EZEANYIM: Okay. All  
24 right.

25 Mr. Gore, you may be excused.

1 THE WITNESS: Thank you.

2 TECHNICAL EXAMINER EZEANYIM: Okay. Call  
3 your witness.

4 MS. MUNDS-DRY: We would like to call  
5 Richard Prentice.

6 RICHARD PRENTICE,  
7 after having been previously duly sworn under oath,  
8 was questioned and testified further as follows:

9 EXAMINATION

10 BY MS. MUNDS-DRY:

11 Q. Mr. Prentice, you've been previously  
12 sworn?

13 A. Yes, I have.

14 Q. And you were previously qualified as an  
15 expert in petroleum engineering?

16 A. Yes, I was.

17 Q. I'd first like to turn, if we could, to  
18 Burnett's Exhibit 18, please.

19 A. (Witness complies.)

20 Q. Thank you.

21 Mr. Prentice, were you present for the  
22 testimony of Mr. Jacoby, when he discussed the  
23 difference in completions between Concho and  
24 Burnett?

25 A. Yes, I was.

1 Q. And could you please explain to the  
2 Examiner the effect of these large frac jobs, in  
3 your opinion, on secondary recovery operations?

4 A. Well, the impacts that I see on large  
5 fracs -- and he testified to frac lengths of over  
6 900 feet. Clearly, it is not -- and they just  
7 testified that they have no plans for secondary  
8 recovery.

9 There may be other people who do have  
10 plans for secondary recovery. Large frac lengths do  
11 not encourage sweep efficiencies. In fact, they  
12 decrease them dramatically. As you all -- as  
13 everybody knows, in the classical secondary  
14 recovery, you put water in the ground, you want to  
15 sweep.

16 With large frac -- large frac half lengths  
17 you're not sweeping anything, you're encouraging  
18 breakthrough. You are damaging the reservoir for  
19 potential secondary operations, in my view, with  
20 large frac jobs.

21 Q. And I know that Burnett's witness,  
22 Mr. Gore, just testified that Burnett has no present  
23 plans to conduct secondary recovery operations.

24 Does Concho have plans to conduct  
25 secondary recovery operations in this Yeso shelf?

1 A. Yes, we do.

2 Q. There was a number of slides -- and we  
3 don't need to turn to them necessarily, because I  
4 think --

5 MS. MUNDS-DRY: Actually, Mr. Ezeanyim,  
6 you asked earlier for the order number for that  
7 water flood. You asked for that yesterday, I  
8 believe.

9 TECHNICAL EXAMINER EZEANYIM: Yes.

10 MS. MUNDS-DRY: And for the record, we  
11 have a copy of this that we can give you if you'd  
12 like. But it's Order Number R12792.

13 TECHNICAL EXAMINER EZEANYIM: 12792?

14 MS. MUNDS-DRY: And Case Number 13898.

15 TECHNICAL EXAMINER EZEANYIM: Okay.

16 Q. (By Ms. Munds-Dry) Mr. Prentice, Burnett  
17 presented a number of slides in what I referred to  
18 as a water flood area in Section 20. And the letter  
19 numbers were B, C, D, E, and --

20 A. D, E, F, and G, I believe.

21 Q. Yes. Thank you for helping me with that.  
22 Are you responsible for that water flood  
23 for Concho?

24 A. Yes, I am.

25 Q. What can you tell the Examiner about the

1 operations, the secondary recovery operations in the  
2 Jenkins and how they may impact those slides that  
3 were presented?

4 A. Those -- the Jenkins water flood was a  
5 water flood established on 160 acres, those four  
6 40-acre units that we talked about.

7 It was established in 2007 as a 5-acre --  
8 I mean as a 20-acre, 5-spot pilot water flood.  
9 Over -- and over -- over time, as we learned to our  
10 dismay -- this was a science experiment. And as you  
11 all know, not all science experiments work out like  
12 you want them to.

13 This was a 5-spot; that is, four injectors  
14 with a producer in the middle.

15 As it turns out, the water went north and  
16 south, so a perfect setup to water out each and  
17 every well in our 160-acre pilot.

18 We have since realigned that on a  
19 north/south directional -- north/south line-drive  
20 type water flood, and we are waiting for a response.

21 Q. So has the initial response you've  
22 received in that water flood deterred you from  
23 future secondary recovery operations?

24 A. Oh, no. We are -- we are a company of  
25 persistence, and we are trying again to get it

1 right.

2 Q. Mr. Prentice, before we turn to the next  
3 topic, Mr. Ezeanyim has asked a couple of times, I  
4 think throughout this hearing, if anybody had any  
5 PVT analysis, bubble point numbers, and initial  
6 pressure.

7 Could you please share with Mr. Ezeanyim  
8 that information which he's been asking for?

9 A. Yes. As you are aware, we have taken PVT  
10 analysis. The compositional analysis that we  
11 submitted earlier was part of that PVT analysis.

12 Another PVT part of that was the bubble  
13 point data. We have bubble points ranging from  
14 about 2,100 pounds to about 2,600 pounds, again,  
15 depending on where you are on the whole Yeso shelf  
16 area.

17 Q. What do you -- what can you tell us about  
18 bubble point?

19 A. We have a -- in a -- typically in a  
20 reservoir like this, you are either very close to or  
21 maybe a little bit above bubble point when you start  
22 production. We have indications that we have bottom  
23 hole pressures in the range of 26- to 2,700 pounds,  
24 initially. So we are perhaps in a classical  
25 dilemma, or classical situation, where we are right

1 at or perhaps a bit above bubble point, it appears  
2 to us to be the picture right now.

3 Q. And did you mention what analysis, if any,  
4 you've determined as to what initial pressure was?

5 A. Yes. We ran bottom hole buildups on some  
6 of our new wells recently, in the last year or so.

7 Q. And what numbers did you see?

8 A. 2,600, 2,700 pounds.

9 Q. Okay. Let's turn to the next topic, if we  
10 could. I want to talk about the density requests by  
11 Burnett, if we could.

12 MS. MUNDS-DRY: And I'll ask Mr. Rankin to  
13 pass out these documents, if you would, please.

14 Q. (By Ms. Munds-Dry) Mr. Prentice, if we  
15 could, I'm looking at, first, the paper titled SPE,  
16 27640.

17 A. Yes.

18 Q. Could you identify what this -- what this  
19 document is?

20 A. This is a document on the Fulton Clear  
21 Fork unit in Andrews County, Texas, a Clear Fork  
22 unit that is operated -- was operated by Exxon at  
23 one point in time, I believe.

24 Q. And do you recall -- and we don't  
25 necessarily need to put the slide up -- Burnett's

1 Exhibit Number 6, which showed the Yeso Clear Fork  
2 productive trends?

3 A. Yes. I think testimony has been presented  
4 by both companies that basically agrees that the  
5 Clear Fork in Texas is the same as the Yeso in  
6 New Mexico.

7 Q. And if you could, I would point you to the  
8 first page of the introduction, about two-thirds of  
9 the way down. I would like to ask you to summarize  
10 or read for us -- it's easier just to read there --  
11 it starts with "A pilot."

12 A. "A pilot 10-acre unit" --

13 MR. GRABLE: Pardon me.

14 THE WITNESS: Yes.

15 MR. GRABLE: Mr. Brooks, before he starts  
16 reading this in the record, I will object to  
17 introduction of large portions of this paper, either  
18 as an exhibit or by reading them, on the ground that  
19 it's hearsay. The authors, who are one, two, three,  
20 four people, are not here to testify. There's no  
21 evidence that this Clear Fork in Texas on the  
22 Central Basin platform is anywhere close to  
23 comparable to the rock quality and the fluid  
24 saturations in the Yeso in this part of New Mexico.

25 The conclusions reached by these authors

1 in a different field hundreds of miles away with  
2 different rock properties, saturations, is, in my  
3 view, of no relevance, and it is hearsay, and I  
4 object to it.

5 MS. MUNDS-DRY: Well, for one thing, we  
6 know that one of the exceptions to the hearsay rule  
7 is learned treatises, which this is a peer review.  
8 All the engineers in this room will recognize this  
9 as a very well-respected publication. It's a  
10 treatise that these engineers rely on. In fact,  
11 earlier, Mr. Jacoby mentioned that he was part of  
12 this process.

13 In addition, Burnett, first of all, has  
14 never testified -- in fact, the testimony earlier  
15 today was that they were not aware what the porosity  
16 or permeability was. So Mr. Grable's suggestion  
17 that they're different, there's no -- there has been  
18 no evidence of that today given by Burnett.

19 MR. GRABLE: Well, there's certainly no  
20 evidence that they're the same. And she is the  
21 proponent of this evidence, and she would have to  
22 connect it up to show relevance.

23 Even if it -- if they could get over the  
24 hearsay example, and I don't think this comes within  
25 learned treatise, because it's not -- it's first got

1 to be on the same point that we've got in. So I  
2 mean I just think it's far-fetched and --

3 MS. MUNDS-DRY: The testimony earlier  
4 today was that this was -- the Yeso was a Clear Fork  
5 equivalent.

6 LEGAL EXAMINER BROOKS: Well, the -- I  
7 remember that testimony.

8 I'm going to overrule the objection. The  
9 learned treatise exception is somewhat obsolete, I  
10 think in character, given the subsequent development  
11 of the proposition that hearsay evidence that an  
12 expert relies on in forming his opinions, if it's  
13 reasonable for an expert to rely on it, is  
14 considered admissible.

15 I am a little concerned about bringing in  
16 a large mass of new evidence this late in the  
17 proceeding by way of rebuttal, but I guess we'll  
18 leave that to discretion.

19 If you -- you said that the rebuttal would  
20 take 15 minutes with two witnesses, and you've  
21 already used 10 with one witness.

22 MS. MUNDS-DRY: Well, we have argued a  
23 great deal already about whether this should be  
24 admitted or not.

25 LEGAL EXAMINER BROOKS: Yes. Well, I'm

1 going to overrule the objection. We'll need to get  
2 these marked if you're going to put them in  
3 evidence.

4 MS. MUNDS-DRY: We will do that. And we  
5 promise to be very brief with them.

6 LEGAL EXAMINER BROOKS: Okay. Continue.

7 MS. MUNDS-DRY: Thank you.

8 Q. (By Ms. Munds-Dry) Mr. Prentice, if we  
9 could, I would direct you again to the first page,  
10 the introduction. It starts with "A pilot."

11 A. "A pilot 10-acre" --

12 TECHNICAL EXAMINER EZEANYIM: Wait a  
13 minute. Where are you reading?

14 MS. MUNDS-DRY: I'm reading -- if you go  
15 down to the introduction, where it says  
16 introduction.

17 TECHNICAL EXAMINER EZEANYIM: Okay.

18 MS. MUNDS-DRY: At about two-thirds down  
19 it starts, "A pilot."

20 TECHNICAL EXAMINER EZEANYIM: Okay. Go  
21 ahead.

22 MS. MUNDS-DRY: Do you see it,  
23 Mr. Ezeanyim?

24 TECHNICAL EXAMINER EZEANYIM: Yes. Go  
25 ahead.

1 MS. MUNDS-DRY: (Reading) A pilot 10-acre  
2 infill drilling program was initiated in 1986.  
3 Current development is occurring on 10-acre spacing  
4 in the developed areas of the field, in addition to  
5 the drilling of selected 20- to 40-acre locations in  
6 less developed areas of the field.

7 Q. (By Ms. Munds-Dry) Mr. Prentice, is that  
8 your experience in the Clear Fork area?

9 A. Yes. It is my experience that typically  
10 Clear Fork water floods in Texas operate on 10-acre  
11 spacing.

12 Q. And I think, for the sake of brevity,  
13 we're just going to do one more of these so we don't  
14 tax the Examiners' patience.

15 A. That's fine.

16 TECHNICAL EXAMINER EZEANYIM: So what is  
17 the point of reading that?

18 THE WITNESS: The point is that there are  
19 two points here. A, the Clear Fork is -- is clearly  
20 a candidate for secondary recovery.

21 B, it is usually done on 10-acre spacings.  
22 Those are the two points that we want to make, sir.  
23 It crosses over all four papers.

24 Q. (By Ms. Munds-Dry) Thank you,  
25 Mr. Prentice. And if I could next direct you to

1 what is titled SPE 84282.

2 A. Yes.

3 Q. And if I could direct you to the first  
4 page of the introduction, about three or four  
5 sentences in, where it starts with "Consequently,"  
6 I'll read it for the court reporter.

7 (Reading) Consequently, infill drilling is  
8 required not only to increase recoveries from  
9 primary production, but also to enhance sweep  
10 efficiencies and improve recovery from secondary and  
11 tertiary enhanced oil recovery operations.

12 Mr. Prentice, do you agree with that  
13 statement?

14 A. Yes, I do.

15 Q. And is that the recommendation you have  
16 for the Yeso shelf in New Mexico?

17 A. Yes, it is.

18 MS. MUNDS-DRY: I have nothing further for  
19 Mr. Prentice.

20 Oh, I would like to mark these, if I  
21 could. The document entitled SPE 27640, Exhibit 44,  
22 and the document SPE 84282, Exhibit -- Concho  
23 Exhibit 45. We ask that they be admitted into  
24 evidence.

25 MR. GRABLE: I thought the first one was

1 43.

2 MS. MUNDS-DRY: I think it's 44. I think  
3 that is where we are numerically.

4 LEGAL EXAMINER BROOKS: Now, which was  
5 which?

6 MS. MUNDS-DRY: 44 is SPE 27640.

7 LEGAL EXAMINER BROOKS: 27640?

8 MS. MUNDS-DRY: Yes, sir.

9 TECHNICAL EXAMINER EZEANYIM: Okay.

10 LEGAL EXAMINER BROOKS: And that's 43?

11 MS. MUNDS-DRY: 44.

12 LEGAL EXAMINER BROOKS: 44.

13 And 84282 is COG Exhibit 45?

14 MS. MUNDS-DRY: Yes, sir.

15 TECHNICAL EXAMINER EZEANYIM: Okay.

16 LEGAL EXAMINER BROOKS: You're proposing  
17 to admit these papers in their entirety?

18 MS. MUNDS-DRY: Well, you know, we can do  
19 the first pages of each. I mean that's what we  
20 read. If that's more palatable to you, then I have  
21 no problem with that.

22 MR. GRABLE: The first pages coming in  
23 under -- I don't think it's a rule of optional  
24 completeness. I'm too tired at this point.

25 There may be some useful stuff in here,

1 like what the porosities and permeabilities are in  
2 these reservoirs that have produced since the 1940s,  
3 as traditional reservoirs without hydraulic  
4 fracture, that are utterly completely dissimilar  
5 from those tight Yesos. So there may be some data  
6 buried in here that I think would be helpful to  
7 Mr. Ezeanyim. And it seems --

8 LEGAL EXAMINER BROOKS: Well, I'm not --  
9 as an examiner, I'm not objecting to anything. I  
10 was just anticipating that you might.

11 MR. GRABLE: I don't know whether I want  
12 it all in or -- I don't want any of it in, but I  
13 kind of lean toward if any of it comes in, just let  
14 it all come in, because we might point out some good  
15 stuff in here.

16 And I may ask Mr. Ezeanyim to file a  
17 late-filed exhibit showing the reservoir  
18 characteristics of these reservoirs, and showing how  
19 they are markedly different from the reservoir in  
20 question, since have I not had the opportunity to do  
21 that. But anyway, my preference would be --

22 MS. MUNDS-DRY: They submitted an exhibit  
23 earlier today, Exhibit Number 6, where they showed  
24 the trend of the Yeso and the Clear Fork. They had  
25 every opportunity to testify about the similarity or

1 the differences.

2 LEGAL EXAMINER BROOKS: Well, there's no  
3 need for argument, because there is not really an  
4 objection before us.

5 So Exhibits 44 and 45 will be admitted.

6 MS. MUNDS-DRY: Thank you.

7 MR. GRABLE: I have some questions for  
8 you, Mr. Prentice.

9 TECHNICAL EXAMINER EZEANYIM: Go ahead.

10 EXAMINATION

11 BY MR. GRABLE:

12 Q. Mr. Prentice, in your opinions that you  
13 have expressed with respect to Exhibits 44 and 45,  
14 are you intending to tell the Examiners that the  
15 rock qualities in the Fork and Clear Fork in  
16 Andrews, Texas, are similar to the rock qualities in  
17 the Yeso field in Eddy and Lea County, New Mexico?

18 A. It's my opinion that the Clear Fork in  
19 the -- across the shelf area, across the basin, is  
20 probably very similar to the Clear Fork and Yeso in  
21 Southeast New Mexico.

22 Q. As far as the porosity, permeability, and  
23 fluid saturations?

24 A. It's probably very likely, yes.

25 MR. GRABLE: Well, we may want to

1 challenge that with some late-filed exhibits.

2 Q. (By Mr. Grable) Let me ask you this. If  
3 they are not similar, if the Texas Clear Fork fields  
4 are more porous, more permeable, and have higher oil  
5 saturations, would they be comparable to these Yeso  
6 fields?

7 A. I can't see them being more. I would tend  
8 to think they would be much less.

9 Q. Maybe we'll find out.

10 A. Maybe we will.

11 TECHNICAL EXAMINER EZEANYIM: You want me  
12 to go to Texas now?

13 Q. (By Mr. Grable) One other question. In  
14 your first bit of testimony about objecting to long  
15 frac half lengths in this field, because of its  
16 possible adverse effect on a potential water flood,  
17 do you remember that testimony?

18 A. Yes, sir.

19 Q. Isn't it a fact that every geologist and  
20 engineer, for that matter -- and I believe yours, if  
21 we could look back at your testimony -- is that this  
22 reservoir, some thousand feet thick, is actually a  
23 series of lenticular stratigraphically separate  
24 accumulations?

25 A. Yes, sir, I do.

1 Q. So the only way you could sweep that with  
2 a water flood is if you connect those various  
3 stratigraphic pods, right?

4 A. My point is, on the frac length itself,  
5 you've extended the frac lengths to the point that  
6 you -- if you do, indeed, conduct secondary  
7 operations, you provide a path for breakthrough  
8 between a potential pressure sink and a pressure  
9 source.

10 Q. But they're not going to put -- didn't  
11 Mr. Midkiff put up his little cloud exhibit --

12 A. Yes, sir.

13 Q. -- or his pod exhibit?

14 And unless those separate lenses are  
15 connected by fracking, you cannot sweep from one to  
16 the other, can you?

17 A. On 10-acre spacing you probably can, sir.

18 Q. You can sweep from one lenticular  
19 stratigraphic accumulation of hydrocarbons that's  
20 not in actual communication with another without  
21 fracking between them?

22 A. Fracturing and -- as a combination of  
23 infill drilling to 10 acres. That's the idea of  
24 infill drilling and water flow, sir. It's a  
25 well-established principle, sir.

1 Q. Thank you.

2 MR. GRABLE: That's all I have of this  
3 witness.

4 THE WITNESS: Thank you.

5 TECHNICAL EXAMINER EZEANYIM: Thank you.  
6 Anything further?

7 MR. CAMPBELL: No questions.

8 TECHNICAL EXAMINER EZEANYIM: You may be  
9 excused.

10 MS. MUNDS-DRY: I would like to call  
11 Mr. Midkiff, please.

12 TECHNICAL EXAMINER EZEANYIM: Okay.

13 TJ MIDKIFF,  
14 after having been previously duly sworn under oath,  
15 was questioned and testified further as follows:

16 EXAMINATION

17 BY MS. MUNDS-DRY:

18 Q. Mr. Midkiff, do you recall -- and I'll put  
19 these in front of you -- Burnett's Exhibits 41B  
20 through E?

21 A. Yes, ma'am.

22 Q. And as we understand, the point of those  
23 exhibits was to show interference on 10-acre  
24 spacing?

25 A. Yes, ma'am.

1 Q. And do you happen to know what the -- and  
2 since I gave them to you, I don't know which one is  
3 the Park lease. Is it 41C?

4 A. Yes.

5 Q. Do you happen to know what the current  
6 production rate is on that lease?

7 A. Yes. The current production rate for  
8 that -- that lease for those four wells is  
9 approximately 100 barrels a day.

10 MR. GRABLE: Which exhibit is this? I'm  
11 sorry.

12 MS. MUNDS-DRY: 41C.

13 THE WITNESS: The fourth well drilled  
14 within that proration unit was the strongest well  
15 and cum'd 48,000 barrels in the first year.

16 TECHNICAL EXAMINER EZEANYIM: 100 barrels  
17 a day for the well?

18 THE WITNESS: No, no, no. 100 barrels a  
19 day total for the proration unit.

20 TECHNICAL EXAMINER EZEANYIM: Okay.

21 THE WITNESS: So the forecast there  
22 indicates it's probably around 30 barrels a day, but  
23 that's actually producing at 100 barrels a day right  
24 now.

25 Q. (By Ms. Munds-Dry) You presented a -- in

1 your original testimony, which we don't need to go  
2 back to -- cross-sections showing what you show as  
3 10-acre offsets in some Burnett wells, correct?

4 A. Yes.

5 Q. And that was on Exhibit Number -- let me  
6 pass that out. That was Exhibit Number -- do you  
7 happen to know that number off the top of your head?

8 A. No, I do not.

9 Q. It was the Burnett wells and the Stevens  
10 wells.

11 A. Yes.

12 Q. I've handed you what we're going to mark  
13 as Concho Exhibit 46.

14 Would you identify and review this display  
15 for the Examiner please?

16 A. Yes. There seems to be some sort of  
17 confusion between 10-acre horizontal development and  
18 10-acre vertical development.

19 If you drill two horizontal wells through  
20 a proration unit, and if you look at where that well  
21 is completed, you're seeing multiple completions.

22 In fact, I've represented -- with dots there, I'm  
23 representing the horizontals that -- where those  
24 vertical wells would exist had that been developed  
25 vertically.

1           So you can see that there are completions  
2     in that exact same spot within the reservoir. There  
3     is no difference. In fact, this is probably tighter  
4     than 10-acre spacing, because their typical  
5     perforation spacing is approximately 200 feet.

6           So there is an attempt there -- those  
7     perforations cost money, so there is an attempt  
8     there to complete the well bore on -- on tighter  
9     than 10-acre spacing. There's no difference, or  
10    there's -- that cannot be considered only two well  
11    bores. That's 10-acre spacing.

12          Q.     And again, your point there was to show  
13    what, with respect to interference between 10-acre  
14    spacing?

15          A.     There was no interference in those wells  
16    in 10-acre spacing. In fact, one of the exhibits  
17    show that wells that were within 140 feet of each  
18    other, perforations within 140 feet of each other,  
19    there was no interference.

20          Q.     I'd like to turn now to the issue about  
21    whether high GOR prematurely exhausts reservoir  
22    energy.

23          A.     Yes.

24          Q.     I'm going to hand you what we're going to  
25    mark as Concho Exhibits 47, 48, and 49, please.

1           Mr. Midkiff, for the record, I have marked  
2 as Exhibit 47 a document entitled "COG Total Yeso  
3 Production Curve."

4           A.     Yes.

5           Q.     Could you please identify and review this  
6 for the Examiner?

7           A.     Yes. What this shows is --

8           LEGAL EXAMINER BROOKS: Just a minute.

9           MS. MUNDS-DRY: I apologize.

10          THE WITNESS: Oh, I'm sorry. You told me  
11 to be fast, so I was --

12          LEGAL EXAMINER BROOKS: Well, we can't be  
13 too fast. We need to know which of these is which.

14          MS. MUNDS-DRY: Exhibit 47 is COG total  
15 Yeso production. I apologize.

16          LEGAL EXAMINER BROOKS: Okay. COG total  
17 Yeso total production curve. That's 46?

18          MS. MUNDS-DRY: 47.

19          TECHNICAL EXAMINER EZEANYIM: 47.

20          Okay.

21          MS. MUNDS-DRY: I'll wait until opposing  
22 counsel gets their copy of that.

23          LEGAL EXAMINER BROOKS: Okay. Which is 48  
24 and which is 49?

25          MS. MUNDS-DRY: 48 is the Burnett total

1 Yeso production curve.

2 TECHNICAL EXAMINER EZEANYIM: Burnett?

3 MS. MUNDS-DRY: 49 is the total Yeso  
4 production curve.

5 TECHNICAL EXAMINER EZEANYIM: Okay.

6 MS. MUNDS-DRY: Thank you.

7 Q. (By Ms. Munds-Dry) Mr. Midkiff, please  
8 review, first, Exhibit 47 for the Examiner.

9 A. That's the COG plot?

10 Q. Yes, sir.

11 A. A representation was made earlier that I  
12 guess this was supposed to apply across this entire  
13 shelf and that, you know, as we drill on 10 acres  
14 that everywhere our GORs are going out the roof.  
15 Well, a large portion of Concho's drilling is on  
16 10-acre spacing.

17 And if you look down at the bottom, it's  
18 difficult to see, that our -- that's the GOR line  
19 down at the bottom. If you actually look, our GOR  
20 is trending down.

21 Q. And that's sort of a -- I would call it a  
22 fuchsia color or a pink color?

23 A. Yes. It's hard to see there, yes.

24 TECHNICAL EXAMINER EZEANYIM: Are you  
25 talking about 47?

1 THE WITNESS: Yes, the COG curve, the one  
2 that says COG.

3 TECHNICAL EXAMINER EZEANYIM: Okay. COG  
4 curve. What is that -- this one here (indicating)?

5 THE WITNESS: Do what? I'm sorry?

6 TECHNICAL EXAMINER EZEANYIM: This one  
7 here (indicating) --

8 THE WITNESS: That's the GOR right there  
9 (indicating), yes, sir. That is every well that  
10 Concho produces within the Yeso, summed up right  
11 there.

12 TECHNICAL EXAMINER EZEANYIM: Okay. That  
13 is the GOR?

14 THE WITNESS: Yes, sir.

15 TECHNICAL EXAMINER EZEANYIM: Okay. The  
16 average or total of what --

17 THE WITNESS: Yes, sir. Yes, sir.

18 TECHNICAL EXAMINER EZEANYIM: All the way  
19 from 1993 to 2011?

20 THE WITNESS: Yes, sir.

21 TECHNICAL EXAMINER EZEANYIM: Okay.

22 Q. (By Ms. Munds-Dry) And what does this  
23 show you with respect to what the GOR has been in  
24 COG's Yeso production?

25 A. Yes. Since COG took over operations, you

1 have seen our total GOR decrease over that time  
2 frame. This is every well, and you have seen our  
3 GOR decrease.

4 Q. Let's go to Exhibit 48, of Burnett.

5 TECHNICAL EXAMINER EZEANYIM: Before you  
6 go, I need to understand the axis so I can read  
7 this.

8 THE WITNESS: On the -- the Y axis is in  
9 daily rates, and you've got oil, gas, and water on  
10 there with a well count. So it's a -- and then down  
11 at the bottom, it -- it's all on the one axis to the  
12 right -- or to the left.

13 TECHNICAL EXAMINER EZEANYIM: Okay. Daily  
14 production?

15 THE WITNESS: Yes, sir.

16 TECHNICAL EXAMINER EZEANYIM: And  
17 that's -- okay.

18 Q. (By Ms. Munds-Dry) Let's go to Exhibit  
19 Number 48, please.

20 TECHNICAL EXAMINER EZEANYIM: I want to  
21 understand what this is.

22 MS. MUNDS-DRY: Oh, I'm sorry,  
23 Mr. Ezeanyim. I didn't mean to interrupt you.

24 TECHNICAL EXAMINER EZEANYIM: Okay. The  
25 first one is gas/oil ratio, the first column, that

1 is not very clear?

2 THE WITNESS: Yes.

3 TECHNICAL EXAMINER EZEANYIM: What is this  
4 one (indicating)?

5 THE WITNESS: That is well count.

6 TECHNICAL EXAMINER EZEANYIM: Well count.  
7 And then the green is the oil production?

8 THE WITNESS: Yes, sir.

9 TECHNICAL EXAMINER EZEANYIM: And then  
10 what are the other two colors? What are those?

11 THE WITNESS: The blue is water and the  
12 red is gas production.

13 TECHNICAL EXAMINER EZEANYIM: Okay. I am  
14 just troubled by the gas/oil ratio. What's the  
15 highest gas/oil ratio you have there?

16 THE WITNESS: It looks to be, right before  
17 we took over operations, approximately 4,000 -- it's  
18 difficult to see on that axis, but it's right there  
19 around 4,000, yes, sir.

20 TECHNICAL EXAMINER EZEANYIM: Okay.

21 THE WITNESS: And that is -- that is down  
22 now to approximately -- I guess maybe 2,500, since  
23 we began operating.

24 TECHNICAL EXAMINER EZEANYIM: When did you  
25 start, 2007?

1 THE WITNESS: Yes, sir. The majority of  
2 our -- our operations began around 2006/2007.

3 TECHNICAL EXAMINER EZEANYIM: Okay.

4 Now, you are -- go to the next.

5 MS. MUNDS-DRY: Thank you.

6 Q. (By Ms. Munds-Dry) Mr. Midkiff, if you  
7 will review Exhibit 48, please.

8 A. Yes. This is a total plot for everything  
9 that Burnett operates within the Yeso. It's the  
10 exact same plot as before. And you can see that  
11 their wells are not quite as old as ours, and so you  
12 probably don't expect as high of GORs as ours. But  
13 that -- that's a total curve for their Yeso  
14 production as well.

15 Q. And what does it show as their -- I know  
16 it's hard to read there -- the current GOR for their  
17 wells?

18 A. Well, we -- they actually have the same  
19 current GOR as we do across their entire production.  
20 It's right there around 2,500.

21 Q. And, Mr. Midkiff, assuming the Examiner is  
22 ready, if we can go to Exhibit 49.

23 What does this show us?

24 A. This is just the total Yeso curve for  
25 everybody across the shelf. This is all wells.

1 There's a couple of erratic points where it seems  
2 that the public data was a little bit incomplete,  
3 but that is representative of all Yeso production  
4 across the shelf.

5 Q. And there's a spike here at the end before  
6 we get to 2011. Do you have any explanation for  
7 that?

8 A. No. That just appears to be -- like I  
9 say, sometimes the data is a bit -- it has -- they  
10 have to catch up, and that appears to just be an  
11 error there at the end.

12 Q. So, Mr. Midkiff, what can you conclude  
13 from Exhibits 47, 48, and 49?

14 A. Well, that there -- there seems to be  
15 no -- no negative effects on the GOR. In fact, you  
16 know the main point is that -- that the majority of  
17 Concho's operations are drilling on 10-acre spacing,  
18 and you can see the effect that that has had on our  
19 GOR. You can't take a couple of data points and  
20 extrapolate that out across the entire play. You  
21 have to look at the whole picture, as I stressed in  
22 my main testimony.

23 And if you look at the whole picture you  
24 can see what we're doing to our GOR.

25 MS. MUNDS-DRY: Unless Mr. Ezeanyim has

1 any questions on that, I'd like to move on to a new  
2 topic.

3 TECHNICAL EXAMINER EZEANYIM: Do you have  
4 more topics?

5 MS. MUNDS-DRY: One more.

6 TECHNICAL EXAMINER EZEANYIM: Okay. Go  
7 ahead.

8 Q. (By Ms. Munds-Dry) Mr. Ezeanyim and  
9 others in this proceeding have talked about the  
10 effects of PHI-H.

11 A. Yes.

12 Q. And I'm handing out what has been marked  
13 as Concho Exhibit Number 50, which is titled  
14 "Paddock EUR versus SO PHI-H."

15 And Concho Exhibit 51, which is titled  
16 "Paddock EUR versus PHI-H."

17 And we will wait until everyone gets a  
18 copy of those.

19 LEGAL EXAMINER BROOKS: Okay. The one  
20 that's "Paddock EUR versus SO PHI-H," that is  
21 Exhibit 50?

22 MS. MUNDS-DRY: Yes, sir.

23 LEGAL EXAMINER BROOKS: The one that's  
24 marked "Paddock EUR versus PHI-H" is Exhibit 51?

25 MS. MUNDS-DRY: Yes, sir.

1           LEGAL EXAMINER BROOKS: Okay. Thank you.

2           Q.       (By Ms. Munds-Dry) And, Mr. Midkiff, I  
3 would like you to explain this. And if you could, I  
4 believe -- I'll direct everyone's attention to what  
5 is Burnett's Exhibit Number 25, which is the  
6 Blinebry producer drainage calculations.

7           A.       Yes. Well, one of the -- the main focus  
8 that seemed to be of Burnett's testimony was on log  
9 interpretation and PHI-H calculations and how that  
10 allowed them to target zones within the reservoir.

11                   And there's -- you know, I presented  
12 testimony on -- on -- in my main testimony about how  
13 those -- those correlations, you know, seem to be  
14 invalid.

15                   And there was an attempt to invalidate, I  
16 guess, the correlation I made there. So what I did  
17 was I looked at it using the data that Burnett  
18 provided using their PHI-H numbers and their EURs.

19                   And if you look at these, there was -- you  
20 know, they mentioned that SO PHI-H was probably the  
21 better way to look at it, so they did provide us  
22 those numbers. And you draw the same conclusion.  
23 There is absolutely no correlation.

24                   And the problem with that is, if you're  
25 only targeting what shows up at the well bore, you

1 run a significant risk of not capturing other  
2 reserves within the reservoir.

3 Q. I think I meant to refer to Burnett  
4 Exhibit 28. That's the -- you got these numbers  
5 from the table -- the drainage area calculations?

6 A. Yes. That was straight from their  
7 exhibits.

8 Q. And the second side, Exhibit 51, what does  
9 this show?

10 A. Just the EUR versus PHI-H?

11 Q. Yes.

12 A. The same -- the same correlation. Like I  
13 said, there's -- you know, there was a question  
14 about how to look at it, whether PHI-H versus SO  
15 PHI-H. Either way you look at it there's absolutely  
16 no correlation.

17 Q. Based on what we have been presented here  
18 today, Mr. Midkiff, have you looked at -- I don't  
19 know if you have looked at the calculations. But if  
20 you were to -- if all the operators in this pool, in  
21 these pools the subject of Concho's application,  
22 were to avoid overproduction, what would the  
23 allowable have had to have been?

24 A. To -- you probably would need at least  
25 300 barrels a day, and at least a 4,000 to 5,000 to

1 1 GOR.

2 Q. And if we were looking back and looking at  
3 Burnett's application, and they requested a  
4 187-barrel allowable, without the balancing rule,  
5 would Concho be overproduced?

6 A. Everybody within the shelf would be  
7 overproduced -- well, I say that. I don't know if  
8 each individual operator was. But I do have a total  
9 overproduction for the shelf, and a large part of  
10 that would be Concho's. And that number, you  
11 would -- you would -- total overproduction for the  
12 shelf would still be -- I believe it's about  
13 750,000 barrels of overproduction and approximately  
14 1.6 BCF of overproduction.

15 Q. Thank you.

16 MS. MUNDS-DRY: I pass the witness.

17 TECHNICAL EXAMINER EZEANYIM: Mr. Grable?

18 MR. GRABLE: I will be very brief. I'm  
19 about out of time, anyway.

20 EXAMINATION

21 BY MR. GRABLE:

22 Q. Mr. Midkiff, I put up on the board here  
23 Burnett Exhibit 42, the GOR map. Did you review  
24 that considering Mr. Gore's testimony?

25 A. Yes, I did.

1 Q. And you see down here that he had computed  
2 the average produced GOR of COG and Burnett,  
3 cumulative production, the first barrel to the most  
4 recent month.

5 And there's a big difference between the  
6 two operators in cumulative production, isn't there?

7 A. Yes, sir. Our production is much older,  
8 and you would expect a higher GOR.

9 Q. Now, in -- I confess I can't read, and I  
10 would like -- it would be useful if you could either  
11 give us the data or give us drafts that have -- that  
12 are readable. I can't tell what the numbers are.

13 But assuming that the numbers are what  
14 Mr. Midkiff testified to, wouldn't your GORs be  
15 coming down because of some of this more recent  
16 drilling up to the north that produces at lower GORs  
17 with your newer wells?

18 A. That is possible. But if you actually  
19 look at some of my main testimony, you can see that  
20 as a third and fourth well was added in many of  
21 those proration units, you saw GOR drop total across  
22 those proration units, indicating that you were  
23 intersecting new reserves there.

24 Q. Are you now adopting the view that GOR is  
25 important, by offering this evidence?

1           A.     I -- I still believe that -- and again,  
2     I'm not aware of anybody that has a -- has had a  
3     strict habit of -- of curtailing production or  
4     restricting production. I have not seen that.

5                 But I have looked at production across the  
6     shelf, and there has been no indication of harm  
7     through that total unrestricted production.

8           Q.     On your exhibits -- I think they are 50  
9     and 51, but I can't remember what the numbers are --  
10    did you correct for any of the factors that Mr. Gore  
11    mentioned, other than using oil-saturated PHI-H  
12    rather than gross PHI-H?

13          A.     Well, I believe -- you know the first one  
14    there is location and structure. Obviously, all of  
15    these wells are within the same area.

16                 The first well versus fourth well, that's  
17    not applicable because you only have two wells, as  
18    they claim.

19                 The type of stimulation, I believe that  
20    they -- what he claimed was the reason he did  
21    drainage calculations on these wells is because they  
22    had all had similar characteristics. And I guess if  
23    they weren't stimulated similarly, I guess maybe the  
24    drainage calculations wouldn't even be accurate.

25                 But I believe the interp- -- or the

1 presentation was that these were similar wells.

2 Q. I don't think that was the presentation,  
3 but we'll let the record stand for it.

4 But if only a few of these wells received  
5 a slickwater frac and a lot of them had hot acid  
6 fracs, they wouldn't be comparable, would they?

7 A. Well, you -- again, you could pull out a  
8 few data points if you wanted to, but I don't know  
9 how many data points you pull out to begin seeing a  
10 correlation there.

11 Q. Well, you heard the testimony about the  
12 better results Burnett has achieved with its recent  
13 slickwater fracs, didn't you, Mr. Midkiff?

14 A. I did see that they had higher initial  
15 production, yes, sir.

16 Q. And if -- if that's true, why -- why would  
17 Burnett's wells be better unless it is related to  
18 their selective perforations and different  
19 stimulation techniques?

20 A. Well, I believe it was stated earlier that  
21 they were getting approximately 900 feet of frac  
22 half length. And if you're -- if you're connecting  
23 that much reservoir, there's a good chance you're  
24 going to get some IP -- I mean some pretty good IPs.

25 MR. GRABLE: I pass the witness.

1 TECHNICAL EXAMINER EZEANYIM: Okay.

2 MR. COONEY: No questions.

3 TECHNICAL EXAMINER EZEANYIM: Okay.

4 Now, what do you want me to do with these  
5 Exhibits Number 46 through 51?

6 MS. MUNDS-DRY: We'd ask that they be  
7 admitted into evidence, please.

8 TECHNICAL EXAMINER EZEANYIM: Any  
9 objection?

10 MR. GRABLE: All right. Now, we're  
11 dealing with --

12 MS. MUNDS-DRY: 46 through 51.

13 MR. GRABLE: No objection.

14 TECHNICAL EXAMINER EZEANYIM: Okay.  
15 Exhibits 46 through 51 will be admitted.

16 Any more questions for this witness?

17 MS. MUNDS-DRY: No, sir.

18 TECHNICAL EXAMINER EZEANYIM: Okay.

19 Before we go to closing statement, which  
20 we may not do today, let me make some comments here.

21 I think the way I will handle it, I have a  
22 few comments, one or two or three. I want to make a  
23 comment that -- of all we understand to be  
24 undisputed facts.

25 LEGAL EXAMINER BROOKS: Is the witness

1 excused?

2 TECHNICAL EXAMINER EZEANYIM: Yeah, you're  
3 excused.

4 THE WITNESS: Thank you.

5 TECHNICAL EXAMINER EZEANYIM: When I make  
6 this statement, I want everybody -- you know, you  
7 can stand up and then make a comment after we go  
8 through them.

9 One of them is that almost all operators  
10 in this pool have overproduced in one way or the  
11 other.

12 If I don't hear anything, it means that is  
13 true. Okay?

14 MR. GRABLE: You're asking under the  
15 current rules?

16 TECHNICAL EXAMINER EZEANYIM: Yes, under  
17 the current rules. Well, you don't have any other  
18 rules.

19 MR. GRABLE: Yes. I believe that to be  
20 true.

21 TECHNICAL EXAMINER EZEANYIM: Okay.  
22 Almost all operators in this pool overproduce in one  
23 way or the other under the current rule.

24 MS. MUNDS-DRY: We agree.

25 TECHNICAL EXAMINER EZEANYIM: Okay.

1           There are five pools here that need to be  
2 consolidated by one of the -- I think I'm right.  
3 And of those five there was notice and there was no  
4 objection.

5           So is there any objection in consolidating  
6 those five pools?

7           MS. MUNDS-DRY: No objection.

8           TECHNICAL EXAMINER EZEANYIM: Okay. We  
9 are making progress.

10           I'm trying to put down, you know,  
11 undisputed facts. And if you want to dispute, you  
12 have to stand up and tell me why.

13           From the evidence I heard today, it  
14 appears that some percentage of units in this pool  
15 may produce -- some of them may produce anywhere  
16 from 100 to 300 barrels of oil per day.

17           It's just a statement. I mean it doesn't  
18 mean anything. I'm not writing an opinion, I'm just  
19 making a statement.

20           Is that a fair statement? I said some  
21 units in these pools may produce anywhere from 100  
22 to 300 barrels of oil per day. Some of them will  
23 produce below that, but I am making a statement.

24           Is that a fair statement?

25           MR. COONEY: Some units or wells?

1 TECHNICAL EXAMINER EZEANYIM: Some units,  
2 yeah.

3 MR. COONEY: Yes.

4 TECHNICAL EXAMINER EZEANYIM: Some units  
5 in these pools may produce from 100 to 300 barrels  
6 of oil per day.

7 MS. MUNDS-DRY: Or over. The data that  
8 we've looked at shows at over 300.

9 TECHNICAL EXAMINER EZEANYIM: Okay. 100  
10 to 400 barrels a day.

11 MS. MUNDS-DRY: Yes, sir.

12 TECHNICAL EXAMINER EZEANYIM: Okay.

13 MR. GRABLE: I don't think that -- the  
14 evidence, as I recall it, is that for one or two  
15 months some of the units may touch 300 barrels, and  
16 then they decline rapidly from that. But the  
17 evidence is what it is.

18 I thought your statement was generally  
19 true.

20 TECHNICAL EXAMINER EZEANYIM: Yeah, okay.  
21 I'm just giving the parameters, and so I'm not going  
22 to give that in a range. I have to give you a  
23 certain -- you know, how to -- how to say what the  
24 pool is going to do. So I'm going to do 100 to 400  
25 now, because otherwise somebody will -- you know,

1 that's not a rule.

2 Okay. So that other one is gone.

3 Is there an agreement between the parties,  
4 the applicants, that this reservoir is -- has the  
5 solution gas drive. Is that correct?

6 MS. MUNDS-DRY: Yes.

7 TECHNICAL EXAMINER EZEANYIM: Is there any  
8 other type -- you know, that's what we are dealing  
9 with, right?

10 And is it also a fair statement to say  
11 that this reservoir has very low porosity and  
12 permeability, it's tight?

13 MS. MUNDS-DRY: Yes.

14 MR. COONEY: Yes.

15 TECHNICAL EXAMINER EZEANYIM: I want  
16 anybody that will dispute to come out and say no,  
17 because all of these are being recorded.

18 So it's a solution gas drive that is  
19 tight, low porosity, low permeability.

20 In a solution gas drive reservoir, this is  
21 the position I make. In a solution gas reservoir,  
22 especially when it's producing below the bubble  
23 point, rate of withdrawal does not damage or harm  
24 the reservoir.

25 I'm going to do it carefully, because this

1 is the crux of the matter, because my decision will  
2 be based on what I just said last.

3 I said, in solution gas drive reservoirs,  
4 rate of withdrawal, especially if it's producing  
5 below the bubble point, does not harm or damage the  
6 reservoir.

7 I'm trying to state undisputed facts. If  
8 there's a dispute I want to hear it.

9 MR. GRABLE: We can't agree to that  
10 statement.

11 TECHNICAL EXAMINER EZEANYIM: Okay. Good.  
12 I need somebody to dispute it and tell me why.

13 MR. GRABLE: Well, in our view, it  
14 depends, at least in part, on the gas/oil ratio.  
15 Our view is that production at high gas/oil ratios  
16 is harmful to the reservoir.

17 TECHNICAL EXAMINER EZEANYIM: When it's  
18 below the bubble point. I'm not talking about when  
19 it's being saturated. I'm talking about when it's  
20 below the bubble point.

21 If you don't want to answer that question,  
22 you can answer that question later.

23 I want to go back -- because this is very,  
24 very important to me, that everybody agrees with me.  
25 Because if you don't agree with me, then there's

1 something wrong somewhere. So I want -- if you --  
2 you don't have to do it today.

3 I want you, Mr. Gore, to go back and see  
4 whether you can say yes or no to this. And if you  
5 say no, I don't want you to just hastily agree or  
6 disagree now. I want you to go back -- Mr. Gore,  
7 you're very, very well qualified to do this. I want  
8 you to find out whether -- I am not talking about  
9 the first stage, when the solution gas drive  
10 reservoir is saturated, if you do this, they're  
11 going to harm the reservoir.

12 I'm talking about here, where I am  
13 suspecting that when you drill these wells they  
14 have -- you know, they are identical. Their bubble  
15 point failure is very close to identical to the  
16 reservoir failure.

17 So a little bit of -- you know, before,  
18 when you got to -- you see those -- that bubble  
19 point, because it's mobile before -- one month is  
20 mobile, and you are producing those things.

21 I want you to go back and send an e-mail  
22 to all of us. I don't want you to answer that  
23 question today, because it's very important, because  
24 I want to use that format to look at all of this to  
25 see what I can do.

1 I just made a statement. I'm going to  
2 repeat that statement. I'm going to repeat it to  
3 you. Take it home and then answer that question.

4 I'm saying that when a solution gas drive  
5 reservoir is producing below the bubble point, the  
6 rate of withdrawal does not harm or damage the  
7 reservoir. That's really what I'm saying.

8 And I don't want you to answer that,  
9 because I know you're not prepared for it. I want  
10 you to answer that question and then send it to  
11 everybody. And then from there, I can take it and  
12 make my recommendations.

13 I'm not an attorney, I'm just a technical  
14 engineer.

15 MR. GRABLE: We will respond as you have  
16 requested.

17 TECHNICAL EXAMINER EZEANYIM: Yes. I want  
18 to do that because it's very important. Because if  
19 you make a hasty decision here, I mean -- do you see  
20 what I mean? I mean I'm trying to satisfy  
21 everybody. And that -- you know in that case, I can  
22 say, okay, these five points I've made is  
23 undisputed, so those will be fine. At least that  
24 helps me a lot. That's why I wanted to read that  
25 out to you.

1           That does not mean I have made up my mind.  
2           That doesn't mean anything. It's just some  
3           undisputed facts.

4           MS. MUNDS-DRY: Mr. Ezeanyim, you -- you  
5           may have other things you are requesting. When  
6           would you like an e-mail response? Can you set a  
7           deadline?

8           TECHNICAL EXAMINER EZEANYIM: As soon as  
9           you could get it, because this is important, and I  
10          have a very tight schedule. The earlier I can get  
11          this the better.

12          The court reporter has promised that by  
13          this week we're going to get the -- you know, all of  
14          this, you know, maybe an inch thick. He said he can  
15          get it to me, too. We want to go ahead and work --  
16          and start working.

17          Because -- I don't know. I don't want to  
18          use the word -- I don't know whether all of those  
19          wells that were shut in, whether they have been put  
20          back to production, even though we have an order.  
21          So the earlier I can get this order out, at least,  
22          you know, those wells can be, you know, put into  
23          production. I trust you have done it.

24          And you know, based on what we have heard  
25          now, based on what we have heard, I really want you

1 to work with me, the two applicants. I want you to  
2 draft another draft order.

3 MS. MUNDS-DRY: That was one of my  
4 questions for you, Mr. Ezeanyim.

5 TECHNICAL EXAMINER EZEANYIM: Yes. I want  
6 you to have another draft order, which will be very,  
7 very different from what you gave me before. And I  
8 want you to -- we're going to write one order on  
9 these two cases. I want both applicants to give me  
10 a draft order.

11 MS. MUNDS-DRY: And, Mr. Ezeanyim, you may  
12 be getting to this, and I'm sorry if you are.

13 I haven't had a chance to confer with  
14 opposing counsel. I wonder, instead of closing  
15 statements this evening, you might entertain written  
16 closing statements.

17 TECHNICAL EXAMINER EZEANYIM: Oh, yeah,  
18 I'm coming there, yes. You are just jumping the  
19 gun.

20 MS. MUNDS-DRY: Oh, I'm sorry. Okay.

21 TECHNICAL EXAMINER EZEANYIM: I'm coming  
22 there.

23 MS. MUNDS-DRY: I'll hold my horses.  
24 Sorry.

25 TECHNICAL EXAMINER EZEANYIM: Well, I am

1 not ending yet.

2 MR. GRABLE: Mr. Ezeanyim, I do have a  
3 clarifying question on your very important question,  
4 and that is a two-part question.

5 In rate of withdrawal from the reservoir,  
6 do you mean rate of withdrawal of oil or gas, and  
7 does the ratio of oil and gas, in the sense of the  
8 gas/oil ratio, matter?

9 TECHNICAL EXAMINER EZEANYIM: I'm talking  
10 both.

11 MR. GRABLE: Okay.

12 TECHNICAL EXAMINER EZEANYIM: So, yeah.

13 MR. GRABLE: When you say "damage to the  
14 reservoir," what that says to me is would result in  
15 a lower ultimate recovery; and, therefore, cause --

16 TECHNICAL EXAMINER EZEANYIM: Waste.

17 MR. GRABLE: -- waste.

18 TECHNICAL EXAMINER EZEANYIM: Yes.

19 MR. GRABLE: Ultimate loss of production.

20 TECHNICAL EXAMINER EZEANYIM: Yes. That  
21 is -- really, I should have used that word. Thank  
22 you, Mr. Grable. Because this time -- because when  
23 the reservoir is harmed or damaged, then you're  
24 incurring waste.

25 MR. GRABLE: I just wanted to make sure I

1 understood your question.

2 TECHNICAL EXAMINER EZEANYIM: Yes. Yes,  
3 you are correct. That's what I'm trying to -- and  
4 remember what we're talking about here, a solution  
5 gas drive reservoir. This is a typical one.

6 I want you to go and study it and tell me,  
7 you know, whether the rate of withdrawal, whether  
8 that is a ratio of -- are we talking about this or  
9 rate of withdrawal from that reservoir, when you are  
10 below the bubble point, whether it will damage the  
11 reservoir, harm the reservoir, and then incur waste.

12 I don't want waste. That is why I'm here.  
13 Otherwise, you know, there is no point in being  
14 here. We are here to make sure I prevent that  
15 waste.

16 So you see why -- that was my last  
17 comment.

18 And including you. If you think it's  
19 going to harm or damage the reservoir, let me know.

20 This has to be on the record. This will  
21 be the key words of the -- of the conversation.

22 Okay. Now, let's go to closing statement.  
23 I think everybody is tired. My head is full. I  
24 cannot actually let in any more.

25 So what we're going to do -- and I think

1 Ms. Munds-Dry is -- and I think it's more beneficial  
2 if the counsel will submit their closing statement  
3 in writing. I think that -- that will be better. I  
4 mean I think that will be okay, so that I can read  
5 it. If you tell me now I won't even remember a  
6 word.

7 MR. GRABLE: We would prefer, then, to do  
8 it after we get the record from Mr. Baca.

9 TECHNICAL EXAMINER EZEANYIM: Okay. Yeah.  
10 You know what? He has promised to get the record  
11 when?

12 (Discussion off the record.)

13 MR. GRABLE: These will be simultaneous  
14 closings, some amount of time after receipt of the  
15 record? Is that --

16 MS. MUNDS-DRY: And I would suggest we do  
17 the closing and the proposed orders and submit those  
18 all at the same time.

19 TECHNICAL EXAMINER EZEANYIM: Yes. I  
20 think by Friday you will get whatever you want from  
21 him, right?

22 MS. MUNDS-DRY: By Monday at the latest.

23 TECHNICAL EXAMINER EZEANYIM: By Monday at  
24 the latest. So I'm looking at next Monday.

25 LEGAL EXAMINER BROOKS: Which will be a

1 holiday.

2 TECHNICAL EXAMINER EZEANYIM: Oh. Next  
3 Monday is a holiday. Okay. Okay.

4 The end of that week, you know, we'll see  
5 how that goes. The end of that week, two weeks from  
6 the time you get it. Two weeks from Monday.

7 MR. COONEY: Two weeks from when we get  
8 it?

9 TECHNICAL EXAMINER EZEANYIM: Yeah, two  
10 weeks from Monday.

11 MS. MUNDS-DRY: Two weeks from Monday?

12 TECHNICAL EXAMINER EZEANYIM: Yeah. I  
13 would like to see your -- your drafts -- your draft  
14 order. But I need to get your closing statement  
15 before that draft order. Can you do that,  
16 Mr. Grable?

17 MR. GRABLE: Well, I don't know, frankly.

18 MS. MUNDS-DRY: I prefer we do it at the  
19 same time.

20 MR. GRABLE: Pardon?

21 MS. MUNDS-DRY: I'm sorry.

22 TECHNICAL EXAMINER EZEANYIM: Does anybody  
23 have a calendar here?

24 MR. COONEY: I'm out for my  
25 granddaughter's graduation from May 28 until

1 June 2nd.

2 TECHNICAL EXAMINER EZEANYIM: Oh, okay.

3 MR. COONEY: I don't want to slow things  
4 down, though.

5 TECHNICAL EXAMINER EZEANYIM: Oh, yeah.

6 But you are going to provide a closing statement?

7 MR. COONEY: Yeah.

8 TECHNICAL EXAMINER EZEANYIM: Now, could  
9 you provide it before you leave on May 28? Today is  
10 the 17th.

11 MR. COONEY: Well, if we don't get the  
12 transcript until --

13 TECHNICAL EXAMINER EZEANYIM: Monday.

14 MR. COONEY: Next Monday, which is the  
15 23rd, that would only give us three days.

16 TECHNICAL EXAMINER EZEANYIM: Okay. You  
17 know, I don't want to hurry anybody. I want  
18 everybody to take their vacation. So let's do it  
19 after the vacation. June what?

20 MS. MUNDS-DRY: Friday, June 10.

21 TECHNICAL EXAMINER EZEANYIM: Okay. So  
22 what are you giving me June 10?

23 MS. MUNDS-DRY: As the deadline to submit  
24 our closings and our proposed orders.

25 LEGAL EXAMINER BROOKS: That's -- okay.

1           TECHNICAL EXAMINER EZEANYIM: Yeah. Well,  
2 we are not in a hurry. I mean we are in a hurry,  
3 but not that -- you know, it's up to you. You are  
4 the guys making millions, so you need to get to  
5 work.

6           So anyway -- so I am going to write down  
7 here that we're going to get the closing statement  
8 by June 10, and then draft order on June 10, right?

9           MR. GRABLE: Right. Okay.

10          MS. MUNDS-DRY: Do you want the e-mail in  
11 response to your last question as soon as possible?

12          TECHNICAL EXAMINER EZEANYIM: I'm sorry?

13          MS. MUNDS-DRY: The e-mail you requested  
14 on the -- on our opinion on the rate of withdrawal  
15 below the bubble point.

16          TECHNICAL EXAMINER EZEANYIM: Yes. I  
17 would like to -- yeah, by him -- Mr. Gore to send  
18 that e-mail. Any time he's ready, he can send it.  
19 That's what is intended. But that one is different.  
20 We're going to send it to everybody.

21          Now, what else haven't we covered?

22          This is important, because I don't want  
23 everybody to leave here and then say, Oh, we didn't  
24 cover this. I'm going to the commission. I want to  
25 know about it now.

1 MR.. RANKIN: Okay, Your Honor, I want to  
2 just make statement for the record.

3 Based on the testimony from  
4 Burnett/Hudson, Premier did have some issues it  
5 wanted to raise in rebuttal. But given the late  
6 time and the issues of the duration, you said -- and  
7 some of them were addressed with the rebuttal  
8 testimony regarding Exhibit 41C -- Premier has  
9 decided to forego that for now.

10 TECHNICAL EXAMINER EZEANYIM: Okay. Thank  
11 you very much for saying that, too, because I think  
12 we are done.

13 MR. RANKIN: I just wanted to let you  
14 know.

15 TECHNICAL EXAMINER EZEANYIM: Okay. Thank  
16 you. I appreciate that.

17 MR. CAMPBELL: I have a list of what our  
18 exhibits are, and we will coordinate to make sure we  
19 get a complete copy to Mr. Baca.

20 TECHNICAL EXAMINER EZEANYIM: Right.  
21 Because all that you see here is trash. It's only  
22 what you give him that we will use.

23 MR. GRABLE: Mr. Brooks, you were going to  
24 let us --

25 LEGAL EXAMINER BROOKS: You can have all

1 of mine back. I was trying to get them in order,  
2 but it will be easier just to give them to you.

3 MR. GRABLE: Thank you.

4 TECHNICAL EXAMINER EZEANYIM: Okay. We  
5 are not yet done.

6 I know everybody is ready to go for  
7 dinner, everybody is hungry.

8 Okay. Well, but I want to thank you all  
9 for the opportunity to take the testimony. We were  
10 all civil to each other, and that's what we like.  
11 We're going to do our best to make sure we find a  
12 better way to produce good hydrocarbon from these  
13 pools. So thank you very much.

14 Please do your part and get any  
15 information that we need to be able to make that  
16 decision. So as you go on, you see it's a lot of  
17 material that we are hearing. We are not in a civil  
18 court. And that always -- we want to explore the  
19 truth, get the evidence, and make a decision.  
20 That's all we do.

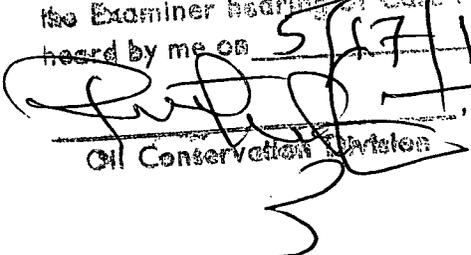
21 So -- because most of you will show up in  
22 another pool, we have a lot of those pools, and we  
23 want to make sure we do them right.

24 Thank you very much for coming. This  
25 case -- or this hearing is over.

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(Proceedings concluded.)

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner hearing of Case No. 14638-14647  
heard by me on 5/17/11

  
\_\_\_\_\_, Examiner  
Oil Conservation Division

CERTIFICATE

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I, Paul Baca, RPR, CCR in and for the State of New Mexico, do hereby certify that the above and foregoing contains a true and correct record, produced to the best of my ability via machine shorthand and computer-aided transcription, of the proceedings had in this matter.



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