

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

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

JOINT APPLICATION FOR REHEARING OF                      CASE NO. 15487  
ORDER NO. R-14164-D, APPLICATION  
OF THE NEW MEXICO OIL CONSERVATION  
DIVISION THROUGH THE SUPERVISOR OF  
DISTRICT II FOR AN EMERGENCY ORDER  
SUSPENDING CERTAIN APPROVED  
APPLICATIONS FOR PERMITS TO DRILL,  
AND FOR ADOPTION OF SPECIAL RULES  
FOR DRILLING IN CERTAIN AREAS FOR  
THE PROTECTION OF FRESH WATER,  
CHAVES AND EDDY COUNTIES, NEW MEXICO.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSIONER HEARING

May 18, 2017

Santa Fe, New Mexico

BEFORE:    DAVID R. CATANACH, CHAIRPERSON  
             EDWARD MARTIN, COMMISSIONER  
             DR. ROBERT S. BALCH, COMMISSIONER  
             BILL BRANCARD, ESQ.

             This matter came on for hearing before the  
New Mexico Oil Conservation Commission on Thursday, May  
18, 2017, at the New Mexico Energy, Minerals and Natural  
Resources Department, Wendell Chino Building, 1220 South  
St. Francis Drive, Porter Hall, Room 102, Santa Fe,  
New Mexico.

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1	INDEX	
2		PAGE
3	Case Number 15487 Called	7
4	Opening Statement by Mr. Olsen	9
5	Opening Statement by Ms. Kessler	11
6	Opening Statement by Mr. Larson	11
7	Opening Statement by Mr. Brooks	15
8	Argument by Ms. Kessler on Breadth of the Designated Area	25
9		
10	Response by Mr. Brooks on Breadth of the Designated Area	27
11	EOG Y Resources and Lime Rock Resources II-A's Case-in-Chief:	
12		
13	Witnesses:	
14	John C. Maxey:	
15	Direct Examination by Mr. Larson	30
16	Cross-Examination by Mr. Olsen	42
17	Cross-Examination by Mr. Brooks	47
18	Cross-Examination by Chairman Catanach	60
19	Cross--Examination by Mr. Brancard	75
20	Cross-Examination by Commissioner Balch	83
21	Recross Examination by Mr. Brancard	84
22	Recross Examination by Mr. Brooks	88
23		
24	Pecos Valley Artesian Conservancy District's Case-in-Chief:	
25		
	Witnesses:	
	Roger Peery:	
	Direct Examination by Mr. Olsen	91
	Cross-Examination by Mr. Larson	103
	Cross-Examination by Ms. Kessler	109
	Cross-Examination by Chairman Catanach	112

1	INDEX	
2		PAGE
3	New Mexico Oil Conservation Division's Case-in-Chief:	
4	Witnesses:	
5	Phillip Goetze:	
6	Direct Examination by Mr. Brooks	114
	Cross-Examination by Mr. Olsen	122
7	Cross-Examination by Mr. Larson	124
	Cross-Examination by Commissioner Martin	128
8	Cross-Examination by Chairman Catanach	129
	Cross-Examination by Mr. Brancard	132
9	Recross Examination by Chairman Catanach	140
	Cross-Examination by Commissioner Balch	141
10	Recross Examination by Mr. Larson	150
	Recross Examination by Commissioner Martin	152
11		
12	EOG Y Resources and Lime Rock Resources II-A's	
	Rebuttal Case:	
13	Witnesses:	
14	John C. Maxey:	
15	Direct Examination by Mr. Larson	154
16	Cross-Examination by Mr. Brooks	157
17	Conclusion of Proceedings	161
18	Certificate of Court Reporter	162
19		
20		
21		
22		
23		
24		
25		

1	EXHIBITS OFFERED AND ADMITTED	
2		PAGE
3	Lime Rock Resources Exhibit Number 11	72
4	PVACD Rehearing Exhibit Number 1	99
5	COG/Fasken/OXY Exhibit Letter A	73
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

1 (9:06 a.m.)

2 CHAIRMAN CATANACH: Our next order of  
3 business today is the rehearing of Case Number 15487,  
4 which is the application of New Mexico Oil Conservation  
5 Division, through the supervisor of the District II  
6 Office, for emergency order suspending certain approved  
7 applications for permits to drill and for adoption of  
8 special rules for drilling in certain areas for the  
9 protection of fresh water, Chaves and Eddy Counties,  
10 New Mexico.

11 This case was originally heard by the  
12 Commission on December 5th, 6th and 7th, 2016, and an  
13 order in this case was issued February 8th, 2017.

14 This case is being re-opened to clarify --  
15 to clarify some of the language that was written into  
16 the rule at that time.

17 Call for appearances at this time.

18 MS. KESSLER: May it please the Commission,  
19 Jordan Kessler, from the Santa Fe office of Holland &  
20 Hart, appearing on behalf of COG, Fasken Oil & Ranch and  
21 OXY USA, Inc.

22 MR. LARSON: Good morning, Mr. Chairman,  
23 Commissioners. Gary Larson, of the Santa Fe office of  
24 Hinkle Shanor, on behalf of EOG Y Resources and Lime  
25 Rock Resources II-A.

1                   MR. OLSEN: A.J. Olsen on behalf of the  
2 Pecos Valley Artesian Conservancy District, referred to  
3 as PVACD.

4                   MR. BRUCE: Mr. Chairman, Jim Bruce, of  
5 Santa Fe, representing Mack Energy Corporation, Devon  
6 Energy Company, L.P., and the Independent Petroleum  
7 Association of New Mexico.

8                   MR. BROOKS: Mr. Chairman, Honorable  
9 Commissioners, David Brooks, of the Energy, Minerals and  
10 Natural Resources Department, representing the Oil  
11 Conservation Division.

12                  CHAIRMAN CATANACH: So how many witnesses  
13 do we have today?

14                  MR. BROOKS: I have one.

15                  MR. LARSON: We have one.

16                  MR. OLSEN: I have one witness.

17                  CHAIRMAN CATANACH: Okay. Can I get the  
18 witnesses to stand and be sworn in at this time?

19                         (Mr. Maxey, Mr. Peery, Mr. Goetze sworn.)

20                  MR. BROOKS: Mr. Chairman, I would like to  
21 make an opening statement, but I will defer to the  
22 preference of the Commission as to who should make their  
23 opening statement first. The motion before you is a  
24 joint motion of all parties except us, so --

25                  CHAIRMAN CATANACH: We'll let the other



1 parties go first then.

2 MR. BROOKS: That seems reasonable to me.

3 CHAIRMAN CATANACH: Gentlemen, would you  
4 like to make opening statements?

5 OPENING STATEMENT

6 MR. OLSEN: Thank you, again.

7 Thank you so much for the time to come back  
8 and revisit one issue that is of concern to PVACD, and  
9 that is the language in Section 19.15.39C(2). And that  
10 particular language is certainly subject to readings, I  
11 think, and I agree with the Division's position that  
12 that particular language could be interpreted three ways  
13 at least. So we come before you and the sole issue that  
14 the District will address today is just solely the  
15 language of that particular section.

16 As to the concern of the producers, PVACD  
17 stands neutral. We will tender no position either in  
18 favor of or opposed to the position of the producers  
19 and/or of the Division.

20 When we began -- and when I say "we," I'm  
21 talking about the District, along with the discussions  
22 with the producers, we put together the joint motion,  
23 and within the joint motion, we included language which  
24 we believe would be more appropriate for the new rule.

25 Subsequent to that, the filing of our joint

1 petition request, counsel for producers and myself and  
2 my co-counsel, Olivia Mitchell, discussed tweaking the  
3 language even more so. We could not come to an  
4 agreement in what we believe to be the more appropriate  
5 language to clean up the ambiguity of paragraph C(2)  
6 subsequent to that, the Division filed its response with  
7 its proposed language. And the District now takes the  
8 position that we're neither -- either the language as  
9 contained in the joint request between the District and  
10 the producers or the language propounded by the Division  
11 is acceptable to the PVACD. To that extent, we will  
12 tender Mr. Roger Peery, who testified before you at the  
13 original hearing, to just address some of the language  
14 that we believe that serves what we believe the  
15 Commission was striving to do when it put the rule  
16 together.

17               So with that, I think our testimony from  
18 Mr. Peery will be 20 minutes, short and sweet. But,  
19 again, that's our position, solely as to the language.  
20 And at this point and time -- I think in one pleading I  
21 filed that the District does not disagree with the  
22 language propounded by the Division, and in my second  
23 pleading, I think I said that we agree and would adopt  
24 their position. So that's where we stand today.

25               Thank you very much.

1                   CHAIRMAN CATANACH: Thank you, Mr. Olsen.  
2                   Counsel.

3                   OPENING STATEMENT

4                   MS. KESSLER: Mr. Chairman, Members of the  
5 Commission, as you mentioned, we're here today to  
6 discuss some issues, the breadth of the designated area  
7 and also the language comprising and referred to in  
8 Section C(2). Mr. Larson will be offering a witness and  
9 testimony regarding the changes of that proposed  
10 language. My clients, COG, Fasken Oil & Ranch and OXY,  
11 fully support Mr. Larson and his clients' position. I  
12 will be addressing the breadth of the designated area,  
13 and I'm happy to do so. I only will be doing so through  
14 argument. I'm happy to do that at the outset or wait  
15 for the presentation of the witnesses, as you decide.

16                  Thank you.

17                  CHAIRMAN CATANACH: Thank you.

18                  OPENING STATEMENT

19                  MR. LARSON: With regard to the breadth of  
20 the area where the Commission's special rules should  
21 apply, the clear intent of the Division's proposed rules  
22 requiring a three-string design was to cover only those  
23 areas where both the shallow alluvial aquifer and the  
24 deeper artesian aquifer appear. And the testimony at  
25 the hearing in December reveals that the area where both

1     aquifers appear was the focus of the Division's special  
2     rules, is reasonably well defined and makes up  
3     approximately 22 percent of the Roswell Artesian Basin.

4                 The special rules ultimately adopted by the  
5     Commission require that in these areas of the Basin  
6     where only the artesian aquifer is present, the surface  
7     casing should be set 50 feet below the base of the  
8     artesian aquifer. And because the statewide rule  
9     provides the same protection of the artesian aquifer in  
10    those areas of the Basin where the alluvial aquifer is  
11    not present, there is simply no reason to extend the  
12    reach of the special rules to include the entire Basin.

13                With regard to the surface-casing  
14    requirements adopted by the Commission that apply to the  
15    area where there has been historical commercial  
16    production of oil in the confining unit and the artesian  
17    aquifer, the Commission appropriately acknowledged in  
18    paragraph 75 of its order that the provision requiring  
19    the surface casing be set 50 feet above the first oil  
20    showing on mud log, it's necessary to account for the  
21    probability for encountering hydrocarbons in the  
22    confined unit and the artesian aquifer. That provision  
23    is supported by the unrebutted testimony of Mr. Kautz  
24    and Lime Rock witness, John Maxey, who will be  
25    testifying again this morning. And the appropriateness

1 of the provision is also supported by the permitting  
2 decisions by the Artesia District Office.

3 After the emergency order was entered in  
4 this case, Lime Rock resubmitted several previously  
5 exempted APDs with the addition of an intermediate  
6 casing string to be set 50 feet above the first oil  
7 show. The district office approved those APDs. And  
8 following the Commission's order in February, Lime Rock  
9 submitted additional APDs to the district office with  
10 two-string designs and surface casing to be set 50 feet  
11 above the first oil show. The district office approved  
12 those APDs as well.

13 Moreover, the provision for setting surface  
14 casing 50 feet above the first oil show is supported by  
15 un rebutted evidence in the record, is entirely  
16 appropriate and should not be changed. And that said,  
17 the Joint Applicants have proposed a modification of  
18 Subpart C(2), which Mr. Olsen referred to, because of  
19 concerns raised that the language of the subpart may be  
20 ambiguous and that operators may seek to set surface  
21 casing above the artesian aquifer in areas where there  
22 have not been oil show in the confining unit or the  
23 artesian aquifer.

24 And I submit that the Joint Applicants'  
25 proposed modification makes more explicit the fact that

1 the surface casing may be set above the artesian aquifer  
2 only in those discrete areas where there has been  
3 commercial production and oil shows.

4 And the Division has proposed the  
5 modification to Subpart C(2) that would eliminate the  
6 Commission's rule regarding the depth of surface casing  
7 where there has been commercial oil production  
8 historically. The Division's proposed modification  
9 ignores the Commission findings and is ostensibly  
10 intended to protect the artesian aquifer to the extent  
11 that that aquifer is even present in those areas.

12 As Mr. Maxey will testify this morning, the  
13 Division's proposal is both unnecessary and even  
14 counterproductive from a groundwater protection  
15 standpoint and is simply unworkable from a practical  
16 standpoint.

17 In sum, the Commission's should retain its  
18 requirement of setting surface casing 50 feet above the  
19 first oil show in the discrete areas where there has  
20 been historical oil production, as it reflects the  
21 circumstances prevented [sic] and provides adequate  
22 protection of any usable groundwater that might be found  
23 in the artesian aquifer in those areas.

24 Thank you.

25 CHAIRMAN CATANACH: Mr. Brooks.

1                                   OPENING STATEMENT

2                                   MR. BROOKS:   Thank you.

3                                   Mr. Chairman, Honorable Commissioners, out  
4   of deference to the fact that Ms. Kessler has deferred  
5   her argument on point one until later closing  
6   statements, I will do so also when I can respond to both  
7   Mr. Larson's observations on that point and  
8   Ms. Kessler's observations on that point.

9                                   So I will address only the point which is,  
10   I think, going to be the main focus of this hearing  
11   because it's the one witnesses will address, which is  
12   the second point.

13                                  To get ground -- or to get -- this is set,  
14   so you will know exactly what you're going to be looking  
15   at.  Now, I have separated out these documents, and I  
16   know that you-all have them in your notebooks at one  
17   place or another, but this will be the focus of most of  
18   on what we're talking about in the hearing.

19                                  The first is paragraph C(2) of the new  
20   Section 39.11 adopted by the Commission order, Number  
21   R-154 -- Number R-14164-D.  The language is:  "The  
22   operator shall set a surface casing 50 feet below the  
23   base of the artesian aquifer or not more than 50 feet  
24   above the first show of hydrocarbon on a mud log."  Now,  
25   I have identified what I believe -- you know, a

1 statement is ambiguous if it's susceptible to two or  
2 more reasonable interpretations. I feel that I have  
3 isolated three interpretations that could be given to  
4 that language.

5 First, it could be interpreted to require a  
6 casing -- a surface casing string 50 feet below the base  
7 of the artesian aquifer or not more than 50 feet above  
8 the first shallow hydrocarbon -- show of hydrocarbons on  
9 a mud log, whichever is higher, whichever you get to  
10 first, or it could be interpreted as meaning the  
11 operator shall set surface casing string below the base  
12 of the artesian aquifer or not more than 50 feet above  
13 the first hydrocarbons on a mud log, whichever is  
14 deeper. And based on the evidence that was admitted  
15 before you at the previous hearing, I think it's  
16 unlikely the Commission intended that second reading,  
17 but grammatically, the statement is susceptible of it.

18 The third possible reading is: "The  
19 operator shall set a surface casing string 50 feet below  
20 the base of the artesian aquifer or not more than 50  
21 feet above the first show of hydrocarbons on a mud log  
22 whichever the operator wants to do" because it's "or."  
23 "Or" normally means you can do -- if it says you're to  
24 do A or B, that suggests that you have a choice. You  
25 can do A, or you can do B, but you don't have to do



1 both. And there is no directive as to which.

2                   Unlike the language submitted by the Joint  
3 Applicants and the language submitted by the Division,  
4 which I will discuss, the language of -- in the  
5 Commission's -- the rule as the Commission adopted it  
6 does not put any limitations in terms of geographical  
7 area. The options or alternatives that are specified in  
8 the rule would apply anywhere in the Basin where the  
9 shallow aquifer -- the base of the shallow aquifer and  
10 the first show of hydro- -- the base of the deeper  
11 aquifer and the first show of hydrocarbons were in a  
12 different location. You'd have to interpret this  
13 language and determine what it meant anywhere in the  
14 Basin.

15                   Now, it was largely, I think, because of  
16 the ambiguity of this provision, although I can't speak  
17 for the mental state of the Applicants because we were  
18 not one of the Applicants, but that was the way that --  
19 this was one of the grounds for the motion for  
20 rehearing. Applicant -- in the joint motion for  
21 rehearing which was filed by all of the parties to the  
22 case except the Oil Conservation Division, alternative  
23 language for 2C -- or C(2) was provided in paragraph 15,  
24 on page 3 of the joint motion, and that language is:  
25 "The operator shall set a surface casing string 50 feet

1 below the base of the artesian aquifer and circulate  
2 cement to the surface. In areas of known hydrocarbon  
3 shows or production from the confining unit or the  
4 artesian aquifer, the operator shall set a surface  
5 casing string not more than 50 feet above the first show  
6 of hydrocarbons on a mud log and circulate cement to the  
7 surface." Now, I submit this is also ambiguous, and  
8 that's probably the reason we're here this morning.

9 One way that you could interpret that is  
10 that the operator shall set a surface casing string  
11 below the base of the artesian aquifer, and if you're in  
12 an area of known hydrocarbon shows or production from  
13 the confining unit or the aquifer, the operator shall  
14 also set a second surface casing string not more than 50  
15 feet above the first show of hydrocarbons. That's one  
16 interpretation.

17 If it were interpreted in that way, the  
18 Division has no objection to it, but the Division does  
19 not think that, in view of the testimony and the  
20 findings of the Commission at the prior hearing, that it  
21 would likely be interpreted that way. We think it's  
22 more likely that it would end up being interpreted as  
23 alternative rather than requiring two strings in any  
24 case, because the Commission clearly injected the  
25 Division's preference for two strings. We understand

1     that.

2                     So if you have shallow production and the  
3     operator decides to set surface casing above the shallow  
4     production and protect the valley-fill and it's willing  
5     to set another surface casing string below the  
6     artesian -- below the artesian, we would find that  
7     entirely acceptable. We are not going to ask for that  
8     because we think the Commission has already decided and  
9     decided against us on the two-string issue. But if the  
10    Commission wishes to or thinks it's appropriate to  
11    reconsider that in special circumstances, we would not  
12    oppose that.

13                    Because we felt that both the rule adopted  
14    by the Commission and the rule proposed by the  
15    Applicants were ambiguous, we proposed, in our response  
16    to the joint motion, a third proposal, which is a little  
17    more complicated. And it is found on page 4, paragraph  
18    12 of the application -- of the Oil Conservation  
19    Division's Response to Joint Application for Rehearing.

20                    And it reads: "The operator shall set a  
21    surface casing string at a minimum 50 feet below the  
22    base of the artesian (deepest) aquifer provided that in  
23    areas without the occurrence of the artesian aquifer or  
24    if the well will not be drilled through the artesian  
25    aquifer, the hole shall be drilled to the first show of

1 hydrocarbons or the first occurrence of hydrocarbons on  
2 the mud log, the surface casing string shall be set no  
3 more than 50 feet above the first show." That, however,  
4 is limited to the situation where either the artesian  
5 aquifer is not found or the well is to be completed in  
6 the shallower formation above the artesian aquifer. In  
7 either of those cases, we don't have to worry about  
8 surface strings to protect the artesian aquifer.

9                   Second paragraph, B: "If the base of the  
10 artesian aquifer is not otherwise identified, the  
11 surface casing shall be set no more than 50 feet above  
12 the first show of hydrocarbons in the San Andres that  
13 occurs below the presumed depth of the aquifer." Now,  
14 actually, we think that this 50 feet above the shallow  
15 production got to be an issue in the first place,  
16 because it was part of the Division's proposal. And  
17 Mr. Kautz -- Mr. Goetze -- I'm sorry. Mr. Kautz is not  
18 going to be here. But Mr. Goetze is going to explain  
19 that it's not that hard to figure out when you get into  
20 a freshwater formation drilling, but it's kind of  
21 difficult to figure out when you get out of it. So the  
22 decision was made because at that time we were  
23 presuming -- and on the basis of the testimony that came  
24 in, we were presuming a little too fast -- that the oil  
25 in the San Andres would be below the artesian aquifer.

1 We now understand from the testimony that came in that  
2 that's not necessarily true. But anyway, if it is below  
3 the artesian aquifer, then it makes sense to position  
4 that surface casing as close as you can hone it to the  
5 area between where the San Andres is fresh water and  
6 where the San Andres is oily. That may not be possible  
7 in a lot of cases, though.

8                   What we believe, though, and the reason we  
9 proposed this alternative is that if the Commission  
10 determines it's counterproductive and uneconomic to put  
11 in -- to require two casing strings in most cases, which  
12 the Commission did determine, and if the Commission is  
13 persuaded, as I am inclined to think it was, by the  
14 testimony that drilling through the 600 feet or so from  
15 the base of the -- 5- or 600 feet from the base of the  
16 valley-fill to the base of the artesian is not -- is  
17 going to go so fast and be done under pressure and in  
18 other conditions such that there is not going to be  
19 significant risk of contaminating the valley-fill,  
20 assuming those are the determinations the Commission  
21 makes, then I think the one string that the Commission  
22 thinks should be required should be placed below the  
23 base of the valley-fill -- I'm sorry -- below the base  
24 of the artesian. The reason being that the artesian  
25 needs to be protected from what is going to go on as you

1 drill on down below that level to the deeper formations  
2 that are presently considered to be productive.

3 I'm not aware of any evidence that anybody  
4 is currently concerned with producing from the shallow  
5 zones, although as I say, if they are, protection of the  
6 artesian becomes moot, and they can go on and complete  
7 their well above it. But that's another issue.

8 So in my view, the ambiguity should be  
9 resolved so as to provide protection for the artesian  
10 aquifer by a surface casing string set close to, but  
11 below the base of the artesian aquifer, where it can be  
12 identified so long as the artesian aquifer is present  
13 and is protectable. Protectable meaning, basically,  
14 it's got -- its water is less than 10,000 TDS by virtue  
15 of our rule, our definition of fresh water.

16 Now, that will be our position.

17 Now, Mr. Larson has submitted to me a new  
18 modification, and he referred to it in his opening  
19 statement. Now, I do not know what pleading you have,  
20 and so I think it needs to be clarified that that was  
21 filed in a timely manner. I'm not saying it wasn't. I  
22 got my copy from an email that was sent to me during the  
23 negotiations, and I will comment on that.

24 He wants or has requested that the  
25 Commission make a further modification to the language

1 proposed in the joint motion. And his proposal -- or I  
2 should say Lime Rock's proposal is that "the operator  
3 shall set a surface casing string 50 feet below the base  
4 of the artesian aquifer and circulate cement to surface,  
5 except that in areas of known hydrocarbon shows or  
6 production from the confining unit, et cetera [sic], the  
7 operator shall set a surface casing string not more than  
8 50 feet above the first show."

9 Well, I think it's obvious that this --  
10 that Mr. Larson's proposal has one virtue, and I might  
11 say one virtue only. It is wholly unambiguous as far as  
12 I can tell. It is clear that it only applies in those  
13 areas where there are -- it's not totally unfree of  
14 vagueness because areas of known hydrocarbon shows or  
15 production is not something that's absolutely cut and  
16 dried. I mean, an area is not -- "areas" is somewhat  
17 subject to some interpretation. But it is clear that if  
18 you're in such an area, you have to set one casing  
19 string and one casing string only, and it would be above  
20 the first show of hydrocarbon, and you would not have to  
21 set another casing string below the artesian, unless the  
22 district supervisor required it for some unusual reason.

23 So we know what we're doing with Lime  
24 Rock's proposal. You know what you're doing if you  
25 adopt Lime Rock's proposal. It's not what we would urge

1    you to do. But we urge you, first of all, to resolve  
2    the ambiguity and then to adopt a rule that you  
3    determine is the right one. And in our opinion, it  
4    should be something like ours, which says that the  
5    artesian is present and it's fresh, then you have to set  
6    a surface casing string below for its protection. And  
7    then we would have no objection if you want to go back  
8    and, in certain areas, require a second string higher to  
9    protect the valley-fill. But if you think one string is  
10   all we need, then we would urge -- the Division would  
11   urge it below the artesian.

12                   Thank you.

13                   CHAIRMAN CATANACH: Thank you, Mr. Brooks.

14                   So are you ready to go?

15                   MR. BROOKS: Whoever is going to go first.

16   I don't know if you want --

17                   CHAIRMAN CATANACH: Any preference?

18                   MR. BROOKS: We're ready to go if you want  
19   us to go first, but since we're not the Movant --

20                   CHAIRMAN CATANACH: We'll let the  
21   Applicants go first.

22                   MR. OLSEN: And I think Mr. Larson and I  
23   discussed that he would begin with his witness because  
24   he probably has the most lengthy testimony.

25                   MR. LARSON: And I'll turn to Ms. Kessler,



1 let her make her argument about the breadth of the area.

2 MS. KESSLER: Would the Commissioners like  
3 to hear about the breadth of the area, prior to  
4 witnesses?

5 CHAIRMAN CATANACH: Commissioners?

6 COMMISSIONER BALCH: Sure.

7 MS. KESSLER: Mr. Chairman, Commissioners,  
8 as you recall, the origin of the special rules was to  
9 prevent commingling between the two aquifers, and that's  
10 because the quality of the water in the shallow aquifer  
11 is inferior. Now, the concern is that an oil and gas  
12 well penetrating both of the aquifers could act as a  
13 conduit resulting in potential commingling. That's the  
14 problem.

15 So to address that problem, the Division  
16 filed an emergency application and proposed special  
17 rules to address the potential contamination between the  
18 two aquifers in a designated area, and that was a very  
19 limited designated area.

20 Now, subsequently, that designated area was  
21 expanded to include the areas where both aquifers are  
22 present, not just where the aquifers overlap. The  
23 expansion of the designated area and the Commission's  
24 adoption of the expanded designated area by rule is not  
25 supported in the record. It's not supported in the

1 Division's prior filings, and it's not supported by any  
2 testimony or witness. In fact, at the Commission  
3 hearing, both of the Division's witnesses, specifically,  
4 acknowledge and all other witnesses acknowledge that the  
5 application of special rules should be limited to the  
6 area where the two aquifers overlap. And why is that?  
7 It's because the problem of potential commingling only  
8 exists where there are two overlapping aquifers. There  
9 is no need for special rules to apply outside of the  
10 area of the overlap because there is no potential for  
11 commingling.

12 The order does not include any findings or  
13 cite to any evidence to substantiate the need for the  
14 expanded designated area, and that's simply because  
15 there is zero record evidence that could be referred to.

16 Also, Mr. Larson referred to earlier that  
17 the statewide rules cover the situation where a single  
18 aquifer is being -- standpoint ruled, and that's the  
19 general situation. The special rules should be only  
20 applied to the special area, which is where the aquifers  
21 overlap.

22 And, again, there was substantial testimony  
23 at the Commission hearing regarding the areas of  
24 overlap. For the Commission's ease, I've put together  
25 what I'll call a "demonstrative exhibit," and I'll label

1     that and enter it into the record, or not, as  
2     appropriate. But it's simply a legal description of the  
3     area of overlap, if it is to be incorporated into any  
4     rule.

5                     If I may approach, I'll hand these out.  
6     And this legal description corresponds with Division  
7     exhibits listed in paragraph 42 of the order. Again,  
8     this is simply for ease of reference.

9                     With that, Mr. Chairman and Commissioners,  
10    I would ask that the proposed designated area be limited  
11    to the legal description that I've just handed you, and  
12    that's the area of overlap. Plus, not included in this  
13    description would be a mile buffer around the proposed  
14    designated area.

15                    CHAIRMAN CATANACH: It's not included in  
16    this?

17                    MS. KESSLER: It's not included.  
18                    Thank you.

19                    CHAIRMAN CATANACH: So are you ready?

20                    MS. KESSLER: I'm ready.

21                    MR. BROOKS: Well, since Ms. Kessler made  
22    her argument, I want to make a response to it on point  
23    one.

24                    CHAIRMAN CATANACH: Okay.

25                    MR. BROOKS: I'll try to be much briefer

1     than I was on my opening statement.

2                     We disagree. We believe that the area  
3     is -- the designated area is properly defined in the  
4     rule. The designated area is defined according to the  
5     filings of the Division. It's true that other issues in  
6     a more limited area were the issue at one point in the  
7     progress of this case -- the rather lengthy progress of  
8     this case, which has been going on for about 15 months  
9     now. But we went to hearing on the fifth amended  
10    application for rulemaking, and it made clear that our  
11    proposal -- the Division's proposal for this rule, much  
12    of which did not get adopted but some did, had specific  
13    provisions for that area where there was -- where both  
14    aquifers were present and that area where only the  
15    artesian was present. There was a lot of testimony  
16    about this water system.

17                    And the State ruling, yes, does provide for  
18    protection of fresh water, but it does not do so in  
19    detail. The State rule, Rule 16.9A -- I'm sorry --  
20    16.9B says, "The operator shall ensure that fresh waters  
21    and waters of present or probable value for domestic,  
22    commercial or stock purposes are confined to their  
23    respective strata and are adequately protected by  
24    Division-approved methods." Well, that's all pretty  
25    vague. It is not nearly as specific as a requirement

1   that identifies a particular aquifer and requires,  
2   specifically, a casing string be set 50 feet below --  
3   within 50 feet below the base of that aquifer and is  
4   based on testimony as to the quality of that aquifer and  
5   as to its location.

6                   Therefore, we believe that the issue of  
7   protection of the artesian, as well as the issue of  
8   prevention of flows between the two -- cross-flows  
9   between the two aquifers was before the Commission, and  
10   the Commission properly adopted a rule in response  
11   thereto.

12                   We would further advocate -- we would  
13   further urge that it is particularly important in view  
14   of the second sentence of Rule 16.9B, which says, "The  
15   operator shall take special precautions by methods  
16   satisfactory to the Division in drilling and abandoning  
17   wells to guard against loss of artesian water from the  
18   strata in which it occurs and the contamination of the  
19   artesian water by objectionable water."

20                   Well, Mr. Kautz raised the question with me  
21   yesterday about what does objectionable water mean. But  
22   I think it means contaminants, and I think we should  
23   protect the artesian water. And we have -- this  
24   Commission has every right and every obligation to  
25   specify the methods that will be acceptable to the

1 Division and to set the casing string below the base of  
2 the artesian aquifer.

3 Thank you.

4 CHAIRMAN CATANACH: Thank you, Mr. Brooks.

5 Any response?

6 MR. OLSEN: I have none.

7 CHAIRMAN CATANACH: Mr. Olsen -- I mean  
8 Mr. Larson.

9 MR. LARSON: I've been called worse.

10 (Laughter.)

11 MR. LARSON: Mr. Chairman, I'm passing out  
12 two documents for reference, to explain the Division's  
13 response to the Joint Applicants' proposal, which  
14 Mr. Brooks referred to.

15 JOHN C. MAXEY,  
16 after having been previously sworn under oath, was  
17 questioned and testified as follows:

18 DIRECT EXAMINATION

19 BY MR. LARSON:

20 Q. Good morning, Mr. Maxey.

21 A. Good morning.

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

24 A. John Maxey.

25 Q. And did you previously testify in this case at

1 the hearing held by the Commission on December 7, 2016?

2 A. Yes, I did.

3 Q. And are you again appearing as the designated  
4 representative of Lime Rock Resources II-A?

5 A. Yes, I am.

6 MR. LARSON: Mr. Chairman, is it necessary  
7 to requalify him as an expert in petroleum engineering?

8 CHAIRMAN CATANACH: It is not. Mr. Maxey  
9 is qualified.

10 Q. (BY MR. LARSON) Mr. Maxey, are you familiar  
11 with the Respondents' joint notice of modifications to  
12 the special rule filed on November 5th, 2016?

13 A. Yes.

14 Q. And did you have a hand in formulating the  
15 proposed modification to the Division's proposed Subpart  
16 C(2), to effect that an operator shall set surface  
17 casing string 50 feet below the artesian aquifer or not  
18 more than 50 feet above the first show of hydrocarbons?

19 A. Yes.

20 Q. And why did you believe that there should be a  
21 different surface casing requirement in those areas of  
22 the Roswell Artesian Basin where there has been  
23 commercial production and oil shows both in the  
24 confining unit and the artesian aquifer?

25 A. As presented at the first hearing, in the area

1     that we're talking about, on the far eastern side of the  
2     Basin, under the Lime Rock acreage, we have oil shows  
3     that started, approximately, 680 feet. The first Queen  
4     sand that we penetrated on that mud log that was  
5     introduced had oil shows 20 percent fluorescence. It  
6     was a Queen sand.

7                     The next show we had -- as we moved down  
8     the hole, we continued to have shows. The next  
9     permeable zone was in the Grayburg. The top of the  
10    Grayburg in this area is basically the top of the  
11    aquifer, when you use the Welder maps to look at the top  
12    of the aquifer -- the artesian aquifer. And we had  
13    shows continuing down through the top of the aquifer.  
14    We had commercial production in the amount of 600,000  
15    barrels of oil and 200 million cubic feet of gas from  
16    the Grayburg in this area, under this acreage.

17           **Q.     And precisely what area of the Roswell Artesian**  
18    **Basin are we talking about?**

19           A.     We're talking about Townships 18 South, 26  
20    East, the northeast quadrant, and 18 South, 27 East, the  
21    northwest corner out of the northwest quadrant. And I  
22    might add that the river pretty much splits those two  
23    townships.

24           **Q.     And in your opinion, would a prudent operator**  
25    **set surface casing below the intervals where there has**



1     been commercial production?

2           A.    No.   Surface casing, no.

3           Q.    And did the Respondents propose any  
4     modification to the provision regarding the district  
5     office's discretion to impose casing requirements that  
6     are specific -- particular to a specific well?

7           A.    No.

8           Q.    Again, I'm referring to the proposed  
9     modification filed in November.

10          A.    Right.

11          Q.    Are you familiar with the Commission's Order  
12     Number R-14164-D?

13          A.    Yes.

14          Q.    And in the order, did the Commission adopt,  
15     virtually verbatim, the Respondents' modifications to  
16     Subpart C(2)?

17          A.    Yes.

18          Q.    And in your opinion, was the Commission's  
19     adoption of that language correct given the  
20     circumstances presented?

21          A.    Yes.

22          Q.    And since the order was entered, have you had  
23     an opportunity to review the transcript of your  
24     testimony on December 7th?

25          A.    Yes.

1           Q.    As we sit here today, is there anything  
2 substantive in your testimony that you would change?

3           A.    No.

4           Q.    Are you also familiar with the joint  
5 application for rehearing?

6           A.    Yes.

7           Q.    And does it contain another proposed  
8 modification to Subpart C(2)?

9           A.    Yes.

10          Q.    And did you have a hand in formulating this  
11 proposes modification?

12          A.    Yes.

13          Q.    And why was the second modification proposed?

14          A.    There has been a concern with the language,  
15 that it is somewhat ambiguous, and we've had some  
16 discussions with the OCD about that language. So it  
17 was, you know, our attempt to come up with some language  
18 that would be helpful, that would define the area better  
19 that we're basically talking about. So we're in an area  
20 of known shows, known production, quite a bit of it, so  
21 what we're trying to do with that rule is confine it to  
22 those areas, the exception, and with -- that coupled  
23 with the Division -- or the district office's ability to  
24 look at the data and make adjustments in well  
25 construction, we feel like that was a good -- a good

1     exception, a way to word it.

2           Q.     Was there also a concern raised that an  
3     operator might try to to submit an APD with a surface  
4     casing 50 feet above the artesian, even though there  
5     were no known oil shows there?

6           A.     Well, I think there was -- the way I understood  
7     it, there was some concern that just any type of show  
8     anywhere, there may be operators that take advantage of  
9     that rule or use that rule to set their casing where  
10    they wanted. So what we tried to do is tighten up the  
11    language.

12          Q.     And you continue to hold the view that a  
13    different surface casing requirement should apply in the  
14    discrete areas that you've described where there's been  
15    commercial production in the confining unit and in the  
16    artesian aquifer?

17          A.     Yes.

18          Q.     And after the emergency order was entered in  
19    this case, did Lime Rock resubmit three previously  
20    rejected APDs for wells to be drilled in areas where  
21    there had been commercial production in the confining  
22    unit and the artesian aquifer?

23          A.     Yes.

24          Q.     Did those resubmitted APDs include an  
25    intermediate casing string?

1           A.     Yes.

2           **Q.     And where did the district office require Lime**  
3 **Rock to set the intermediate casing string?**

4           A.     Well, the requirement in the APD was to set  
5 the -- did you say the surface or intermediate? I'm  
6 sorry.

7           **Q.     The intermediate.**

8           A.     The intermediate. The requirement of the  
9 district office was to set the intermediate 900 feet or  
10 the top of the first oil show.

11          **Q.     And 900 feet would be above the artesian?**

12          A.     900 feet was -- it actually was below the top  
13 of the artesian aquifer, considered the Grayburg, very  
14 close -- the top of the Grayburg, very close to the top  
15 of the artesian aquifer, but it was above the San  
16 Andres.

17          **Q.     And since the Commission entered its order in**  
18 **this case, has Lime Rock submitted any APDs to be**  
19 **drilled in the discrete areas you've identified?**

20          A.     Yes.

21          **Q.     And were those two-string designs?**

22          A.     Yes. Actually, they were sundry notices to  
23 adjust some three-string designs, but they were  
24 approved.

25          **Q.     They were reverting back to a two-string**

1 design?

2 A. Yes.

3 Q. And where did the district office require Lime  
4 Rock to set the surface casings?

5 A. Approximately 680 feet over the top of the  
6 first oil show.

7 Q. And in your opinion, did the district office  
8 appropriately approve these APDs?

9 A. Yes.

10 Q. And in your opinion, when a well is on  
11 production, does the production string, cemented to the  
12 surface, adequately protect any fresh water that might  
13 be present in the artesian aquifer?

14 A. If there was fresh water present, yes.

15 Q. And have you reviewed the OCD's proposed  
16 modification of Subpart C(2) set out in the Division's  
17 response to the joint application for rehearing?

18 A. Yes.

19 Q. And have you communicated with the Division to  
20 find some middle ground between the Division's and the  
21 Joint Applicants' proposed modifications to Subpart  
22 C(2)?

23 A. Yes. There have been several discussions with  
24 Mr. Brooks and Mr. Goetze.

25 Q. And as a result of those discussions, has there

1    been a further revision to the Joint Applicants'  
2    proposed modifications?

3           A.    Yes.

4           Q.    And I'll refer to the handout that I set in  
5    front of you and that Mr. Brooks referred to in his  
6    opening statement. The change is the inclusion of the  
7    words "except that, in" and the connection of the two  
8    sentences; is that correct?

9           A.    Yes.

10          Q.    And why was that further revision offered?

11          A.    It was an attempt to further clarify. There  
12    were still concerns of ambiguity, so we added this  
13    language to try to tie this whole thing together. And  
14    it's an exception that clearly is in the areas of known  
15    hydrocarbon shows or production. And, again, coupled  
16    with what the authority that the district has, they can  
17    ask for the data; they can ask for the justification.  
18    The operator has somewhat of a burden to prove that he's  
19    in an area of known production or shows or what's going  
20    on.

21          Q.    I'll next direct your attention to the other  
22    document I set in front of you, which is the Division's  
23    Response to Joint Application for Rehearing. And on  
24    page 4, you'll see some highlighted language. It's  
25    paragraph 12(2)(b) of the Division's response. And if

1     you look at the language in 12(2)(b) that's highlighted,  
2     do you think the modification proposed by the Division  
3     is workable?

4           A.     No.

5           Q.     And why do you say no?

6           A.     Well, I'll just walk through that language.  
7     This is kind of an "if then" type of paragraph, "if the  
8     base of the artesian aquifer is not otherwise  
9     identified..." That's one thing that has not been  
10    identified through this whole process, is the base of  
11    the artesian. Actually, testimony has been offered, I  
12    believe, that it's difficult to determine where the base  
13    is. So that's just something that's never been  
14    determined.

15                   So you proceed with the language, because  
16    it's obvious in this entire area, which I think is  
17    roughly 3,000 to 3,500 square feet, we don't have a base  
18    of the aquifer. Excuse me. 3,000, 3,500 square miles.  
19    If it was square feet, maybe we wouldn't be here.

20                   Okay. So as you continue with that  
21    language, "the surface casing shall be set no more than  
22    50 feet above the first show of hydrocarbons in the San  
23    Andres Formation..." And I'm going to stop there. I've  
24    already brought up the fact that where -- the 8,000  
25    acres that I'm talking about is on the far eastern side

1 of the Basin, up against the boundaries of both  
2 aquifers. Right at that point in the Basin, it's  
3 approximately 30 miles wide, and the acreage I'm talking  
4 about is about four to five miles wide on that far  
5 eastern side, to give you some scale.

6           The Grayburg section has produced 600,000  
7 barrels of oil, 200 million cubic feet of gas from that  
8 Grayburg section from, approximately, 700 to 900 feet.  
9 When you drill out of the Grayburg, right at the base of  
10 the Grayburg, you go into the top of the San Andres. We  
11 have continuance shows through the San Andres, and  
12 there's been about -- approximately 10 million barrels  
13 of oil produced from the San Andres in the Atoka San  
14 Andres fields. Now, that's to date. The field was  
15 discovered under this particular acreage that I'm  
16 talking about, so -- and Atoka San Andres is about 500  
17 feet into the top of San Andres. And as I said, we have  
18 continuous shows down to that permeable interval. And  
19 the chlorides in that interval are about 130,000 parts  
20 per million.

21           So the problem I have with this language is  
22 there is no concern, I guess, about -- I shouldn't say  
23 no concerns. It's just that it's not set up to handle  
24 protection of the shallow aquifer. That's where we see  
25 the area that -- where the acreage is that I'm talking



1     about. We see agricultural use. And when I went in to  
2     look at the State Engineer's Office records, I saw  
3     shallow and upper-portion confining unit water wells. I  
4     found no evidence of fresh water down in the Grayburg  
5     section. And what I did find was, you know, quite a bit  
6     of oil shows and oil production.

7                     So that's a big concern for Lime Rock, is  
8     why are we drilling this commercial interval and then  
9     setting casings -- and I'll continue on with this  
10    zone -- in the San Andres Formation? Why would we go  
11    down to the top of the San Andres, and then there is a  
12    50-foot interval? So we're basically setting this  
13    casing at the base of this commercial zone, on top of a  
14    zone that has continuous shows throughout and has  
15    produced 10 million barrels of oil. And that's the  
16    San Andres. The San Andres, the upper portion, is also  
17    considered part of the artesian system.

18                    And then finally in that sentence, it says,  
19    "that occurs below the presumed depth of the aquifer."  
20    Well, the depth of the aquifer, we don't know where it  
21    is for sure. But that language makes it looks like  
22    we're going below the presumed depth of the aquifer and  
23    setting at the first oil show, and that's just not the  
24    case. And this language is not going to work in this  
25    area. It can't physically work.

1           Q.    From a practical standpoint, would it be  
2   difficult for an operator to prepare an APD based on the  
3   Division's proposed modifications in C(2)?

4           A.    Yes, it would.  And, furthermore, you just --  
5   you would do your planning and drilling, and you really  
6   don't know where you're going to set casing.

7           Q.    Mr. Maxey, in your opinion, should the  
8   Commission adopt either the proposed modification of  
9   Subpart C(2) found in the joint application for  
10   rehearing or the subsequent modification that adds the  
11   words "except that, in" and connecting the sentences?

12          A.    I think they should adopt our proposed  
13   supplement.  I prefer the second one, second part of  
14   that question.

15                         MR. LARSON:  Pass the witness.

16                                 CROSS-EXAMINATION

17   BY MR. OLSEN:

18          Q.    Good morning, sir.

19          A.    Good morning.

20          Q.    You've just testified that you went to the  
21   engineer's office -- the State Engineer's Office to  
22   review the State Engineer's records, correct?

23          A.    Yes.  I looked at the logbooks.

24          Q.    The State Engineer -- do you know whether or  
25   how the State Engineer classifies the various wells in

1 the area where you're talking about the production?

2 Does the engineer classify certain wells as artesian and  
3 other wells as being shallow?

4 A. That's my understanding.

5 Q. Are you familiar with Rule 16.15.16.9B [sic]?

6 A. Is that an OCD rule or a State --

7 Q. OCD rule.

8 A. I'm not sure. Can I read the rule?

9 Q. Sure. May I read it for you? That would  
10 probably be as quick.

11 A. Okay.

12 Q. In the rule, it says, "Sealing Off Strata."  
13 And I'm talking about paragraph B now. "The operator  
14 shall ensure that fresh waters and waters of present or  
15 probable value for domestic, commercial or stock  
16 purposes are confined to their respective strata and are  
17 adequately protected by Division-approved methods. The  
18 operator shall take special precautions by methods  
19 satisfactory to the Division when drilling and  
20 abandoning wells to guard against loss of artesian water  
21 from the strata in which it occurs and the contamination  
22 of artesian water by objectionable water, oil or gas."  
23 Are you familiar with that rule?

24 A. Yes.

25 Q. Now, the area you talked about Lime Rock

1     producing -- I just want to make sure.

2           A.     Correct.

3           Q.     I think you said you produced from 18 South, 26  
4     East?

5           A.     Yes.

6           Q.     And also from 18 South, 27 East?

7           A.     Yes.

8           Q.     Can you tell the Commission today what areas,  
9     what sections in -- in 18-26 that Lime Rock is producing  
10    from?

11          A.     It's the northeast quadrant. It's marked on  
12    the exhibits from the first hearing, basically the  
13    northeast quadrant.

14                   MR. OLSEN: Mr. Chairman, the handout --  
15    it's not marked -- I will introduce as an exhibit  
16    through Mr. Peery, but I will present to you and to the  
17    witness, at least for purposes of his testimony, that  
18    this is an overlay on a Google map from May of 2016 and  
19    is an area of 18 South, 26 East NMPM.

20                   THE WITNESS: Okay.

21          Q.     (BY MR. OLSEN) Now, can you identify for us  
22    from the exhibit which sections within the overlay that  
23    Lime Rock is producing from?

24          A.     Basically, you're talking about -- and this  
25    isn't exact.

1           Q.    No, I understand.

2           A.    Okay.  So Sections 1 through 3, 10 through 12,  
3   and 13, 14, 15.  That would encompass the majority.

4           Q.    Now, my first question:  From the overlay, can  
5   you tell, looking at this overlay, are there signs of  
6   use of protectable water?

7           A.    There are signs of use of fresh water.

8           Q.    And what are those signs?

9           A.    The irrigation.

10          Q.    Irrigation?

11          A.    Yes.

12          Q.    And those are all within the areas of, at  
13   least, production by Lime Rock, correct?

14          A.    Yes.

15          Q.    Now, within those sections, do you know if  
16   there are wells that are classified by the State  
17   Engineer as artesian?

18          A.    No, I don't.

19          Q.    Do you know if there are wells within those  
20   areas that are classified by the New Mexico State  
21   Engineer as being shallow?

22          A.    No.

23          Q.    But you agree with me that the OCD rule that I  
24   just read requires the protection of artesian water,  
25   correct?

1           A.    Yes, to an extent.  Well, you know, the way I  
2 understood the rule.

3           Q.    Do you know if within the regulations of the  
4 OCD, if artesian -- if there is an exact definition of  
5 artesian water, only if you know?

6           A.    I don't know for sure.  I think there is, but I  
7 don't know for sure.  I can't answer that question.

8           Q.    Now that we've kind of --

9           A.    Excuse me.  I think I was referring to the  
10 definition of the aquifer.  I'm sorry.

11          Q.    So we're in agreement that we need to protect  
12 the artesian waters within the areas that Lime Rock  
13 produces, correct?

14          A.    I'm in agreement that we need to protect fresh  
15 water.

16          Q.    But not artesian?

17          A.    If there is fresh water, yes, or whatever  
18 definition is used.

19          Q.    Is it your opinion that the proposed language  
20 by the Division does not adequately serve to protect the  
21 artesian water within Section -- I'm sorry -- 18 South,  
22 26 East?

23          A.    Can you say that again?  Rephrase it.

24          Q.    Yes.  Is it your opinion that the proposed  
25 language by the Division does not provide protection to

1     the waters, whether artesian or shallow, within the  
2     areas of production by Lime Rock in 18 South, 26 East?

3           A.     My concern is that of the known fresh water  
4     that I have looked at in the area, that we are having to  
5     drill -- under that rule, the OCD proposal, that we have  
6     to drill not only from the shallow freshwater aquifer,  
7     we have to drill a commercially viable oil reservoir,  
8     oil and natural gas reservoir, to what appears to be an  
9     arbitrary point surface casing -- water-protection  
10    string.

11          Q.     Again, my question is: Is it your opinion that  
12    the proposed rule by the Division, that it adequately  
13    protects the water in Section 18 South, 26 East, in the  
14    area where Lime Rock is producing?

15          A.     No.

16          Q.     Does not protect the fresh water?

17          A.     Not adequately.

18                   MR. OLSEN: We'll pass the witness.

19                   CHAIRMAN CATANACH: Ms. Kessler.

20                   MS. KESSLER: No questions.

21                   CHAIRMAN CATANACH: Mr. Brooks.

22                               CROSS-EXAMINATION

23    BY MR. BROOKS:

24          Q.     Good morning, Mr. Maxey.

25          A.     Good morning.

1           Q.    I don't believe -- I don't recall if you were  
2           qualified as an expert witness this morning, but of  
3           course you were at the prior hearing, so we would not  
4           raise any objection on that ground. But let me ask you  
5           to refresh my recollection of what area of expertise you  
6           were -- you were qualified?

7           A.    I believe it was petroleum engineering.

8           Q.    You're basically a drilling engineer, aren't  
9           you? That's your primary area?

10          A.    Well, I'm basically a petroleum engineer. I've  
11          worked drilling, production of reservoirs. I've done a  
12          wide variety of projects.

13          Q.    So you have experience in all those areas that  
14          we've mentioned?

15          A.    Yes.

16          Q.    But you're not a geologist, right?

17          A.    No, sir.

18          Q.    The geology of this particular area -- I  
19          realize you're not a geologist, so it's probably not a  
20          fair question to ask you. But would it be -- do you  
21          have reason to believe than the geology of this  
22          particular area in the San Andres Formation, in what we  
23          have called the "confining layer," is fairly  
24          complicated?

25          A.    You know, as an engineer, I look at it as flow



1 units. So I would say yes, from the standpoint of flow  
2 units.

3 Q. Well, I'm not an engineer.

4 A. Okay.

5 Q. But we have heard a lot of testimony as to the  
6 artesian aquifer and where it is in this 3,500  
7 square-mile area.

8 A. Yes.

9 Q. And it's been identified somewhere around 1,000  
10 to 2,000 -- to 1,200 feet.

11 A. The top of the aquifer? Is that what you  
12 just said?

13 Q. Well, I don't think that the testimony was all  
14 that specific, as I recall it, but refresh my  
15 recollection if it was. I believe that the witnesses  
16 indicated that the base of the artesian aquifer was  
17 thought to be somewhere around 1,200 feet, but there was  
18 certainly evidence --

19 A. Well, the top -- I can tell you this. The top  
20 of the aquifer on Figure 6 in the Welder report varies  
21 1,000 feet on the altitudes that he used to map, which  
22 would be above sea level on the artesian. So there is  
23 quite a bit of variance on the 30-mile width across the  
24 aquifer on the -- on the top.

25 Q. Generally speaking, it's deeper as you go west;

1     is it not? I mean as you go east; is it not?

2           A.     The top?

3           Q.     Yeah.

4           A.     Yes.

5           Q.     And then you get to the area of the Pecos  
6 River, and the picture becomes a little more  
7 complicated, correct?

8           A.     Well, I'm not sure what you mean. It's kind of  
9 a complex system anyway, but it continues dipping to the  
10 east.

11          Q.     Yeah, until you get to the Pecos River -- at  
12 least to the Pecos?

13          A.     Well, that's kind of what's called the --  
14 that's where these boundary lines are drawn. So if  
15 you're referring to a truncation based on those boundary  
16 lines, then I would say yes.

17          Q.     So over in 18 South, 26 East, which is east --  
18 which is west of Pecos, right --

19          A.     Yes.

20          Q.     -- you would not expect to find the artesian  
21 aquifer, assuming it's present, to be above 680 feet,  
22 would you?

23          A.     Above -- so -- I'm sorry.

24          Q.     At a depth -- you would not expect to find the  
25 artesian aquifer in that area at a depth less than 680

1     **feet below the surface?**

2           A.     The top of it?

3           **Q.     Yeah.**

4           A.     You're saying the top is deeper than 680 feet?

5           **Q.     Wouldn't you expect that?**

6           A.     Well, according to the Welder maps, the top is  
7     approximately -- it's the top of the Grayburg,  
8     basically. It's about 700 feet or so.

9           **Q.     Okay.**

10          A.     It varies across -- this is -- you know, the  
11     acreage I'm talking about from Section 1 to Section 3 is  
12     three miles, so there is a little bit of variance.  
13     There is room for variance.

14          **Q.     Okay. Now, you testified that in your opinion,**  
15     **the surface casing set above the first show of**  
16     **hydrocarbons -- and I believe there was a reference to**  
17     **something like 680 feet in one of your wells.**

18          A.     Yes. It was a Queen sand coming out of the  
19     anhydrites section --

20          **Q.     Yeah.**

21          A.     -- of the Fanning mud log.

22          **Q.     And you testified that that would be -- would**  
23     **adequately protect the artesian aquifer if there were**  
24     **fresh water in it. Now, how could it do that if it's**  
25     **set above the -- above the top of the aquifer?**

1                   MR. LARSON: Objection. Misstates his  
2 testimony.

3           Q.    (BY MR. BROOKS) Well, do you recall what you  
4 testified in that regard?

5           A.    Here or the last hearing?

6           Q.    Here, this morning, just a few minutes ago.

7           A.    I'm not sure what you're specific point is, so  
8 I'm not sure --

9           Q.    Well, let me -- let me be a little more -- go  
10 back.

11                   The wells that Lime Rock is drilling are  
12 not designed to primarily, if at all, produce out of  
13 this shallow zone; is that correct?

14          A.    Their target is the Yeso.

15          Q.    That was my understanding.

16                   Now, once you set this surface casing below  
17 the valley-fill and above the oil zone, whether it be  
18 600 feet or somewhere else but in that range, then  
19 you're going to be drilling on down and you're going to  
20 be drilling through the artesian aquifer, right?

21          A.    Yes. You'd be drilling through the geology of  
22 the artesian aquifer.

23          Q.    Yeah.

24                   And you wouldn't set any more casing until  
25 you got down to the point where you would set your

1     **production string casing completely --**

2           A.     That's correct.  That's a two-string design,  
3     surface and --

4           **Q.     And how much depth is that?**

5           A.     To TD?

6           **Q.     The depth interval, yeah.**

7           A.     Total depth is approximately 4,800 feet.

8           **Q.     So a lot of things could happen in the course**  
9     **of drilling that area, right?**

10          A.     I'm not sure what "things" are, but --

11          **Q.     Well, I'm not either.  You probably have a lot**  
12     **more knowledge about that than I do.  I'm sure you do.**

13          A.     Yeah.

14          **Q.     But isn't it possible that in the process of**  
15     **that drilling, objectionable waters could move upward**  
16     **that could get into the formations at 600 on down to**  
17     **1,200 feet?**

18          A.     Well, number one, you say objectionable waters  
19     get into the other zones.  I'm not sure where the  
20     unobjectionable water would be.  And, secondly, you  
21     know, you're drilling with a drilling fluid that  
22     maintains a higher static on the formations, and there  
23     is nothing overpressured in the shallow or even into the  
24     Yeso.  So you maintain somewhat of an overbalance on all  
25     of the intervals.

1           Q.    But you don't believe there -- you don't  
2 believe, in any case, that there is any fresh water in  
3 that zone in this area?

4           A.    I've looked at records, and the mud logs that I  
5 offered, you know, as data, the same information and the  
6 electric logs that has been presented to the OCD  
7 district office to discuss this issue out here, and  
8 that's the conclusion we have, is that the -- basically,  
9 that entire interval out there is charged with oil up to  
10 about the base of the Queen.

11          Q.    Is it possible that oil and fresh water can  
12 exist in the same interval?

13          A.    I guess that's possible. I've just never seen  
14 it. And I'm not sure if that that makes the water  
15 objectionable, if it's hydrocarbon contaminated or not.  
16 I don't know.

17          Q.    The whole premise of an artesian system is that  
18 it's sealed off from what's above it and what's below  
19 it, right? That's basically what an artesian system --

20          A.    It's sealed to the point that it's of a higher  
21 pressure initially before it was developed than the  
22 atmospheric aquifer, the river fill, but there is  
23 communication between the two aquifers.

24          Q.    And you're testifying that -- or your opinion  
25 is -- is it your opinion that while the -- there is lots

1 of testimony that the artesian aquifer is fresh water  
2 just a little bit west of here, and you're testifying  
3 it's not at this location, in your opinion; is that  
4 correct?

5 A. I have found no evidence that it is. And I'm  
6 combining that with seeing oil and 39,000 parts per  
7 million chlorides produced from the San Andres water  
8 zone, which is just northwest of Roswell. Part of the  
9 Basin is shut down to the east-southeast of Roswell  
10 because of chlorides encroachment. So that's the  
11 conclusion I have, that if there is water present, it's  
12 most likely high chloride content.

13 Q. Now, if the water were above 10,000 TDS, it  
14 would not be protectable under our definition, correct?

15 A. I'm not sure we've had discussions about  
16 protectable, and I didn't know there was a real good  
17 definition of that.

18 Q. Well, there is a definition of fresh water,  
19 right?

20 A. That's a definition that's in the OCD  
21 guidelines. I'm not sure if it's fresh water, usable  
22 water. I'm not sure of the nomenclature.

23 Q. Well, that definition is in Rule 19.15.2.7(F),  
24 2.7F(3), "'Fresh water' to be protected includes the  
25 water in lakes and playas," and so forth and so on, a

1 whole bunch of stuff that's not relevant, and then it  
2 gets down to "and underground waters containing 10,000  
3 milligrams per liter or less TDS, except for...."

4 A. Okay. That's TDS. That's not chloride  
5 content.

6 Q. Right. It's not a chloride content.

7 A. Right.

8 Q. I think I said TDS. If I said chlorides --

9 A. You may have said TDS. I was thinking --

10 Q. Anyway, I think we tend to ignore the portion  
11 that says if it's usable because we know the artesian  
12 aquifer is. It's not an exempt aquifer, and we also  
13 know if it's above 10,000, it's probably not usable. So  
14 basically the issue is whether it's protectable, whether  
15 it be 10,000 TDS or more -- whether it be more than  
16 10,000 TDS, which it would not be protected under that  
17 definition, right?

18 A. I think that would be correct based on what  
19 you're just reading there. You know, I'm at a loss not  
20 being able to look at that.

21 Q. Well --

22 A. I believe that's correct.

23 Q. I can give you copy.

24 A. It's 10,000 TDS. I've seen the definition and  
25 had a discussion about protection. I just don't know



1     how all that works --

2           Q.     So if you could demonstrate, on the basis of  
3     adequate well control, that there were not waters in  
4     this area below the base of the valley-fill that are  
5     below 10,000 TDS, then that would give you a ground for  
6     exception to the protection requirements, assuming the  
7     Commission adopted my proposed language, correct?

8           A.     That's kind of confusing. You said if there's  
9     water that's less than 10,000 TDS --

10          Q.     There's -- no. I said there is not water less  
11     than --

12          A.     Okay. So --

13          Q.     -- and you can demonstrate that by -- with  
14     adequately proximate wells, wouldn't that -- wouldn't  
15     you think that that would give you -- even under my  
16     language, would give you grounds for an exception to  
17     that particular location?

18          A.     So what you're saying -- you're asking me is if  
19     the waters are higher than 10,000 TDS --

20          Q.     If the waters are higher than 10,000 TDS.

21          A.     Below the valley-fill?

22          Q.     Yeah.

23          A.     You're asking if that would be an exception  
24     under your rule?

25          Q.     I'm asking that wouldn't be reasonable grounds

1     for an exception, since we're premised on trying to  
2     protect the artesian aquifer.

3           A.     Exception for what?

4           Q.     I'm sorry. From contamination. And perhaps  
5     I'm just making a point here. Lawyers do that a lot.

6           A.     I'm sorry. I'm not following you. If it's  
7     high chloride -- or high TDS --

8           Q.     High TDS water and it's not protectable --

9           A.     Okay.

10          Q.     -- if you can demonstrate that, wouldn't you  
11     expect the district office to allow an exception?

12          A.     An exception? What exception would they allow?  
13     We've got a couple here we're talking about.

14          Q.     Well, assuming the language that I proposed was  
15     adopted, wouldn't you expect the district office to  
16     allow an exception to permit you set the casing higher  
17     than --

18          A.     There is nothing in your language about TDS.

19          Q.     No. It says "protectable."

20          A.     And we were dealing with 2(B), "if the base of  
21     the artesian aquifer is not otherwise identified." We  
22     have established that. It's not. "Surface casing shall  
23     be set no more than 50 feet above the first show of  
24     hydrocarbons." We're talking about hydrocarbons. There  
25     is no language about chlorides, TDS, so I'm not sure of

1     what you're talking about.

2           **Q.**     I will concede that my language is not in  
3     there, but there is an exception of what the Commission  
4     has proposed.

5                    Okay.  You are not contending, though,  
6     that -- if there is fresh water in the artesian aquifer  
7     system at a particular location, you're not contending  
8     that setting your casing above that location would  
9     protect the water quality of that quarter?

10           **A.**     No.  Because that's -- what we've proposed is  
11     to protect that water with one string, all the water  
12     that's in the shallow and the confining unit.  If you  
13     recall, the confining unit produces under -- in Welder's  
14     report, the confining unit produces about 10 percent of  
15     the annual production out of the entire Basin.  So  
16     you've got to consider to protect shallow, the confining  
17     unit water and the deeper aquifer water.  That's what  
18     that -- that's what the proposal does that I worked on,  
19     with the exception of areas like this, where -- that's  
20     what we're struggling to find, is where is the evidence  
21     for fresh water in the aquifer interval -- excuse me --  
22     the artesian aquifer interval.

23           **Q.**     Thank you.

24                    MR. BROOKS:  I think that's all I have.

25                    CHAIRMAN CATANACH:  Why don't we take a

1 break here for ten minutes?

2 (Recess, 10:26 a.m. to 10:30 a.m.)

3 CHAIRMAN CATANACH: Call the hearing back  
4 to order.

5 Any more questions of Mr. Maxey?

6 MR. BROOKS: I don't.

7 CROSS-EXAMINATION

8 BY CHAIRMAN CATANACH:

9 Q. I've got a few, Mr. Maxey. I'm trying to  
10 understand the area that Lime Rock is producing from.  
11 Do you feel like that is geologically different than the  
12 area to the west, the main area that we're talking  
13 about?

14 A. Well, it's -- I wouldn't say it's geologically  
15 different. It's downdip. It's the furthest -- it's  
16 almost the furthest point downdip. If you look at the  
17 Welder plots, it's very far downdip, as far as the top  
18 of the aquifer and the far eastern side that has seen  
19 the oil production.

20 And I've attempted to search the records at  
21 the State Engineer's Office to find producing freshwater  
22 wells produced from the artesian, and the best I've been  
23 able to do is find wells produced from the shallow and  
24 produced from the confining unit.

25 Q. Have you looked at the whole area that we're

1     **talking about in terms of the Lime Rock area?**

2           A.     I've looked at the northeast quadrant of this  
3     18-26 because, in my opinion, based on what I've looked  
4     at, number one, the boundaries extend just across the  
5     river on both aquifers. So -- but there is an issue  
6     there even because the Division's boundary is -- I  
7     believe it stretches to the next -- to that eastern  
8     township line of 18-27. So it's my understanding that  
9     this rule would actually apply all the way over to the  
10    eastern side of the 18-27, which is outside the  
11    boundaries of both aquifers.

12          **Q.     So in the Lime Rock area, is it your opinion**  
13    **that the -- so there is no evidence that the artesian**  
14    **aquifer contains fresh water in that area?**

15          A.     That's -- yes. That's my opinion, based on  
16    studying that area.

17          **Q.     Could that area be in communication with the**  
18    **artesian aquifer to the west?**

19          A.     I believe it could. And the reason I say that  
20    is because of the brine water encroachment that's seen  
21    to the east of Roswell. You see oil and gas production  
22    and brine water production from the interval that's  
23    correlative to the interval that the city of Roswell  
24    gets their water out of. That was introduced in the  
25    Circular 93 from Dr. Havenor in the last hearing.

1                   So there is no question there is  
2   communication all the way across this Basin. It's a  
3   matter of, you know, is it oil and gas, is it fresh  
4   water, is it brine water, is it a combination? And  
5   that's what makes it so complex here on the east side.

6                   And if I could elaborate just a moment,  
7   that that's -- the exception -- the language we were  
8   looking for, because of the complexity, it's just going  
9   to be extremely difficult to write something that a  
10   regulator can look at over this entire area and just  
11   say, "This is the application." As much work that will  
12   be put into this on the operator side, it will require,  
13   in my opinion, some effort -- communication between the  
14   operator and the district to say, you know, "This is --  
15   you're correct; you're in an area where we see the  
16   commercial production, we see the shows." And if there  
17   isn't that evidence, then the district office, I think,  
18   is -- you know, they've got the discretion to do what  
19   they think is right.

20           **Q.    So under your -- let me understand. Under your**  
21 **proposal, you would -- you say you have some oil shows**  
22 **in the Queen Formation?**

23           A.    Yes.

24           **Q.    Is that where you would set your surface**  
25 **casing?**

1           A.     That's where they actually set.

2                     After the emergency rule and all that was  
3     discussed between the district and Lime Rock, the  
4     decision was made to set, when it was first -- set that  
5     intermediate string from 900 feet or the first oil show.  
6     And so yes, you've got oil shows -- you come out of an  
7     anhydrite section. That changes a little bit across the  
8     Lime Rock interval. But, basically, on the Fanning log  
9     that was introduced -- the Fanning mud log, you come out  
10    of the anhydrite unit, and the first sand you catch is a  
11    Queen sand, and it had shows, and they're logged.  
12    They're on that mud log. And as you continue down to  
13    the next permeable unit, you had another show, and you  
14    get into the Grayburg that had shows. And that's where  
15    you actually had commercial production that I was  
16    referring to, in that Grayburg interval.

17                    The Grayburg's about 200 -- basically using  
18    Welder's tops, the top of the Grayburg on this Lime Rock  
19    acreage is the top of the artesian. It's about 200 to  
20    250 feet gross -- in gross thickness. Then you have the  
21    intervals -- the permeable -- I didn't figure that.

22           **Q.     So in your area, you would just set the surface**  
23    **and then one production -- a full production string, so**  
24    **you'd have a two-casing string system?**

25           A.     Yes. Both strings would be cemented to

1 surface.

2 Q. And you would drill to the Yeso and circulate  
3 that to surface?

4 A. Yes.

5 Q. And your surface casing, again, would be up  
6 near the Queen, the base of the Queen, somewhere in  
7 there?

8 A. Yes.

9 Q. Above the artesian?

10 A. Yes. It would be in the basal part of the  
11 confining unit.

12 Q. And you feel like that's protective of the  
13 artesian zone?

14 A. Well, in this particular area, yes. I believe  
15 that the -- when you look at the contents of the  
16 intervals, that the one string cemented to surface is  
17 adequate protection.

18 Q. So under the Division's proposal, you don't  
19 think -- you don't think that would work in your area?

20 A. Yeah. The Division's proposal is tough for me  
21 to apply beyond our area, but I know this area would --  
22 it would be very problematic.

23 You know, we've had a lot of discussion  
24 about commercial production. I mean, it's over half a  
25 million barrels of oil from the Grayburg section on this



1 acreage. That only is going to occur on this far, far  
2 eastern side. And the rule as written by the -- the  
3 exception -- I don't know what you call this, what was  
4 introduced, this right here (indicating), the OCD's  
5 rule, that 2(B). It does not even address the fact that  
6 you're getting into an oil column in the upper part of  
7 the artesian. I mean -- yes, the upper part of the  
8 artesian, because that's in the Grayburg. So it only  
9 addresses setting casing -- you know, looking for shows  
10 in the San Andres and then setting surface casing above  
11 that. So that's why it's just very problematic on this  
12 acreage.

13                   And if you move outside this acreage, where  
14 you have less oil column, probably more fresh water  
15 throughout this interval going west, there's still -- in  
16 my opinion, there needs to be a little bit of judgment  
17 as to how you're going to manage this issue because it  
18 changes. Like I said, 30 miles across, you have a  
19 recharge area. You would have an unconfined -- the  
20 artesian that actually produces to the east is more of  
21 an unconfined reservoir out to the west, and then as you  
22 develop the confining unit, you develop the artesian  
23 aquifer. And it changes across that entire Basin into  
24 an oil-producing unit over to the far eastern side  
25 within all these boundaries we're talking about. That's

1     what makes it difficult.

2           **Q.     So let me ask you this:   In your two-casing**  
3     **string design, even if there was some artesian fresh**  
4     **water in your area, do you think that that would still**  
5     **be protective of that --**

6           A.     Yes, I do.   Because if you have interfingering  
7     of some kind of fresh water because you're in this  
8     complex area, it doesn't matter what casing string you  
9     set.   You're going to be drilling up hydrocarbons  
10    through that interval.   And, again, this is predicated  
11    on that -- evidence is already there.   This is not like  
12    we're maybe north of this acreage on strike and saying,  
13    "Well, look what happened down here."   You know, when  
14    you're drilling a new well, that's a different animal.  
15    We're talking about an area like this where we have a  
16    plethora of mud logs, electric logs, sample data.

17                       So yes, I do believe that when you drill  
18    this section, if there is fresh water, number one, I'm  
19    not so sure there's not going to be hydrocarbons in the  
20    same interval.   And, number two, yes, that's why the  
21    provision to cement all the way to surface fully support  
22    that.

23           **Q.     So let me ask you this:   If we gave the**  
24     **district office authority to grant an exception to what**  
25     **the Division has proposed, would that solve your**

1     **problem?**

2           A.     Okay.  Now, I kind of have the understanding  
3     that the rule does give the district that authority  
4     already, to, you know, make a determination.  I think  
5     that's in the rule as written.

6           **Q.     So why doesn't that -- why doesn't that solve**  
7     **your problem?**

8           A.     I don't have a problem.  I don't.  The language  
9     we proposed, to me, clears up the problem the Division  
10    was having with ambiguity.  We are isolating -- well,  
11    this is what we're attempting to do, is isolate this,  
12    the issues we have, to areas of known hydrocarbon shows  
13    or production in that confining unit and in the  
14    artesian.

15                   If you move west, off of this acreage --  
16    and this is the Lime Rock -- off the Lime Rock  
17    acreage -- let me put it that way -- and you go further  
18    west -- and, for instance, if someone has -- they  
19    consider they have a known area and they have weak shows  
20    in the confining unit and no shows in the Grayburg,  
21    that's something that they need to -- if they want to  
22    set a one-string design, the rule -- the exception  
23    that's been presented by industry gives the district the  
24    authority to say, "We think it's two strings; you've got  
25    to show us the data that would make that one string."

1 And that's where -- that's where you get this done to  
2 where, you know, the Division has the -- the district  
3 has the final authority to say, "We just don't see it;  
4 you're going to have to set two strings."

5 And then lastly, there's already going to  
6 have to be interaction with operators in the district  
7 because of this issue of the base of the aquifer. It  
8 has not been defined throughout this whole process, even  
9 going back to the emergency rule, and so there is going  
10 to have to be interaction there, because as a prudent  
11 operator, I'm not going to go set casing and say this is  
12 the base of the aquifer if the OCD is not agreeing with  
13 me in this particular area.

14 CHAIRMAN CATANACH: Thank you.

15 Any questions?

16 COMMISSIONER MARTIN: I don't have any  
17 questions.

18 CROSS-EXAMINATION

19 BY COMMISSIONER BALCH:

20 Q. Good morning, Mr. Maxey.

21 A. Good morning.

22 Q. You were listening to Ms. Kessler's statement  
23 about the legal description of the aquifers?

24 A. I'm sorry. The legal description? This  
25 thing is --

1           Q.    They were proposing a change to the legal  
2 description to the boundaries of the area.

3           A.    Oh, okay.

4           Q.    Are you familiar with -- well, were you here  
5 today for her statement?

6           A.    Yes. I'm familiar with those boundaries on the  
7 map.

8           Q.    I think, basically, it removes a one-mile  
9 buffer zone from around the entire area.

10          A.    Okay.

11          Q.    And I'm wondering about your interpretation of  
12 the precision of the Welder maps, for example. Do they  
13 allow for removal of a buffer? Would you still be  
14 protected if you don't have a buffer?

15          A.    Yes. The boundaries of the OCD -- the rule --  
16 the way that the boundaries are drawn on the Welder map  
17 is outside -- the boundary goes completely around the  
18 Welder edges on the aquifer. So I think you're asking:  
19 Do we need a buffer? And I would say no, because it  
20 adds to some of the problem we already have. The  
21 boundary of the OCD rule is completely outside of both  
22 aquifers. And the way I understood the buffer, it was a  
23 mile beyond the OCD map [sic].

24          Q.    So you're saying a buffer on top of a buffer?

25          A.    Exactly.

1           **Q.     Thank you.**

2                   CHAIRMAN CATANACH:   Okay.   Anything  
3   further?

4                   MR. BRANCARD:   Mr. Chair.

5                   CHAIRMAN CATANACH:   Oh, I'm sorry,  
6   Mr. Brancard.

7                   MR. BRANCARD:   I just have a few questions.  
8                   First of all, Mr. Larson, do you want to  
9   make this (indicating) an exhibit?

10                  MR. LARSON:   I was just doing it for  
11   representative purposes.   He's testified what the  
12   additional language is.

13                  MR. BRANCARD:   But this is the new proposal  
14   of the Movants?

15                  MR. LARSON:   It's something we discussed  
16   with OCD at the time.   I have no problem marking it as  
17   an exhibit for the record.

18                  MR. BRANCARD:   Why don't we do that?

19                  MR. BROOKS:   If it's going to be in the  
20   record, and I think it should be, it should be marked as  
21   an exhibit.

22                  I do have a concern about the fact that  
23   it -- I don't believe it was filed within the rule  
24   provision about filing proposals.   However, because --  
25   if the Commission decides to go that way, it has some

1     definite advantages over -- it has the definite  
2     advantage of being unambiguous. I'm not going to lodge  
3     an objection as to when it was filed. So if the  
4     Commission wants to unambiguously require a one-surface  
5     casing string and thinks that Lime Rock is right where  
6     it should be, I think that's probably a better rule than  
7     any other we've seen. So while I disagree with that in  
8     theory, I think the Commission should have it before it  
9     for consideration.

10                   MR. BRANCARD: I think this should be an  
11     exhibit. I don't have a problem with -- I mean, they're  
12     just clarifying their proposal. That's fine.

13                   MR. LARSON: If memory serves me right,  
14     Mr. Brancard, we had ten exhibits, so I'll mark it as  
15     Lime Rock Exhibit 11 and request its submission into the  
16     record.

17                   CHAIRMAN CATANACH: No objection?

18                   MR. OLSEN: Mr. Chairman, A.J. Olsen for  
19     PVACD.

20                   To the extent the exhibit is being tendered  
21     as a modification to the proposed language in the joint  
22     motion, PVACD does not -- objects to the language. We  
23     do not agree with the proposed language by Lime Rock.

24                   CHAIRMAN CATANACH: Do not agree with it?

25                   MR. OLSEN: Do not agree with it.

1                   MR. BROOKS: I think Mr. Olsen said the  
2 same thing I was trying to say but more articulately.

3                   CHAIRMAN CATANACH: The Division does not  
4 agree with this language?

5                   MR. BROOKS: The Division does not agree  
6 with this language, but we understand it should be  
7 before the Commission so the Commission can consider its  
8 advantages, if it decides to go that way.

9                   CHAIRMAN CATANACH: Okay. Exhibit 11 will  
10 be admitted then.

11                   (Lime Rock Resources Exhibit Number 11 is  
12 offered and admitted into evidence.)

13                   CHAIRMAN CATANACH: Any further questions  
14 of this witness?

15                   MR. BRANCARD: So the other point, then, is  
16 on the breadth of the area, your motion said that you  
17 wanted to clarify that, but I don't see, with your  
18 original application, any language to change the rule to  
19 do so. Is that correct, or am I missing something?

20                   MS. KESSLER: That's correct. There is not  
21 a legal description that was submitted with the  
22 proposed -- or with the joint application. The language  
23 in the joint application said that it should be  
24 restricted to the boundaries where the two aquifers  
25 overlap, and what I have placed before you is a legal



1 description of where the two aquifers overlap.

2 MR. BRANCARD: And whose exhibit is that?

3 MS. KESSLER: That would be -- I think that  
4 should be the Joint Applicants' exhibit because that was  
5 proposed as part of the joint application.

6 MR. OLSEN: Why don't we just make it -- I  
7 would just make it your client because you were a party  
8 to the hearing. So if you're going to tender that as an  
9 exhibit, I would suggest that it come as an exhibit of,  
10 what, COG?

11 MS. KESSLER: OXY and Fasken. That's fine.  
12 We can do it that way.

13 And just to clarify one of the questions  
14 earlier --

15 So let's make that Exhibit A, because I  
16 don't know how many exhibits we had initially at the  
17 hearing.

18 There was a question about whether or not  
19 there was a buffer around the proposed overlapping area,  
20 and our position is that the designated area should be  
21 the boundaries of the overlapping aquifers, plus a mile  
22 buffer.

23 (COG Operating/OXY USA/Fasken Oil & Ranch  
24 Exhibit Letter A was offered into  
25 evidence.)

1                   MR. BRANCARD: So this (indicating), plus a  
2 mile buffer?

3                   MS. KESSLER: Correct.

4                   MR. OLSEN: This (indicating) is going to  
5 be 11 -- your 11 now?

6                   MR. LARSON: Yes.

7                   CHAIRMAN CATANACH: I have a question for  
8 you (indicating). If this was not in their application,  
9 is that something that we can still consider?

10                  MR. BRANCARD: I don't know. We don't have  
11 any testimony to support it at this point. It was not  
12 out there as part of the proposal.

13                  We have a proposal to clarify the breadth.  
14 How we do it -- when you start getting more specific  
15 into actual township, range, sections, quarter-quarter,  
16 now we're getting real specific without any evidence to  
17 support that, unless you can point to evidence in the  
18 current record, which apparently there are documents in  
19 the current record, but somebody's got to put that all  
20 along and make that happen.

21                  So I think we can clarify the rule to deal  
22 with the Movants' point, but putting in a whole new  
23 legal description of it would take a lot of testimony,  
24 at this point, for somebody to show how the existing  
25 record supports it.

1                   CHAIRMAN CATANACH:   Okay.   So we can  
2   discuss that further in our deliberations --

3                   MR. BRANCARD:    Yeah.

4                   CHAIRMAN CATANACH:   -- I guess after we  
5   hear the remaining testimony?

6                   MS. KESSLER:   And, Mr. Commissioners, there  
7   was extensive testimony at the initial hearing about the  
8   boundaries of the overlapping aquifers, and there was  
9   also a finding in the order.   And in addition, there are  
10   several documents and maps referenced and figures, both  
11   by the Oil Conservation Division and the Respondents',  
12   defining the overlapping boundary.

13                  CHAIRMAN CATANACH:   I don't think it was --  
14   it wasn't defined in the order, though, that overlapping  
15   order.

16                  MS. KESSLER:   It was defined as being 22  
17   percent of the Roswell Basin.

18                  CHAIRMAN CATANACH:   But it wasn't defined  
19   as per section, township and range.

20                  MR. BRANCARD:   Can I ask the witness a  
21   question?

22                  CHAIRMAN CATANACH:   Sure.

23                               CROSS-EXAMINATION

24   BY MR. BRANCARD:

25               **Q.    Okay.  I'd like to go over this language you**

1     **have here.**

2           A.     Okay.

3           Q.     **First of all -- or maybe Mr. Larson can answer**  
4     **this.**

5                     In the rule that exists today as approved  
6     by the Commission, there is a Section C(2) under 11, but  
7     underneath C(2), there are a series of subparagraphs, A,  
8     B, C. Is the intent of the Movants to amend or delete  
9     those subparagraphs?

10                    MR. OLSEN: Mr. Chairman, from the position  
11     of the PVACD, our focus is on paragraph -- or under  
12     Section C(2) of the proposed rule.

13                    MR. LARSON: You're looking at Attachment 1  
14     to the orders?

15                    MR. BRANCARD: Yes.

16                    MR. LARSON: Yes. It's capital C, parens  
17     2.

18                    MR. BRANCARD: Right. But what happens to  
19     the subparagraph under that, A, B, C, in your proposal?

20                    MR. LARSON: We have not addressed that.

21                    MR. BRANCARD: So just to clarify for the  
22     record, you're not proposing to change subparagraphs A,  
23     B and C, correct?

24                    MR. OLSEN: Correct.

25                    MR. BRANCARD: We've got to follow the

1 rule. We've got to know what you want to do here.

2 Q. (BY MR. BRANCARD) Okay. So, Mr. Maxey, then  
3 looking at your language here, there is a new term  
4 introduced into this language that's not in the rule  
5 otherwise. The term is "confining unit." What is the  
6 "confining unit"?

7 A. Well, in the context of my testimony, the  
8 confining unit has been from the base of the shallow  
9 aquifer as mapped by Welder, the Welder report that's  
10 been submitted, to the top of the artesian aquifer as  
11 mapped by Welder. And that is his definition also. The  
12 confining unit is, basically, the base of the  
13 valley-fill aquifer to the top of the artesian aquifer.

14 Q. I'll ask your opinion. If you don't want to  
15 give it, that's fine.

16 Do you think there is an understanding  
17 among the regulator and the regulatees out there as to  
18 what the confining -- when we use the phrase "confining  
19 unit," that means that we don't need to define it  
20 further in the rule?

21 A. If someone is familiar with the Welder report,  
22 yes. I know somebody could call the confining unit part  
23 of the artesian system. That could generate some  
24 confusion. But my opinion is that -- well, I understand  
25 your question about the confining unit.

1           The other part of this rule is that the  
2   district has the authority to make changes, and my  
3   impression is that they have the authority to ask for  
4   information from the operator to determine, you know, if  
5   a two-string -- a two-string design and where the  
6   surface casing should be set. And if there are any  
7   questions about confining unit, shallow aquifer, that's  
8   where that's going to be handled. Now, that's just my  
9   opinion.

10        **Q.    Okay. Let me look at the language here. It**  
11   **says, "The operator shall set a surface casing string 50**  
12   **feet below the base of the artesian aquifer and**  
13   **circulate...except that, in areas of known hydrocarbon**  
14   **shows or production from the confining unit or the**  
15   **artesian aquifer." Okay? So it's saying, "In areas of**  
16   **known hydrocarbon shows." I'm assuming, since you're**  
17   **coming to us to drill an oil and gas well, that**  
18   **everywhere is an area of known hydrocarbon shows.**

19        **A.    I can't tell you if there are hydrocarbon shows**  
20   **unless I have mud logs.**

21        **Q.    Right.**

22                **But if you don't get a hydrocarbon show,**  
23   **you have a dry well, right?**

24        **A.    No, not necessarily. We're talking about,**  
25   **specifically, in the confining unit, in the artesian**

1 interval.

2 Q. No. That's not what it says here. It just  
3 says, "except in areas of known hydrocarbon shows or  
4 production from the confining unit or the artesian  
5 aquifer." So basically the area of hydrocarbon shows  
6 could be the Yeso?

7 A. That's not the intent.

8 Q. Okay. Then perhaps we need to clarify the  
9 language. Is what you're saying here really "except  
10 that in areas of known hydrocarbon shows above the  
11 artesian aquifer"? Is that what the intent is here?

12 A. No. "Known hydrocarbon shows either in the  
13 confining unit or the...."

14 Q. Right. We have that later, "or production from  
15 the confining unit or the artesian aquifer...."

16 A. Yes.

17 Q. I'm worried about the first phrase, "areas of  
18 known hydrocarbon shows."

19 A. Okay. I probably have too much familiarity  
20 with what we're doing, so I'm trying to understand your  
21 concern. "In known" -- "areas of known hydrocarbon  
22 shows"? Is that --

23 Q. That's the phrase that we're focusing on.

24 COMMISSIONER BALCH: Listening to that  
25 language, we've got to make sure that it covers the

1 two -- "shows within the two aquifers," one or the  
2 other.

3 THE WITNESS: I mean, the way I read it --  
4 "areas of known hydrocarbon shows or production from the  
5 confining unit or the artesian aquifer," that's my  
6 understanding of the way that reads. And that's just an  
7 opinion. When I read this, to me, specifically, I've  
8 either got shows or production from the confining unit  
9 or the artesian. And if I specify -- and now if I  
10 submit an APD, I'm going to submit it based on data I  
11 have. And if the district says, "Show us your data; we  
12 don't agree with this," then I better have the data,  
13 kind of like -- same case we've made here is going to  
14 have to be made by the operator to the district.

15 Q. (BY MR. BRANCARD) Okay. So I think what you're  
16 saying -- and now I kind of understand -- is that the  
17 phrase "from the confining unit or the artesian aquifer"  
18 defines the phrase above, "known hydrocarbon shows of  
19 production"?

20 A. Yes.

21 Q. So to avoid ambiguity here, because that's the  
22 goal of this whole proceeding, would it then be better  
23 to say, "except that in areas of known hydrocarbon shows  
24 or production from either the confining unit or the  
25 artesian aquifer"?



1                   MR. LARSON:   Getting back to your point, I  
2   think you were reading hydrocarbon shows separately from  
3   production?

4                   MR. BRANCARD:   Right.

5                   MR. LARSON:   You could say, "hydrocarbon  
6   shows either from the confining unit or the artesian  
7   aquifer or production from either."  It makes it a  
8   little more wordy, but I have no problem with the  
9   insertion of "either the confining unit or the  
10   artesian."

11                  Mr. Brancard, the problem is you could have  
12   hydrocarbon shows without commercial production.  That's  
13   why we put that "or" in there.

14                  MR. BRANCARD:   Right.  Because the point --  
15   the point of what you're saying here is that you want to  
16   be able to set the casing based on where hydrocarbons  
17   appear, not necessarily where you're producing the  
18   hydrocarbon from, right?  In other words --

19                  THE WITNESS:   Either/or.

20                  **Q.    (BY MR. BRANCARD) When your mud log shows that**  
21   **a unit has hydrocarbon in it, that's what you want to**  
22   **base this on, not, oh, that's the hydrocarbons that this**  
23   **well is producing?**

24                  A.    Well, this Queen sand could have produced.

25                  **Q.    Right.  But that's not the goal of this well,**

1     **right, that you have? You're shooting for much lower?**

2           A.     Yeah. We're shooting for the Yeso.

3           **Q.     Yeah.**

4           A.     Yeah.

5           **Q.     So you're bypassing places that are showing**  
6     **some smudge on your mud log --**

7           A.     Commercial production.

8           **Q.     -- to get to where you want to go. But you**  
9     **want to base your casing on the fact that you have these**  
10    **little appearances on your mud log?**

11          A.     It's not just the mud log, because -- it's a  
12    combination. And I guess what we trying to say in this  
13    language is this is pretty overwhelming evidence right  
14    here in this particular area. Not only are there mud  
15    logs, but there is commercial production. And so, you  
16    know, you can drill through an interval that's had  
17    mud-log shows that is commercially viable and can  
18    commercially produce, but that's not your intended  
19    target.

20          **Q.     Uh-huh.**

21          A.     So that's another way of looking at it. So  
22    it's a combination, whether it's a mud log, whether the  
23    first zone you contact with oil is depleted, it's a  
24    commercial producer. Am I getting close to answering  
25    your --

1 Q. Yeah. I think we agree on that.

2 A. Okay. I just wasn't sure.

3 Q. And so you would make a proposal in your  
4 initial application to the Division based on what you  
5 know of the area --

6 A. Yes.

7 Q. -- right?

8 But would you end up coming back -- if your  
9 mud log reveals evidence of hydrocarbons in the level  
10 that you hadn't known before, would you come back in to  
11 the Division and request to change the casing based on  
12 that?

13 A. Possibly.

14 CROSS-EXAMINATION

15 BY COMMISSIONER BALCH:

16 Q. Wouldn't the rules require you to change the  
17 casing?

18 A. Okay. In what scenario?

19 Q. Well, the scenario you just addressed, where  
20 you --

21 A. In an unknown area?

22 Q. -- where you get shows above where you expect  
23 them or where you don't expect them to show up, that  
24 would require you to complete 50 feet above that.

25 A. If you consider it -- and that's where I guess

1   it becomes an area of known shows now, but that's one  
2   well, and then the district still has discretion here  
3   the way the rule has been constructed, my understanding  
4   of it.

5                   MR. BRANCARD: Well, it says, "The operator  
6   shall set." That's pretty nondiscretionary.

7                   THE WITNESS: Okay.

8           **Q.   (BY COMMISSIONER BALCH) As soon as you see the**  
9   **shows, you've got to set casing 50 feet above it.**

10          A.   Well, I know our intent -- and, you know, I  
11   wasn't very good in English, but the intent is that if  
12   we're in unknown areas, we have to set it per the rule,  
13   without the exception. And in areas where we have a  
14   show, that exception can be utilized, but the district  
15   has the discretion to say, "That's one well; it's a  
16   very, very slight show." You know, they just don't  
17   agree with an interpretation. And, quite frankly, if I  
18   drill one well in an unknown area of shows or production  
19   and there is very limited show on a mud log, I'm going  
20   to struggle to not continue to set a deeper string.

21                   RECROSS EXAMINATION

22   BY MR. BRANCARD:

23          **Q.   Right, because if you're in an area of a known**  
24   **hydrocarbon -- so if you say, "Okay, in this area, the**  
25   **Grayburg has production in the past" --**

1           A.    Right.

2           Q.    Right?

3                       -- but then you drill your well and your  
4 mud log comes back and it doesn't show any hydrocarbons  
5 in this particular location for the Grayburg, you no  
6 longer have the support for setting your casing based on  
7 the Grayburg, because the rule says, "shall set a  
8 surface casing not more than 50 feet above the first  
9 show of hydrocarbons on a mud log." Okay? So your 50  
10 feet has to be based on the mud log, not the fact that  
11 this formation has produced hydrocarbons somewhere else,  
12 right?

13          A.    Yes. You're basically using that mud log as a  
14 tool to determine those depths.

15          Q.    Okay.

16          A.    I think we're on the same page here. And the  
17 fact that you have commercial production in an artesian  
18 unit is further confirmation, particularly in this case,  
19 that we have production throughout the Grayburg. It's  
20 further confirmation that we are in the extreme eastern  
21 side, and we have oil column there.

22                       So that's why we're saying -- and there is  
23 concern for the shallow aquifer because that is where  
24 this map right here and these three intervals  
25 (indicating) -- I mean, I've gone out to the State

1 Engineer's Office and reviewed records, but I've not  
2 reviewed records for the entire township. But I've  
3 looked in this area on the eastern side, and to the best  
4 of my ability, I've not been able to determine that  
5 fresh water is coming from the artesian unit, but it's  
6 coming from the shallow and the confining unit.

7               So it's a homework process to figure out if  
8 we have -- if we need to protect the artesian aquifer  
9 with a single string from surface. And so this is an  
10 attempt to understand your area.

11              In this particular case, we have not only  
12 known shows, but we have commercial production from the  
13 Grayburg and the San Andres. We have shows all the way  
14 through the San Andres, from the top down, and that's  
15 strong evidence. So we generate the APD on that basis.  
16 That's how the three APDs were generated after the  
17 emergency order last June, I believe it was, on the  
18 three-string design. And that intermediate casing, the  
19 OCD -- the district office said, "Okay, set the  
20 intermediate at 900 feet for the top -- 50 feet -- not  
21 more than 50 feet above the first oil show." And  
22 that -- that response on that APD was generated from  
23 conversations with Lime Rock and sharing the data that  
24 was available out there. So the OCD had the discretion  
25 to do that.

1           The most recent approvals this spring,  
2   after the rule, it was the same situation. Now there's  
3   a new geologist in the Artesia office that's involved  
4   who has a very good understanding of the system. And  
5   that's exactly, under a two-string scenario, how that  
6   was proposed on the sundry and approved. So is that --

7           **Q.   That's fine. And included as findings from the**  
8           **original hearing where you do discuss the Queen and**  
9           **Grayburg Formations in the original hearing, so this is**  
10          **nothing new.**

11           CHAIRMAN CATANACH: So do we have exact  
12   language on the modification that we're going forward  
13   with? Were there some changes proposed? Did we get  
14   those documents in some fashion?

15           MR. BRANCARD: Mr. Chair, it would fine  
16   with me if we simply added the word "either" in the  
17   phrase "from the confining unit or the artesian  
18   aquifer."

19           CHAIRMAN CATANACH: Is that acceptable to  
20   the parties?

21           MR. LARSON: It is.

22           MR. BROOKS: I think it helps to clarify.  
23   We still don't agree with it, but it helps to clarify  
24   this particular proposal.

25           COMMISSIONER BALCH: I think the record

1 will show that.

2 CHAIRMAN CATANACH: Anything else?

3 MR. BRANCARD: (Indicating.)

4 CHAIRMAN CATANACH: The witness may be  
5 excused.

6 MR. BROOKS: Oh, I have one follow-up  
7 question, if I may.

8 CHAIRMAN CATANACH: Okay.

9 RECROSS EXAMINATION

10 BY MR. BROOKS:

11 Q. Because this matter was raised, I want to make  
12 sure we know what we mean so it is not ambiguous.

13 I would have thought that an area of known  
14 hydrocarbon shows or production would have meant an area  
15 where hydrocarbon shows or production would be -- would  
16 have been identified before you drilled your well, which  
17 would be the time at which you were drawing up your  
18 casing program. So if you were looking at this rule and  
19 determining whether or not it applied, you would have to  
20 determine, first off, if this is an area where there are  
21 known hydrocarbon shows or production above -- in the  
22 confining unit or the artesian aquifer. Is that your  
23 understanding of it?

24 A. Yes. That's correct.

25 Q. And if you are not in such an area and you plan



1     your well -- your casing program based on setting casing  
2     below the artesian and you encounter a show that you  
3     didn't expect, then I would not -- just reading this  
4     language, I would not think that this exception would  
5     apply to that case, and you would not be required to set  
6     casing above that unexpected show. Is that your  
7     understanding of this language?

8           A.     You know, that's -- that's my understanding.  
9     And this is not an attempt to use just frivolous oil  
10    shows to, you know, set a shallower casing string. The  
11    attempt is -- what I have done is studied this to a  
12    point where I'm comfortable, in this immediate area,  
13    that this is the way we should proceed because we have a  
14    ton of data.

15           Q.     Yeah.

16           A.     When you step outside this acreage, in 18-26  
17    and 18-27, then there has to be -- if it's a new well  
18    for an operator, there has to be historic data there  
19    that they have in their possession to look at to propose  
20    a shallower string or else they're under deeper string.  
21    If they drill their first well and you've got an entire  
22    oil column from the base of the Queen down, you know,  
23    you need stop and give pause, say, "What are we  
24    protecting, and how do we need to do it?" Thus enters  
25    the district.

1           Q.    If you get into your well and determine there  
2   is good reason to modify your casing plan, you're going  
3   to go to the OCD and get permission, correct?

4           A.    Oh, yeah.  You're not going to do it otherwise  
5   (laughter.)

6           Q.    I think you and I understand what this is  
7   intended to mean.  That's what I wanted to clarify.

8           A.    Yeah.  And I understand, in our conversations,  
9   you have concerns for people you have not talked to, and  
10  we're just doing our best to alleviate that.

11          Q.    You and I understand what this proposal is  
12  intended to mean.

13          A.    Yes.

14          Q.    From your answers, I judge that that is the  
15  case.

16          A.    And I don't intend for this to be applied  
17  anywhere further west unless there is proof that it's  
18  the same type of situation.

19          Q.    And the phrase "known" -- that's what I'm  
20  trying to clarify.  The phrase "known shows or  
21  production" means known at the time you're drawing up  
22  your casing program, and it doesn't mean that you  
23  necessarily would be required to make changes based on  
24  anonymous [sic] show that you might encounter?

25          A.    Yes.  Right.  Yes.

1           **Q.    Thank you.  I appreciate that.**

2                       CHAIRMAN CATANACH:  Okay.  This witness can  
3   be excused.

4                       You have a witness?

5                       MR. OLSEN:  We call Roger Peery.

6                       May it please the Commissioners.

7                       CHAIRMAN CATANACH:  Please.

8                               ROGER PEERY,

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

11                               DIRECT EXAMINATION

12   BY MR. OLSEN:

13           **Q.    Please state your name.**

14           A.    Roger Peery.

15           **Q.    Mr. Peery, where are you employed?**

16           A.    John Shomaker & Associates, Inc. in  
17   Albuquerque, New Mexico.

18           **Q.    And you previously testified in the hearing in**  
19   **December?**

20           A.    Yes, I did.

21           **Q.    And you were qualified as an expert in what**  
22   **field?**

23           A.    Geology, hydrogeology.

24           **Q.    And just briefly, tell us what your education**  
25   **is.**

1           A.    I earned a Bachelor of Science in geology from  
2   the University of New Mexico in 1987 and a master's in  
3   water resources from the University of New Mexico in  
4   1992, and ongoing continuing education courses  
5   throughout the years.

6           Q.    I want to address a couple of issues, if I may,  
7   briefly. Did you prepare the document that has been  
8   distributed earlier during Mr. Maxey's testimony?

9           A.    Yes.

10          Q.    Would you tell the Commission, please, first  
11   where was the document prepared? What does this depict?

12          A.    It was prepared in our office using an ArcMap  
13   of satellite imagery, and it's an air photo image from  
14   May 20th, 2016 of one of the areas we've been talking  
15   about south of Artesia, New Mexico. Specifically,  
16   highlighted with the yellow is Township 18 South, Range  
17   26 East.

18          Q.    And what was your intent to -- when you put the  
19   document together, what was your intent to show or to  
20   demonstrate?

21          A.    The intent of this document is to show that, in  
22   fact, there is usable water in this township and range  
23   block, both from -- from an irrigation standpoint, you  
24   can see it quite readily with the number of fields out  
25   there I've circled, and rectangular fields. So there is

1 a lot of water use in this area both from the shallow  
2 and the artesian aquifer.

3 Q. Let me stop there and go back in time. Have  
4 you performed studies, done work in the areas in the  
5 Roswell Artesian Basin, and more specifically in the  
6 area from Artesia south to Brantley Lake?

7 A. Yes, I have. I've been involved with  
8 production wells for the city of Artesia both in the  
9 design and the oversight of a municipal water supply  
10 well and related well work on existing wells. I've  
11 designed ten wells for the Interstate Streams Commission  
12 over in the Seven Rivers area for the Pecos Augmentation  
13 Well Program, also three wells I designed for the Lake  
14 Arthur area also for the Interstate Streams Commission  
15 and the Pecos River Augmentation Wells. I was also  
16 involved as the manager of a groundwater flow model, in  
17 that general area, also on behalf of the Interstate  
18 Streams Commission related to the groundwater flow in  
19 that area.

20 Q. Now, in the sequence of questions, you heard  
21 Mr. Maxey testify about the Welder report?

22 A. Yes, sir.

23 Q. Now, are you also familiar with the Welder  
24 report?

25 A. Yes, I am.

1           Q.    Can you distinguish between the area north of  
2   Roswell that Mr. Maxey made reference to in the Welder  
3   report and to the area of 18 South, 26 East in the  
4   Welder report as it relates to the geologic and  
5   hydrologic makeup of the Basin?

6           A.    Well, the Welder report describes the  
7   hydrogeologic setting, and it also has a number of  
8   contour maps that show where the top of the artesian  
9   aquifer is throughout the entire Basin from north to  
10   south. And so one can look at the elevation of the  
11   contours, compare that to the elevation of the ground  
12   surface and get a good approximation of the top of the  
13   artesian aquifer.

14          Q.    Now, do you agree with Mr. Maxey's testimony  
15   regarding the elevation of the -- in 18-26 as the  
16   elevations, or are those more applicable to the north on  
17   the Roswell?

18          A.    Well, I think I recall him saying that he found  
19   the base -- or the top of the artesian aquifer at a  
20   depth of 680, 700 feet, something in that range. So  
21   that might be a reasonable approximation, not knowing  
22   exactly what the land surface to elevation was where he  
23   was at.

24          Q.    Okay. Now, during the hearing in December -- I  
25   think it was Exhibit 7 to the Division's exhibits -- did

1    that exhibit carry or demonstrate elevations, cross  
2    sections of the shallow and the artesian in the area of  
3    18-26?

4           A.    Yes, sir, it does.  In fact, Figure 7 of  
5    Mr. Goetze's exhibits shows a cross section, A, A prime,  
6    that goes through the Township 18 South, Range 26 East.  
7    There is also another cross section shown as Figure 6  
8    that goes through the very north end -- goes across the  
9    very north end of that section from an east-to-west  
10   orientation.

11           Q.    And what's -- what's the significance of that?

12           A.    The significance of those two images and two  
13    cross sections is that it does show the top of the  
14    artesian aquifer.  And if you look, specifically, at  
15    Figure 7, it shows not only the presence of the artesian  
16    aquifer, but it has images on there both for shallow  
17    water wells, artesian wells and oil and gas wells in the  
18    area.  So it clearly indicates that there are artesian  
19    wells within this township and range block.

20                   It also provides information on the total  
21    dissolved solids content of the artesian in that area,  
22    which in general ranges from about 800 to 1,400, you  
23    know, plus or minus, milligrams per liter total  
24    dissolved solids.  So it's pretty good quality water in  
25    the artesian aquifer in this area.

1           Q.    Now, with that said, are you familiar with the  
2    proposed language of the Commission in the proposed  
3    rule, which is what we're talking about today?

4           A.    Yes, I am.

5           Q.    Do you have an opinion whether or not the  
6    language -- the proposed language of the rule is  
7    ambiguous as to interpretation?

8                   MR. BROOKS:  Mr. Chairman, I think we need  
9    to know exactly what proposal.  There are several  
10   proposals.

11                  MR. OLSEN:  I agree.  More specifically,  
12   19.15.39.11C(2).

13                  MR. BROOKS:  As adopted by the Commission  
14   in the previous order?

15                  MR. OLSEN:  Correct.

16                  MR. BROOKS:  Okay.  Thank you.

17                  THE WITNESS:  So this was -- if I  
18   understand the question correctly, you're referring to  
19   the original language that was discussed at the hearing  
20   in December?

21           Q.    (BY MR. OLSEN) Which is --

22                   MR. OLSEN:  Do you have a copy of it?

23                   MR. LARSON:  I do.

24                   Mr. Olsen, are you talking about Attachment  
25   A to the Commission's order?



1                   MR. OLSEN: Correct. Correct, to the  
2 Commission's order.

3           **Q.    (BY MR. OLSEN) And more specifically as related**  
4 **to Order Number R-14164-D.**

5           A.    Yes, sir. I have that in front of me.

6                   I do believe that it's not completely clear  
7 in terms of where the surface casing protective string  
8 would have to be set. Certainly the first portion of it  
9 indicates the casing string 50 feet below the base of  
10 the artesian aquifer, but then the next portion "or not  
11 more than 50 feet above the first show of hydrocarbons  
12 on a mud log." So I think that's where the confusion  
13 comes in, in that if the first show of hydrocarbons on a  
14 mud log is above the top of the artesian aquifer, then  
15 the artesian aquifer does not get protected.

16                  If it's the first show of hydrocarbons on a  
17 mud log below the base of the artesian aquifer, if it's  
18 interpreted that way, then certainly the artesian  
19 aquifer and -- obviously, the artesian and shallow  
20 aquifer where the shallow exists would be protected if  
21 they're cemented off.

22           **Q.    And I want to make perfectly clear. Is it your**  
23 **understanding that the rule -- the proposed rule at C(2)**  
24 **is applicable to the entire legal or the area defined as**  
25 **set out in paragraph A?**

1           A.     Yes.   That's my understanding.

2           Q.     Let's go to the second part of the review.  Are  
3   you familiar with the language proposed by Mr. Maxey?  
4   And he's testified about it today.  Do you have an  
5   opinion about Mr. Maxey's proposed language?

6           A.     Yes, sir.  I have read that, and I don't think  
7   it's a good idea in terms of being able to protect the  
8   artesian aquifer.

9                     If the intent is only to protect the  
10  shallow aquifer where it exists, then certainly setting  
11  a string of surface casing within the confining bed  
12  would do that.

13                    As I mentioned earlier, the artesian  
14  aquifer, even in the area that he was talking about,  
15  does exist.  And so in order to protect that artesian  
16  aquifer, you have to set a surface casing -- or a casing  
17  string through the artesian aquifer and cement it to  
18  surface in order to protect both aquifers, both to  
19  prevent the commingling of water from the artesian  
20  aquifer to the shallow aquifer and also to protect the  
21  artesian aquifer from degradation of water quality,  
22  whether it be from hydrocarbons or elevated total  
23  dissolved solids in the deeper aquifers that have a  
24  higher hydraulic head.  So this doesn't protect the  
25  artesian aquifer.

1           Q.    I want to go back to this document  
2   (indicating), sir, and I'd like to mark this as PVACD  
3   Rehearing Exhibit 1. I think that's the easiest way to  
4   go about it. I believe you testified that you prepared  
5   this --

6                   MR. OLSEN: I would so move admission of  
7   the document we marked as PVACD Rehearing Exhibit 1.

8                   CHAIRMAN CATANACH: Any objection?

9                   MR. BROOKS: No objection from me.

10                  MR. LARSON: No objection.

11                  MS. KESSLER: No objection.

12                  CHAIRMAN CATANACH: PVACD Exhibit Number 1  
13   in the rehearing is admitted.

14                   (PVACD Rehearing Exhibit Number 1 is  
15                   offered and admitted into evidence.)

16           Q.    (BY MR. OLSEN) I'm going to ask two questions,  
17   sir. First, do you have personal knowledge of whether  
18   or not the artesian and shallow aquifers exist in 18-26  
19   and more specifically in Sections 2, 3, 4, 11, 10 and 9?

20           A.    Based on the documents I've reviewed, I know  
21   the shallow aquifer and the artesian aquifer both exist  
22   in this area. With regard to, specifically, where they  
23   might terminate to the eastern portion area along the  
24   Pecos River, I couldn't testify to that.

25           Q.    But you are tendering testimony today that you

1    have personal knowledge that there are -- that there is  
2    shallow and artesian aquifers found in those six  
3    sections of 18-26?

4           A.    Could you repeat the sections again, please?

5           Q.    2, 3, 4, 9, 10, 11.

6           A.    Yeah.  It's my understanding, based on  
7    everything that I've reviewed from the Welder report,  
8    the Land and Newton report, other documents that we've  
9    previously talked about today, the shallow and artesian  
10   aquifer exist in this area.

11          Q.    Okay.  The waters found in those two aquifers  
12   in 18-26, do you have an opinion whether or not those  
13   waters qualify as being protected or protectable waters?

14          A.    Yes.  Both the shallow aquifer and the artesian  
15   aquifer fall within what Mr. Brooks previously described  
16   as protectable water.  So they're significantly lower  
17   than 10,000 milligrams per liter, being at 800 to  
18   1,400-ish milligrams per liter in the artesian aquifer.

19          Q.    The third part now.  As to the proposed  
20   language modification to the rule presented by the  
21   Division, have you had a chance to review the proposed  
22   language?

23          A.    Yes, I have.

24          Q.    Do you have an opinion whether or not the  
25   proposed language sufficiently defines where the surface

1 casing should be set?

2 A. Yes. I think the Division's proposed language  
3 makes it very clear as to what would be acceptable for  
4 setting surface casing and cementing to surface.

5 Q. Do you have an opinion whether the proposed  
6 language is superior to either the language contained in  
7 the original application or the proposed language by  
8 Lime Rock, whether or not the Division's proposed  
9 language is superior to either one of those?

10 A. I believe it is superior. It takes out the  
11 ambiguity that one could interpret from either one of  
12 those other documents, and it provides for protection of  
13 the artesian aquifer in addition to the shallow aquifer,  
14 and also it deals with areas where the artesian aquifer  
15 is not present. So I think it makes it quite clear what  
16 needs to be done.

17 Q. And one last question: The proposed language,  
18 do you know whether or not this language -- the proposed  
19 language by the Division is directed any -- by whom  
20 to --

21 I'm going to have to do my Jackie Gleason  
22 again (laughter).

23 Let me start again. Is it your  
24 understanding that the proposed language by the Division  
25 is applicable to all of the lands identified in the rule

1     **by the Division that we're seeking to amend?**

2           A.     Yes.  It's my understanding, since they  
3     didn't -- in this document, they did not recommend any  
4     additional areas or change in locations.  It was my  
5     opinion that it referred by reference back to the  
6     original document and area we discussed.

7           **Q.     Do you have any recommendations for additional**  
8     **language that could be added to the language propounded**  
9     **by the Division?**

10          A.     Well, the only additional language I could  
11     recommend with regard to the area of protection, it  
12     should -- these rules should be intended to protect the  
13     artesian aquifer where it exists.  The shallow aquifer,  
14     in some places, overlies the artesian aquifer, but the  
15     extent of the artesian aquifer is much greater than just  
16     the places where they overlie.  And that was shown on a  
17     number of maps even during the first hearing.  And so I  
18     think as long as the boundaries of this cover the  
19     artesian aquifer, then I think it's in good shape.  It's  
20     what we need to have done.

21          **Q.     Thank you, Mr. Peery.**

22                   MR. OLSEN:  We would pass the witness.

23                   CHAIRMAN CATANACH:  Thank you.

24                   Mr. Larson.

25

1 CROSS-EXAMINATION

2 BY MR. LARSON:

3 Q. Good morning, Mr. Peery.

4 A. Good morning.

5 Q. I'd direct your attention to what's been marked  
6 as PVACD Rehearing Exhibit Number 1. And I believe you  
7 said you heard Mr. Maxey's testimony earlier?

8 A. Yes, I did.

9 Q. And he's focusing on the northeast quadrant of  
10 Township 18 South, Range 28 East?

11 A. Yes.

12 Q. And my eyes aren't as good as they used to be.  
13 How many wells are you showing in that northeast  
14 quadrant?

15 A. I would refer you to Figures 6 and 7 of  
16 Mr. Goetze's hearing exhibits from the hearing we had in  
17 December. Both of those exhibits show a number of wells  
18 in there, although it wouldn't be an exhaustive number  
19 of wells. But it does show wells in both of those  
20 areas. So with that being said, I don't have a specific  
21 count in my head today, but those wells are referenced  
22 on those maps.

23 Q. The reason I asked, in the southwest, there is  
24 a cluster of circles there, and I just wondered if that  
25 meant -- if that signifies wells in the southwest

1 quadrant.

2 A. I'm sorry. If that signifies what?

3 Q. On Exhibit 1, there are a number of small white  
4 circles in the southwest quadrant.

5 A. Oh, those small white circles, for instance, in  
6 Sections 29 and 32?

7 Q. Yes. Are those intended to depict wells?

8 A. Those would most likely be oil and gas wells.  
9 When it looks like that on a map, that would be oil and  
10 gas wells.

11 Q. And directing your attention back to the  
12 northeast quarter, do you know if there are any water  
13 wells that are producing water from the artesian in the  
14 northeast quarter?

15 A. Yes. As I just referred to, Figures 6 and 7,  
16 there are water wells in that area.

17 Q. At what depth are they producing?

18 A. Well, we could measure it off of the cross  
19 sections, but the artesian wells would presumably be at  
20 a depth of 700 feet or more down to probably 1,000 or  
21 1,100 feet. The shallow aquifer wells would be on the  
22 order of a few hundred feet deep.

23 Q. I heard you say the word "presumably." You  
24 haven't looked at State Engineer well records for those  
25 wells?



1           A.    I haven't looked at well records for all of  
2   those, nor is there a set depth the wells are always  
3   completed to.  So in the artesian aquifer, one might  
4   choose to go into the aquifer 1- or 200 feet, while a  
5   neighbor may choose to drill into the aquifer 3- or 400  
6   feet.  So it's a matter of preference for the owner, and  
7   I assume some of that has to do with his pocketbook, as  
8   well as to demand.

9           Q.    And you heard Mr. Maxey testify that there's  
10   been commercial oil production historically in the  
11   northwest quarter?

12          A.    Yes.

13          Q.    And that that production been in the confining  
14   unit, as well as in the artesian?

15          A.    Yes.  I heard that.

16          Q.    And with that level of oil shows, would you  
17   expect there to be usable fresh water in the artesian in  
18   the northwest quarter --

19          A.    Yes, I would.

20          Q.    Where would that fresh water appear?

21          A.    The fresh water would appear in the shallow  
22   aquifer and in the artesian aquifer.

23          Q.    Even though there's been oil production from  
24   the artesian?

25          A.    Yes.

1           Q.    And going back to what was marked as Lime Rock  
2   Exhibit 11, where we added the words "except that" -- do  
3   you have that in front of you?

4           A.    Yes, I do.

5           Q.    And are you aware that except for those words  
6   that have been red-lined in, that the Conservancy  
7   District agreed to this modification in the joint  
8   application?

9           A.    Yes, I am.

10          Q.    Is it your testimony that that language would  
11   not protect the artesian, as the Conservancy District  
12   agreed to in the joint application?

13          A.    I think it left some room for interpretation,  
14   and that's why the District elected to go with the  
15   language that the Division has recommended because it  
16   takes away the ambiguity.  Because as I mentioned  
17   earlier, the intent is to protect the shallow and the  
18   artesian aquifer system, and if that language is  
19   interpreted that you can set a string of casing above  
20   the artesian aquifer and not protect it, then it does  
21   not protect the artesian aquifer.

22          Q.    And why does it not protect the artesian  
23   aquifer?

24          A.    Well, if the hole is drilled below the --  
25   through the artesian aquifer and below, lost circulation

1 can occur. There was some testimony to that in December  
2 from various oil and gas experts in here, drilling  
3 engineers.

4 And the water quality at depth is quite  
5 poor. The total dissolved solids ranges from, say,  
6 35,000 to 150,000 milligrams per liter. Also, the head  
7 pressure -- or the hydraulic pressure on those deeper  
8 formations are higher than the pressure on what we call  
9 the artesian aquifer. So when I say artesian  
10 aquifer, I'm referring to the freshwater system. That  
11 water can come up and commingle into the artesian  
12 aquifer and not only give you the opportunity for  
13 hydrocarbons to enter, but also for poorer water quality  
14 to come in and degrade the water quality in the artesian  
15 aquifer.

16 So that's why the casing string needs to be  
17 set through the artesian aquifer, in order to prevent  
18 those things from happening.

19 **Q. So you disagree with Mr. Maxey's conclusion**  
20 **that the drilling process will not threaten the**  
21 **artesian?**

22 **A.** I do disagree with that because there was a lot  
23 of testimony on lost circulation, as I mentioned  
24 earlier, from the December hearing. But more than that,  
25 when we look at the -- the flow capacities or how well

1 fluid -- water particularly moves through various rocks,  
2 the water moves through the rocks in the artesian  
3 aquifer at rates that are thousands to even a million  
4 times faster than what you have from those underlying  
5 rocks.

6                   So what happens is when those potential  
7 contaminants are able to move upward, they can move very  
8 readily into the artesian aquifer. It's a very  
9 permeable unit and very transmissive. Water moves  
10 through it very well.

11           **Q. Have you designed or drilled an oil well?**

12           A. No, sir. I have not.

13           **Q. And do you disagree with Mr. Maxey's opinion**  
14 **that in the scenario where you drill a surface casing**  
15 **above the artesian and then run your production casing**  
16 **string down a total depth, that cementing that to the**  
17 **surface would protect the artesian during the**  
18 **production?**

19           A. I disagree that if you leave -- if you leave  
20 the artesian aquifer open as you drill below it, lost  
21 circulation does occur. It's been testified to by your  
22 experts. And that is where the potential for  
23 contamination to go into the artesian aquifer occurs.  
24 So it's not a perfect world and lots of things go bad.  
25 And the artesian aquifer is the most permeable unit

1     there.  Water moves through it better than any of the  
2     rocks below it.  So I disagree that you cannot have a  
3     problem by leaving it open.

4           **Q.     Well, once the well's completed and you're**  
5     **producing it, it's cased and cemented to the surface.**  
6     **That's the scenario I'm talking about.  At that point in**  
7     **time when you're producing, do you see a threat to the**  
8     **artesian?**

9           A.     If nothing bad happens during the drilling  
10    process and you've got a perfect seal through the  
11    artesian aquifer, then some portion below it so that  
12    there is no communication up into the artesian aquifer,  
13    if everything goes perfect in a perfect world, you're  
14    probably okay.  But we don't really live in a perfect  
15    world.

16           **Q.     That's all I have.**

17                   MR. BROOKS:  No questions.

18                   MS. KESSLER:  I do have one quick question,  
19    Mr. Examiner.

20                   CHAIRMAN CATANACH:  Go ahead.

21                               CROSS-EXAMINATION

22    BY MS. KESSLER:

23           **Q.     Good morning.**

24           A.     Good morning.

25           **Q.     Do you recall the testimony that you gave in**

1 the hearing? I believe it was on December 6th.

2 A. Yes, I do.

3 Q. At that point --

4 MS. KESSLER: And I would ask that -- I  
5 believe this has already been done -- take  
6 administrative notice of the record in that case.

7 Q. (BY MS. KESSLER) Mr. Feldewert, the attorney  
8 for COG and Fasken and OXY at that time, asked you a  
9 question that said, "Now, let's talk about the  
10 importance of casing and cementing off those -- those  
11 two aquifers. Why do we do that?" Do you recall your  
12 answer?

13 A. If you could read it to me, that would be nice.

14 Q. Certainly. You answered, "The reason that we  
15 would like to see casing through the shallow zone is to  
16 entirely cut it off and make sure it's cased and  
17 cemented off from any other leakage that may occur into  
18 it, and that's the main reason behind that, you know."  
19 Do you recall that answer?

20 A. Yes.

21 Q. And do you continue to agree with it?

22 A. I think it's consistent with what I just said.

23 Q. So would you also agree that the purpose of  
24 these special rules is to prevent commingling between  
25 the two aquifers?

1           A.    Oh, I think maybe we're talking two different  
2   things here.

3                        So as I mentioned earlier, there are two  
4   different things that we're trying to accomplish here.  
5   One of them is to prevent commingling between the two  
6   aquifers. And if we have the artesian aquifer flowing  
7   into the shallow aquifer, what we have is a loss of  
8   pressure in the artesian aquifer. And I think in my  
9   testimony, I go into some great deal about that and why  
10   it's bad and it costs people more money to produce water  
11   because they have to pump from a lower depth or use  
12   bigger pumps and that sort of thing. So that's one of  
13   things we're trying to do, is make sure that the  
14   artesian pressure in the artesian aquifer stays there  
15   and doesn't leak up into the shallow aquifer.

16                    The other thing we're trying to do is  
17   prevent potential contamination from anything below the  
18   artesian aquifer from getting into the artesian aquifer.

19                    So those are the two circumstances that I'm  
20   talking about.

21           Q.    Okay. But there is -- and, again, just to --  
22   just to go back to the specific point here, what you  
23   said in your prior testimony was that what we're  
24   concerned about is commingling between the two aquifers,  
25   correct?

1           A.    I did say that, but I think if you read my  
2   entire testimony, that wasn't the only thing that I was  
3   concerned about. I think you've just taken a small  
4   portion of my testimony there to ask me about.

5           **Q.    Okay.**

6                   MS. KESSLER: No further questions.

7                   Thank you.

8                   CHAIRMAN CATANACH: Do you have questions?

9                   MR. BROOKS: No questions.

10                  CHAIRMAN CATANACH: Commissioner?

11                  COMMISSIONER BALCH: Go ahead.

12                               CROSS-EXAMINATION

13   BY CHAIRMAN CATANACH:

14           **Q.    The data regarding the presence of the artesian**  
15   **aquifer in that township and range is based on -- you've**  
16   **examined water well records?**

17           A.    Yes. There are State Engineer's Office records  
18   there and various data from the reports that we've  
19   discussed throughout the hearing.

20           **Q.    And you have no doubt that there is fresh water**  
21   **being produced from the artesian aquifer in that area?**

22           A.    I don't have any doubt about that. There is  
23   fresh water being produced.

24           **Q.    And it's your opinion that that can be -- can**  
25   **co-exist in a formation that's being produced -- that's**



1    **being oil produced?**

2           A.    Yes, it can.  Certainly, as we know, oil  
3   floats, and if you have oil in a bed above the aquifer,  
4   certainly they can exist one on top of the other.

5           **Q.    So is there any reason to treat this area**  
6   **different from the rest of the area, in your opinion,**  
7   **that we've designed?**

8           A.    Oh, I think if we're talking about setting a  
9   string of surface casing through -- to the base of the  
10   artesian aquifer or something below that and cement it  
11   in place, I don't think there is any need for a special  
12   rule here.  Just have one rule that applies to the  
13   setting of the casing in the Roswell Artesian Basin.

14          **Q.    And it's your opinion that the area as defined**  
15   **in the original order should remain as originally**  
16   **described?**

17          A.    Yes, sir.

18                   CHAIRMAN CATANACH:  I have nothing further.  
19                   The witness can be excused.

20                   THE WITNESS:  Thank you.

21                   CHAIRMAN CATANACH:  You've got one witness?

22                   MR. BROOKS:  Yes, one witness.

23                   CHAIRMAN CATANACH:  It might be another  
24   hour.  Let's go ahead and break for lunch.  Be back at  
25   1:15.

1 (Recess, 11:52 a.m. to 1:21 p.m.)

2 CHAIRMAN CATANACH: Call the hearing back  
3 to order.

4 At this time I'll turn it over to  
5 Mr. Brooks.

6 MR. BROOKS: Thank you, Mr. Chairman. I  
7 would call Phillip Goetze. I think I will be fairly  
8 brief, but I will proceed.

9 PHILLIP GOETZE,  
10 after having been previously sworn under oath, was  
11 questioned and testified as follows:

12 DIRECT EXAMINATION

13 BY MR. BROOKS:

14 Q. Your background education and qualifications  
15 were explored in the previous hearing; is that correct?

16 A. That is correct.

17 Q. And what did you characterize your area  
18 expertise in?

19 A. In general, I do both petroleum geology, and I  
20 do hydrology with respect to the UIC Program, as well as  
21 geology associated with petroleum engineering and  
22 petroleum geology.

23 Q. Now, I believe you were qualified in both those  
24 fields at the previous hearing.

25 A. I believe that's correct.

1           Q.    Okay.  You do a lot of work with underground  
2   injection and injection permitting; do you not?

3           A.    Yes, sir.

4           Q.    Okay.  Would you agree with Mr. Peery that just  
5   because there are shows of oil when you drill through a  
6   formation, that doesn't necessarily mean there is not  
7   protectable water in that same formation?

8           A.    It is of my opinion that this is true,  
9   especially in the Roswell Artesian Basin.

10          Q.    Now, is it not also true that an aquifer can be  
11   good fresh water in some places and highly saline in  
12   others?

13          A.    This is also true.

14          Q.    Would you agree with Mr. Maxey that the geology  
15   of the artesian aquifer and accompanying strata gets  
16   more complicated as you get close to the Pecos River  
17   going from east to west?

18          A.    The eastern boundary of this area where the two  
19   aquifers are together is complex, and it represents a  
20   gray zone where the option of the district engineer to  
21   have -- or the district supervisor to have input to make  
22   a specific recommendation is critical.

23          Q.    What happens to the artesian aquifer as you  
24   move east across the Pecos River?

25          A.    Its definition and its quality is very

1     undetermined, has not been qualified and quantified in  
2     many locations.

3           **Q.     Now, would it be fair to say that along the**  
4     **west boundary of the Pecos River, the artesian aquifer**  
5     **might or might not be good quality water?**

6           A.     There is supporting evidence that there are  
7     deep artesian wells which have been drilled in that area  
8     and have been used for agricultural purposes.

9           **Q.     Now, in preparation for this hearing, did you**  
10    **investigate oil wells -- or oil and gas wells that were**  
11    **drilled in the northeastern quadrant of Township 18**  
12    **South, Range 26 East in search -- wells in search of oil**  
13    **and gas?**

14          A.     At the request of the district geologist --  
15    Artesia District geologist, we took a look at several of  
16    the applications made by Lime Rock prior to this case  
17    coming up. In comparison with what was offered by Lime  
18    Rock as a water protection casing interval, it seemed to  
19    not fit the information offered up by the State  
20    Engineer's Office with regards to depths of artesian  
21    wells used for production.

22          **Q.     Okay. Did you -- at what depth did Lime Rock**  
23    **propose to drill wells in Sections 11, 12, 13 of 18**  
24    **South, 26 East?**

25          A.     Well, the Brainard [phonetic] 11P #4, what

1     would be the water-protection casing was given a  
2     proposed depth of 675 feet or 50 feet above the first  
3     oil show.

4           **Q.     Okay. Did you look at what depth had been --**  
5     **casing had been set -- surface casing had been set in**  
6     **other oil and gas wells in that general facility?**

7           A.     We did take a look at the historical placement  
8     of the casing in that area, as well as the information  
9     available from the State Engineer's Office of wells in  
10    that area also.

11          **Q.     Okay. Did you find that the State Engineer's**  
12    **Office indicated that there were water wells completed**  
13    **in the artesian aquifer in that area?**

14          A.     Indications are, based upon the information  
15    available, in the proximity of the 11P, we found at  
16    least three wells with depths greater than 1,100 feet.

17          **Q.     Water wells?**

18          A.     Correct, sir.

19          **Q.     And those were reported to be producing water?**

20          A.     That could not be determined at this point, but  
21    we base the decision on the fact that these wells were  
22    reported with water. They have water rights.  
23    Therefore, they have at least a basis for offering a  
24    point of reference in making a determination.

25          **Q.     Okay. Now, did you also investigate the depths**

1     in which casing had been set in oil and gas wells  
2     historically in this area? And when I say this area,  
3     I'm talking about the northeast quadrant of Township 18  
4     South, Range 26 East.

5           A.     Well, in particular for this well, we looked in  
6     Section 11 and found a consistent pattern of what would  
7     say the water-protective casing being set was anywhere  
8     from 1,150 to 1,200, 1,195 feet, 1,031 feet, and then we  
9     do have a 950 feet. So -- but this was a cursory review  
10    of the wells in the area.

11          Q.     Okay. If you were the district geologist in  
12    District II, which you may be sometime because many  
13    people have held that position --

14                     (Laughter.)

15          Q.     -- and you received an application from the  
16    operator to drill an oil well in the northwest quadrant  
17    of Township 18, Range 26 East and it proposed to set  
18    casing between 600 -- well, surface casing between 600  
19    and 700 feet, what kind of information would you want to  
20    know from that operator before you approved that?

21          A.     Well, I would invite the operator to come in  
22    and provide the information that he had and the basis of  
23    his decision to set the casing at that depth, and with  
24    that and the available public information, sit down and  
25    figure out what would be the best solution.

1           Q.    Now, when you're processing an application for  
2   an injection well, do you have a very rigorous  
3   consistent protocol for doing that?

4           A.    Again, applied to the specific geology and  
5   hydrology, yes, there are protocols.

6           Q.    Okay. But we don't have any such established  
7   protocol for approving APDs?

8           A.    Basically, that is left at the district level,  
9   and our participation is basically at the request of the  
10   district supervisor.

11          Q.    And you don't disagree that it should be  
12   processed at the district level?

13          A.    It's far more a task than anything to be done  
14   here. At the district, it's -- as well as the  
15   expertise, as well as the ability to get things done.

16          Q.    If you were the district geologist, would you  
17   want to have some information from wells that had  
18   drilled through the artesian aquifer to enable you to  
19   get some idea what its characteristics were, at that  
20   depth, in that area?

21          A.    I would like as much information as I could  
22   possibly get.

23          Q.    I believe we've covered that aspect of it. It  
24   seems to me there was one other thing I was going to ask  
25   you about this.

1                   Now, if you drill a well through the  
2   artesian aquifer and it's cased above the artesian  
3   aquifer, the surface casing is above the artesian  
4   aquifer, then you drill through the artesian aquifer,  
5   and you drill on down to the Yeso -- by the way, what's  
6   the depth -- what is the depth encounter of the Yeso?

7           A.    We're looking at 4,300, 4,100.

8           Q.    Okay. So you're going to be drilling another  
9   3,500 feet or so beyond where Lime Rock would set  
10   surface casing.

11                   Are there a lot of things that could happen  
12   that might affect the quality of fresh water that was  
13   exposed to the formation during the drilling process?

14           A.    Well, there is a potential if driller feels the  
15   need to go to a brine-base filling. There may be  
16   implications there for a situation where you may have  
17   contamination in something that's protectable. There  
18   has been issues raised with regards to lost circulation,  
19   but it's, again, dependent upon what's happening in the  
20   field. There is the potential for contamination of the  
21   interval that's not already protected by the water  
22   string.

23           Q.    Okay. Given the uncertainty of the nature and  
24   occurrence of the artesian aquifer in this general area  
25   west of the Pecos -- west of, but approximate to, the



1     Pecos and given the hazards that could exist for  
2     affecting the aquifer, during the drilling process if  
3     you're drilling down to a deeper area, would it be --  
4     would you have a recommendation as to what ought to be  
5     the general rule for setting casing in this area?

6           A.     As proposed in our language, we looked at the  
7     San Andres as being the minimum standard to which we  
8     would have a degree of safety, in our minds, that we  
9     have provided, at least an attempt to provide, a proper  
10    protection of both shallow and artesian with the use of  
11    a single string.

12           Q.     Yeah. Now, if it were considered appropriate  
13    to require more than one string, would you recommend  
14    requiring a casing string immediately below or very  
15    close to the base of the valley-fill and then another  
16    below the artesian?

17           A.     That would be a situation where -- we would  
18    have to go through the process and clear evidence that  
19    this would be beneficial for the protection of the two  
20    aquifers.

21           Q.     But if the judgment were made that it was  
22    uneconomic to put -- to use two surface strings and  
23    you're going only going to use one, would you recommend  
24    that it be below the base of the artesian aquifer?

25           A.     We would appeal that it be below the base of

1 the aquifer.

2 Q. This is a general rule, and my understanding is  
3 you do not have any problems with the district  
4 supervisor having the authority to make exceptions if he  
5 has sufficient location -- specific evidence to support  
6 such?

7 A. Yes, I agree.

8 Q. Thank you.

9 MR. BROOKS: I think that's all I have of  
10 this witness.

11 CHAIRMAN CATANACH: (Indicating.)

12 MR. OLSEN: I just have a question.

13 CROSS-EXAMINATION

14 BY MR. OLSEN:

15 Q. Sir, whose responsibility is it to ensure the  
16 application, APD, that the aquifer -- the fresh water is  
17 going to be protected? Is it the producer? Is that  
18 their obligation to bring that to you, or is that the  
19 district supervisor?

20 A. Well, the district supervisor or the district  
21 geologist has the authority to sign off on the casing  
22 program. It is to their best ability that they make a  
23 decision with available information. And we are  
24 sympathetic to Lime Rock because they are in a location  
25 which is very interlaced with both production and water

1 resources. And our contention is though they have this  
2 situation, there are nearly 66 miles of this similar  
3 situation going along the east side of this aquifer  
4 relationship between the valley-fill and the deeper  
5 artesian. We, hopefully, have trained our district  
6 geologists to recognize where there are questions, and  
7 he will pursue getting more information.

8 **Q. To make sure I understand, is it your opinion**  
9 **today that the rule -- the language -- the proposed**  
10 **language by the Division is necessary to ensure the**  
11 **integrity of the waters within the Roswell Artesian**  
12 **Basin from north to south, and as a general rule, the**  
13 **proposed language is there to ensure the integrity and**  
14 **quality of the water; and then in those specific areas**  
15 **vis-à-vis Lime Rock, Township 18 South, Range 36 East,**  
16 **that the district supervisor in Artesia has the ability**  
17 **to go one step further if necessary?**

18 A. Yes.

19 **Q. That was a long-winded question.**

20 A. And we recognize it. So we recognize that  
21 we're relying on information that is not wholly exact  
22 and that there are sources between both operators of  
23 water wells and operators of oil and gas operations who  
24 have information that is specific and that this should  
25 be considered and used in making the determination.

1           **Q.    Thank you.**

2                   MR. OLSEN:   Pass the witness.

3                   CHAIRMAN CATANACH:   Questions?

4                   MS. KESSLER:   No.

5                   MR. LARSON:   I do.

6                               CROSS-EXAMINATION

7   BY MR. LARSON:

8           **Q.    Good afternoon, Mr. Goetze.**

9           A.    Good afternoon, Mr. Larson.

10          **Q.    You mentioned a 66-mile area.  What,**  
11 **specifically, are you talking about?**

12          A.    11 sections going -- 11 townships going  
13 north -- six times 11 is 66 miles -- along the front  
14 that represents a transition, and probably the most  
15 difficult area to determine where the artesian boundary  
16 is as defined by the Welder map.

17          **Q.    And you were here this morning for Mr. Maxey's**  
18 **testimony?**

19          A.    That's correct.

20          **Q.    And he basically defined the area we're talking**  
21 **about in terms of the Joint Applicants' proposal, which**  
22 **is the northeast quadrant of Township 18 South, Range 26**  
23 **East and the northwest of Township 18 South, Range 27**  
24 **East?**

25          A.    That's correct.

1           Q.    So you're really talking about an area of about  
2   66 miles?

3           A.    That's correct.

4           Q.    And you mentioned you look at some State  
5   Engineer well records that shows wells drilled to 1,100  
6   feet. I may have missed what section those were in.

7           A.    Let's see. In Section 11, I have Pod Number  
8   RA03634, total depth 1,797. Along with that, I have  
9   RA03596, TD at 1,736. To the north --

10          Q.    Are we still in Section 11?

11          A.    Those were in Section 11.

12                   Let me go down here. And then -- let's  
13   see. I have RA11 at 1,100 feet. That's a fairly old  
14   one. That would be also in Section 11. Then I have --  
15   let's see. As we go towards the west, we're seeing  
16   noticeable decline. RA10A, in Section 10, is a TD of  
17   863 feet. And then there is an anomaly to the north of  
18   10 where RA01245 has a TD of 1,102 feet.

19          Q.    And did you actually look at the OSC well files  
20   down there?

21          A.    I did not visit the office to look at the well  
22   files, but I am aware, I believe, of the 1245 in my work  
23   doing dairies in the Roswell area.

24          Q.    Do you know what depth water was produced from  
25   that well?

1           A.    Well, it gives a top of water that's fairly  
2   shallow.  I believe it was around 200 feet.

3           Q.    So even though you know the total depth, you  
4   can't say for certain what depth it was producing water  
5   from?

6           A.    I believe it's -- this well, in particular, was  
7   registered as an artesian well, and casing was brought  
8   down to the interval.  I do not have it with me, but I  
9   do have the record at home with it.  So --

10          Q.    And you mentioned the type of information that  
11   a producer would bring to the district geologist along  
12   with an APD.  What if the operator brought records of  
13   historical commercial production from the confining  
14   unit?

15          A.    We would look at this.  We would consider this.  
16   Again, we're in a region where you have Grayburg coming  
17   up in production, and we're familiar with the Atoka and  
18   the San Andres.  So it's not precluding.  Our mission is  
19   to look at the potential, applying a rule that fits our  
20   areal distribution of the aquifer and, with that,  
21   provide a rule that triggers an operator to come in and  
22   discuss and set up a whole program with information that  
23   they have.  So not just for an APD.  You could come in  
24   and discuss an areal extent, and based upon your  
25   information, and develop from that, a casing program

1     that's acceptable.

2           Q.     Okay.  And I'm not going to use Lime Rock, 750.  
3     We'll use a hypothetical operator.  Comes in and shows  
4     that there's been significant commercial production from  
5     the confining unit and no record of any fresh water --  
6     usable fresh water in the artesian.  Would you consider  
7     setting the casing 50 feet above the commercial  
8     production?

9           A.     It would also, with that information, be  
10    compared to what the State Engineer has said also.  And  
11    we would look at that and then make a decision based  
12    upon that.

13          Q.     And doesn't the proposal of the Joint  
14    Applicants give some certainty to the district office in  
15    the sense that there is either a mud log or some  
16    information of historical production in the confining  
17    unit?

18          A.     I may have an interval that has protectable  
19    waters below that.

20          Q.     And what information would you have to discern  
21    that?

22          A.     Again, I'd be back at the Welder map, which  
23    makes the basis of a decision, as well as what is  
24    available at the State Engineer's Office.

25                   MR. LARSON:  I'll pass the witness.

1 CHAIRMAN CATANACH: Commissioners?

2 COMMISSIONER BALCH: I have nothing.

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1 CROSS-EXAMINATION

2 BY COMMISSONER MARTIN:

3 Q. We already covered the area of exceptions and  
4 applicability amendment. You would agree there is  
5 nothing in the rule that precludes the approval of  
6 exceptions to any part of this rule, right?

7 A. I would even insist that the Commission -- this  
8 is, I believe, in D in the rule -- embellish it so that  
9 this is clarified to ensure that this opportunity is  
10 available.

11 Q. Given the lack of protocol and procedures for  
12 approving exceptions, how hard is it to guarantee the  
13 consistency of approval or review of the exception?

14 A. It depends who is the district geologist for  
15 that week.

16 Q. You.

17 A. Thank you.

18 I think part of our problem -- and our  
19 approach to this rule is about giving the people in the  
20 field, the people who have to make the decisions a  
21 reminder that this is a very, very critical resource and  
22 that the artesian aquifer is somewhat unique and,  
23 therefore, requires a little more attention, say, than  
24 areas where we've got more information and certainly a  
25 better definition.

1           Q.    No more questions.

2                               CROSS-EXAMINATION

3   BY CHAIRMAN CATANACH:

4           Q.    Mr. Goetze, on your proposed rule, you're not  
5   trying to exclude -- in the existing rule -- you're  
6   going to leave A, B and C of the existing rule intact,  
7   is that correct, and just add A, B and C of the new  
8   proposal?

9           A.    Well, since this was written by three  
10   geologists, an engineer and a lawyer, I am assuming that  
11   we are replacing it in total, that (2) will be as we  
12   presented.

13          Q.    Well, I think that -- in the existing rule, A,  
14   B and C deals with furnishing a cement bond log, and B  
15   and C deals with lost circulation and inflow of fresh  
16   water. I would assume you want to leave those in there.

17          A.    I would probably advise the Commission to also  
18   retain those.

19          Q.    So, again, my question would be: You're just  
20   adding A, B and C to the -- and A, B, C of the existing  
21   rule would become D, E and F? Is that a fair  
22   interpretation?

23          A.    That's correct. That is a fair interpretation.

24          Q.    Who was involved in drafting this amended  
25   language?

1           A.    We had two other geologists, the district  
2 geologist in Artesia and the district geologist in Hobbs  
3 and the bureau chief who is an engineer.

4           Q.    And I believe that we've heard today that the  
5 district geologist in Artesia is extensively familiar  
6 with this whole geologic system in this area?

7           A.    He is familiar, yes.

8           Q.    And Mr. Kautz, who is the geologist in Hobbs,  
9 who has been there for how long? 40 years?

10          A.    You had to draft him back, so --

11          Q.    We trust their judgment on this?

12          A.    Yes. And they're experienced. I think they're  
13 the ones that brought to light this issue with regards  
14 to shows and hydrocarbon occurrence in relationship to  
15 the aquifer and tried to find something that was general  
16 enough to remind the next district geologist in Artesia  
17 what requirements are there and then the opportunity to  
18 change it as fit based upon information provided by the  
19 operator.

20          Q.    So Mr. Larson asked you if a company came to  
21 you and said there is no protectable artesian water in  
22 this area and adequately demonstrated that, would you  
23 grant -- do you think we would grant an exception to  
24 that?

25          A.    Yes. It would be the information available

1 done at the time, and if it was done in a good-faith  
2 effort, I would see no reason why not.

3 Q. And I don't know if you've looked at that. You  
4 did touch on this. Do you believe that paragraph D in  
5 the rule is sufficient to allow us to us to grant that  
6 exception, or would we need to work on paragraph D?

7 A. I'd ask my attorney to speak up for me, but --

8 CHAIRMAN CATANACH: Well, I guess I could  
9 ask Mr. Brooks about that.

10 To me paragraph D appears to be -- it says  
11 that we could grant an exception to -- "may require a  
12 casing program that provides for an additional  
13 water-protection string."

14 THE WITNESS: I think you might want to  
15 reword that to "provide the opportunity for a modified"  
16 based upon the information provided by either operator  
17 or District.

18 CHAIRMAN CATANACH: I guess I would then  
19 ask my attorney that in the scope of this hearing, that  
20 we would be able to do that, Mr. Brancard?

21 MR. BRANCARD: Well, we may if it's part of  
22 a way of resolving the initial issue that was raised by  
23 the rehearing.

24 CHAIRMAN CATANACH: Okay.

25 MR. BROOKS: Did you wish me to comment on

1 effective Section D, or are you satisfied?

2 CHAIRMAN CATANACH: If you want to comment,  
3 it would be welcome.

4 MR. BROOKS: Now that I read Section D  
5 carefully here, I could see it could easily be read to  
6 permit the district supervisor to make exceptions only  
7 for additional protection of fresh water. We would  
8 think that it also should allow the district supervisor  
9 to make exceptions to not require unnecessary  
10 production. And I don't know -- you know, language that  
11 would express that would be acceptable to the Division.

12 CHAIRMAN CATANACH: Did you have any  
13 questions?

14 CROSS-EXAMINATION

15 BY MR. BRANCARD:

16 Q. Yeah. Okay. So earlier there was a discussion  
17 of what is the goal of this rule? Is there one goal or  
18 more than one goal? And what was offered was: The goal  
19 was to avoid communication between the two aquifers that  
20 may be present in the same area as the shallow aquifer  
21 and the artesian aquifer. And then there was a second  
22 goal that was offered that it should be there to protect  
23 the aquifers, period. In other words, just protect the  
24 artesian aquifer itself from contamination from whatever  
25 sources.

1                   **What is your sense of the goal, and what**  
2   **are we trying to get at, since the Division was the one**  
3   **that proposed this rule?**

4           A.    Our goal was to have protection for the deeper  
5   artesian, that you can achieve both goals with  
6   consideration given to the absence or presence of the  
7   artesian. And clearly that seems to be the most  
8   difficult aspect of this rule. When do you call it  
9   quits, and how do you decide to make that decision  
10   viable and uniform? It's going to be very difficult in  
11   realization that the boundaries of this aquifer, there  
12   are situations where a specific rule might be adequate  
13   for a little area, but after that, you start moving  
14   around in the area with the extent of the aquifer, and  
15   it's not going to be applicable.

16           **Q.    So the artesian aquifer should be protected**  
17   **even if this is no shallow aquifer?**

18           A.    That's correct.

19           **Q.    Okay. And that would justify having the larger**  
20   **description of the area that's currently in the rule?**

21           A.    This would provide a reminder to District, as  
22   well as the Division, that we do have an obligation, and  
23   it is a unique resource, as was brought out in hearing.

24           **Q.    And your proposed language deals with when the**  
25   **artesian aquifer is not present within this area, how to**

1 deal with it, right?

2 A. Correct.

3 Q. Okay. And so the proposal that was offered at  
4 this hearing by the Movants that would require a higher  
5 level of casing -- I mean -- sorry --

6 A. Shallower?

7 Q. -- shallower end of the casing above the  
8 artesian aquifer is, in your opinion, not necessarily  
9 protective of the artesian aquifer?

10 A. That is correct.

11 Q. I realize you were one of several authors of  
12 this rule, but perhaps we can go through the rule a  
13 little bit that is proposed just to --

14 A. Clarify?

15 Q. -- to clarify and to, again, avoid getting us  
16 back to why we got here in the first place, which is an  
17 ambiguous rule.

18 So it says, "The operator shall set a  
19 surface casing string at a minimum 50 feet below the  
20 base of the artesian (deepest) aquifer." What do you  
21 mean by "artesian (deepest) aquifer"?

22 A. That would be the artesian aquifer. I think  
23 there was some --

24 Q. I mean, does the "(deepest)" clarify,  
25 minimize --

1           A.    It may add confusion in the definition, so --  
2   basically, it is the artesian aquifer that we're  
3   referring to.

4           Q.    Okay.  In other words, there is not more than  
5   one artesian aquifer?  There is just the artesian  
6   aquifer?

7           A.    That's correct.  We're handling it as a single  
8   unit.

9           Q.    I'm just sort of offering to you whether you  
10   want to keep that "(deepest)"?

11                   MR. BROOKS:  Well, I think that was not a  
12   very happy addition, Mr. Brancard.  I would not object  
13   to the Commission striking out "(deepest)."

14           Q.    (BY MR. BRANCARD) Okay.  So then it says in  
15   (A), "In areas without the occurrence of the artesian  
16   aquifer at depth."  What do you mean by "at depth"?

17           A.    Below the location of the well.

18           Q.    Well, an aquifer is generally below where the  
19   well is?

20                   MR. BROOKS:  I think, again, that was not a  
21   happy usage.  I suspect that both of these may have been  
22   mine, although I am one of several authors, and I do not  
23   remember specifically what conclusions I made.  So far,  
24   however, I suspect myself on both of the two that have  
25   been identified as objectionable.



1           Q.    (BY MR. BRANCARD) Okay.  So you're not wedded  
2   to the phrase "at depth"?

3           A.    No.  That's --

4                   MR. BROOKS:  I'm not either.

5           Q.    (BY MR. BRANCARD) So (2)(A) is essentially what  
6   the Movants propose, but would only occur if there was  
7   no artesian aquifer?

8           A.    Correct.

9           Q.    Okay.  So (B) said, "If the base of the  
10   artesian aquifer is not otherwise identified."  Can you  
11   just clarify what that means?  Are you saying that there  
12   is an artesian aquifer, but you can't figure out where  
13   it ends?

14          A.    That's correct.

15          Q.    Where the bottom of it is?

16          A.    That's the vertical extent of it.

17          Q.    And so then it shows, "Shall be set no more  
18   than 50 feet above the first show of the hydrocarbons in  
19   the San Andres."  Is that fairly consistent through this  
20   area, that the San Andres is below the artesian?

21          A.    It is actually part of the artesian, so it  
22   would be -- the major portion of the areal extent that  
23   we're considering, the San Andres is the upper part of  
24   it, is the major aquifer system.

25          Q.    Okay.  So the San Andres is sort of the bottom

1     **formation to the artesian?**

2           A.     Primarily in the artesian aquifer.

3           **Q.     Does the San Andres have hydrocarbons all**  
4     **through it through this area?**

5           A.     It has occurrences of it, yes.

6           **Q.     I'm just sort of trying to make sure somebody**  
7     **can actually comply with this rule here in all cases.**  
8     **Whereas, if you hit the San Andres but there are no**  
9     **hydrocarbons in it, what do you do to comply with B?**

10                   MR. BROOKS:   Well, I guess literally you  
11     would not be able to comply unless you could find some  
12     other criterion for defining the base of the San  
13     Andres -- of the San Andres.   I believe this was  
14     Mr. Kautz' suggestion.   Basically, a show of  
15     hydrocarbons would define the base of the aquifer if it  
16     is -- was not otherwise defined.   But I did not question  
17     him concerning the specific point you raise.

18                   MR. BRANCARD:   Okay.   We need to clarify  
19     that a bit if the Commission wants to go for this  
20     proposal.

21           **Q.     (BY MR. BRANCARD) And then it says, "That**  
22     **occurs below the presumed depth of the aquifer."   Are**  
23     **you referring to the artesian aquifer here?**

24           A.     Yes.

25           **Q.     Presumed depth?**

1           A.    Based upon available information, again,  
2   publications and/or logs.

3           Q.    You're presuming that the San Andres is below  
4   the aquifer.  What does that mean?  It says, "The San  
5   Andres occurs below the presumed depth of the aquifer."  
6   What does that -- why do we have that phrase in there?

7                   MR. OLSEN:  Sure.  I think from a rule of  
8   thumb, we look to the San Andres as being -- that's  
9   where the production of the artesian -- so when we  
10   talk -- if you look at the reports, we use when the San  
11   Andres as the base.

12                          Fair statement, Phil?

13                          THE WITNESS:  Yes, that's correct.

14                          MR. OLSEN:  So say we go below -- get out  
15   of the San Andres; we're not producing -- we're not  
16   producing that real deep water.

17                          COMMISSIONER BALCH:  I agree with  
18   Mr. Brancard.  I don't think that last phrase adds  
19   anything to the clause.

20                          MR. BRANCARD:  Yeah.

21                          THE WITNESS:  It doesn't give any  
22   definition.

23                          MR. BROOKS:  I think at one point in the  
24   development of this rule, we did have a statement of the  
25   base of the San Andres -- the base of the -- no.  The

1 base of the -- 50 feet below the base of the artesian  
2 aquifer at approximately 1,200 feet, or something to  
3 that effect, and that 1,200 feet got deleted at some  
4 point. And we may not have realized that that had been  
5 deleted. But I think the presumed depth of the artesian  
6 aquifer was defined as being in the vicinity of 1,200  
7 feet at one point. Apparently not anymore because I  
8 don't see it in the rule anywhere.

9 MR. OLSEN: Well, it was in --

10 MR. BROOKS: Yeah, proposed rule.

11 MR. OLSEN: In the original proposed rule,  
12 paragraph (C)(3), "Whereas the operator shall set the  
13 immediate casing string in the San Andres Formation at a  
14 depth of approximately 1,200 feet below the surface and  
15 not more than 50 feet above the first show of  
16 hydrocarbons encountered in the San Andres Formation on  
17 the mud logs." So that was the original -- that was the  
18 language in the original proposal.

19 COMMISSIONER BALCH: Well, I'm just saying  
20 that it's a lot more clear if you stop after "San Andres  
21 Formation" with a period.

22 THE WITNESS: Put a period?

23 Q. (BY MR. BRANCARD) And (2)(C), this is new  
24 language. No one originally discussed this. Can you  
25 explain what the purpose of (2)(C) is?

1           A.     It's because my engineer wanted it, and it was  
2     essentially the recommendation of the engineer to put in  
3     clarification so that you knew what a minimum  
4     requirement would be.

5                   MR. BROOKS:   Well, I know that was  
6     something I didn't draft because there are words in  
7     there that I don't know what they mean.

8                   COMMISSIONER BALCH:   My concern would be  
9     that (2)(C) might stifle best practices, can be too  
10    specific.   The intent, I think, of the Commission, which  
11    has slightly changed and may have a different intent, is  
12    we want to circulate to surface.   We don't care how you  
13    do it.   Prove that you did it.

14                  THE WITNESS:   Fair enough.   That's what  
15    we'd like to see, too.

16                  MR. BRANCARD:   Because in the existing  
17    rule, what's been dropped out is the phrase, in your  
18    existing Section C(2) that says, "And circulate cement  
19    to the surface."   So C, I guess, is replacing that.

20                         I have no further questions.

21                                 RE CROSS EXAMINATION

22    BY CHAIRMAN CATANACH:

23           Q.     Did we, Mr. Goetze, resolve the question  
24    about -- in Part B, that if you don't encounter  
25    hydrocarbon, will they still know where to set the

1 casing? Did we resolve that, or do we need to add some  
2 language to that?

3 A. Repeat that. Our language?

4 Q. (2)(B). If they don't encounter a hydrocarbon  
5 show in the San Andres, where are they supposed to set  
6 the casing?

7 A. Well, then you'd be getting back to existing  
8 information in the area, along with the public --  
9 publication information. So you'd be referring back to  
10 what the State Engineer has -- they have defined in  
11 their mapping programs. So I don't know if you would  
12 want to tie it into something as restrictive as a  
13 publication as opposed to just having it to response  
14 from logs or information from the drilling that  
15 provides, in the area, a reasonable assumption that this  
16 area, the upper portion of the San Andres which may have  
17 potential, will be covered.

18 CROSS-EXAMINATION

19 BY COMMISSIONER BALCH:

20 Q. Do you have a feel for how likely it is that  
21 you won't see a show in the San Andres?

22 A. In the interior or moving toward the middle of  
23 the Basin, it's going to decrease. But the majority of  
24 my associations of seeing it is closer to the vacuum  
25 arch in that area, over there to the southeast portion

1 of this area of the extent. So in that case, it would  
2 probably be on the recommendation of what the State  
3 Engineer is seeing as a drilling depth for water  
4 production.

5 Q. So you're saying there is a pretty good chance  
6 of large areas that we don't see a show in the San  
7 Andres?

8 A. There is the potential for that.

9 COMMISSIONER BALCH: So that has to be  
10 addressed.

11 CHAIRMAN CATANACH: I'm sorry?

12 COMMISSIONER BALCH: I said that has to be  
13 addressed.

14 CHAIRMAN CATANACH: I agree.

15 Would it benefit us to have you guys change  
16 the language up a little bit, give you a little time  
17 to -- can we -- I'll go to counsel here.

18 MR. BRANCARD: Oh, absolutely. If you want  
19 to continue the hearing basically for the purpose of  
20 allowing the parties to submit revised proposals to the  
21 Commission, that is perfectly acceptable. I mean, to  
22 the extent that the parties are in charge of their  
23 proposals and they want to clarify them --

24 CHAIRMAN CATANACH: So I guess how would  
25 that work, Mr. Brancard? We would then close this part

1 of the hearing down and request amendments and then come  
2 back and --

3 MR. BRANCARD: Based on the testimony,  
4 based on the Commission's input, if the parties want to  
5 propose clarifying their proposals -- and obviously  
6 they're -- you know, we've listed certain phrases in  
7 this rule that we don't see the value in, that we need  
8 to clarify how to deal with this situation with the San  
9 Andres. I think you raised the question of (2)(D) -- I  
10 think it's (2)(D).

11 CHAIRMAN CATANACH: Yes.

12 MR. BRANCARD: (D) -- (11)(D).

13 COMMISSIONER BALCH: And also allow  
14 protection.

15 MR. BRANCARD: Whether we can use (11)(D)  
16 as a way of creating sort of a flexibility for the  
17 District to deal with a rule -- the more specifics of  
18 this rule, say, rather than us trying to do it on the  
19 fly.

20 CHAIRMAN CATANACH: Well, that's my fear.  
21 I mean, I don't want to put something wrong in again and  
22 have to do this one more time.

23 COMMISSIONER BALCH: Would it be possible  
24 for an adjournment on this part of the hearing until  
25 tomorrow morning and have revised suggestions before



1     then?

2                   MR. OLSEN:  The problem for the District is  
3     we've got commitments tomorrow.  We set one day off  
4     here, and we wouldn't be able to be back tomorrow.  I'm  
5     sorry.

6                   COMMISSIONER BALCH:  Do you think we could  
7     come up with provisions by 4:00, 3:30, 3:00, 2:25?

8                   (Laughter.)

9                   MR. BROOKS:  Let me suggest that possibly  
10    we could do this just by written submissions, and we  
11    wouldn't have to have another hearing.  Of course, the  
12    Commission would have to have another session to  
13    deliberate.

14                  CHAIRMAN CATANACH:  I'm sorry.  So what's  
15    your proposal?

16                  COMMISSIONER BALCH:  To hear the closing  
17    statements and written proposals and meet to deliberate  
18    later.

19                  CHAIRMAN CATANACH:  That would be  
20    acceptable to me.

21                  COMMISSIONER MARTIN:  (Indicating.)

22                  CHAIRMAN CATANACH:  I just want to get it  
23    right this time.

24                  MR. BROOKS:  I think the last thing anybody  
25    wants is another evidentiary hearing in this case.

1 MR. OLSEN: No, no, no, no, no.

2 COMMISSIONER BALCH: You can add me to that  
3 list.

4 MR. BRANCARD: That's perfectly acceptable.  
5 We can request written closing statements from the  
6 parties. They can summarize their testimony here and  
7 lay out how that leads into a final proposal for the  
8 Commission to consider.

9 CHAIRMAN CATANACH: And amend their  
10 proposal.

11 MR. BRANCARD: Amend their -- yeah. They  
12 can amend their -- based on what has been presented.

13 CHAIRMAN CATANACH: I think that would be  
14 acceptable.

15 MR. OLSEN: Excuse me. We, the producers  
16 and the District, came before you today based upon the  
17 joint request, but the Division wasn't part of that  
18 affiant. I would sure like to figure out some way to  
19 make sure that the three of us -- collectively, we  
20 submit one proposal. I would prefer we get together  
21 and --

22 CHAIRMAN CATANACH: Well, the problem is  
23 would you be able to agree on a proposal?

24 (Laughter.)

25 MR. BROOKS: If we can agree on a proposal,

1 we will submit it, but I have a feeling that we may not  
2 all agree. So I would think that it would be -- we  
3 can -- each party who has additional proposals for the  
4 changing of the language they have previously submitted,  
5 to clarify. Now, we don't want people coming up with  
6 wholly new ideas at this point, I'm sure, but to clarify  
7 the previous language. But that would be an acceptable  
8 method. I would not want to see it tied to the parties  
9 agreeing because the parties might not agree, and that  
10 would leave us with no guidance as to where we go next.  
11 And, you know, we can work by correspondence and coming  
12 up with something we agree on.

13 And I don't know -- I'm not sure Lime Rock  
14 and us are going to agree in view of the efforts we made  
15 to do so previously, but maybe we could.

16 CHAIRMAN CATANACH: All right. We would  
17 certainly encourage you to talk and try and work it out.

18 MR. BROOKS: Yeah. Well, we talked several  
19 time in the last week, and we were not able to resolve  
20 the issues. But, you know, that's a little -- might be  
21 different next time.

22 MR. OLSEN: I suspect that it's probably  
23 going to be easier for Mr. Brooks -- for the Division  
24 and the PVACD to agree on something at this point, the  
25 way we're aligned right now, and then perhaps we can

1 work together and shove it to Mr. Larson and --

2 MR. LARSON: I don't like your choice of  
3 the verb.

4 (Laughter.)

5 MS. KESSLER: And I would just suggest that  
6 we have a little bit of additional time so that we can  
7 confer, so we don't make closing statements due tomorrow  
8 so we can confer and make a good-faith attempt to talk  
9 about our language.

10 COMMISSIONER BALCH: We have a June hearing  
11 and a July hearing. Those are all possibilities.

12 MS. MITCHELL: What are the dates of those?

13 COMMISSIONER BALCH: I think they're both  
14 on the 13th.

15 MR. BRANCARD: June 13th, yeah.

16 COMMISSIONER BALCH: I think July 13th,  
17 also.

18 MR. OLSEN: We're going to be out of state  
19 the 13th.

20 MR. BROOKS: I would think this would just  
21 be a deadline for written submissions. I don't think we  
22 would have to be here unless we wanted to. You will  
23 have deliberations, so we can be here, but our presence  
24 would not be required nor would we be permitted to say  
25 anything if we were.

1                   CHAIRMAN CATANACH: That's correct.

2                   COMMISSIONER BALCH: You would not.

3                   (Laughter.)

4                   MR. BRANCARD: We would like to get the  
5       submittals within a certain time before the meeting.

6                   CHAIRMAN CATANACH: I'm sorry?

7                   MR. BRANCARD: We certainly want the  
8       submittals, you know, a few days before the meeting. So  
9       the meeting can sort of set the backstop of the time  
10      frame here.

11                  CHAIRMAN CATANACH: So we're about a month  
12      away from the June 13th hearing, so two weeks, and  
13      that'll be acceptable to the Division. That puts us  
14      where?

15                  MS. KESSLER: The week of Memorial Day.

16                  COMMISSIONER BALCH: Get it done before the  
17      weekend.

18                  MS. MITCHELL: June 1st --

19                  MR. OLSEN: I have commitments to be in  
20      Idaho for a week in June, and that's the week of the  
21      13th. That really kind of jams me up.

22                  COMMISSIONER BALCH: You don't necessarily  
23      have to be here for us to deliberate.

24                  MR. OLSEN: Right.

25                  COMMISSIONER BALCH: It's a public

1     deliberation, but all you can do is sit here and listen.

2                   MR. BRANCARD:   And make faces.

3                   CHAIRMAN CATANACH:   Would you be available  
4     for a conference call?

5                   MR. OLSEN:   Maybe.   Between us chickens,  
6     I'm going fishing, and I don't know whether the cell  
7     phone will work in the canyons of Idaho.

8                   (Laughter.)

9                   MR. OLSEN:   I'm sure my co-counsel will be  
10    available to cover for me if necessary.

11                  MS. MITCHELL:   I'll be available.

12                  MR. BROOKS:   I think any schedule would be  
13    acceptable to the Division, any schedule within the  
14    parameters proposed.

15                  COMMISSIONER BALCH:   If we could get it  
16    before June 30th --

17                  CHAIRMAN CATANACH:   Where would that put  
18    us?

19                  MS. MITCHELL:   June 6th.

20                  CHAIRMAN CATANACH:   What day would that be?

21                  MS. MITCHELL:   It's a Tuesday.

22                  CHAIRMAN CATANACH:   Okay.   Let's go ahead  
23    and set that as a deadline for submittals of written  
24    closing statements and proposals -- to make  
25    clarifications on the proposals.

1 MR. BROOKS: Okay.

2 CHAIRMAN CATANACH: Boy, it sure would be  
3 nice to get an agreement.

4 COMMISSIONER BALCH: Give them an extra  
5 week (laughter).

6 MR. BROOKS: Well --

7 MR. LARSON: Mr. Chairman, I have a  
8 follow-up question for Mr. Goetze.

9 CHAIRMAN CATANACH: Okay.

10 RE CROSS EXAMINATION

11 BY MR. LARSON:

12 Q. Mr. Goetze, if you'll refer to the Division's  
13 proposed modification, paragraph 12(2)(A), that first  
14 clause. It says, "In areas without the occurrence of  
15 the artesian aquifer at depth." How do we determine  
16 whether the artesian aquifer exists there or not?

17 A. Again, it would be based upon available  
18 information, same way we make any decision, is what's  
19 going to be available to us through the State Engineer  
20 or through the operators.

21 Q. You heard Mr. Peery's testimony. He believes  
22 the artesian aquifer exists throughout that northeast  
23 quadrant and Township 18 South, Range 26 East?

24 A. Yes.

25 Q. Do you agree with that?

1           A.    Not based on what I have seen in portions of  
2   it, no, but there is -- there is a lot of open  
3   interpretation.  We have not had a concise drilling  
4   program as I would have for, say, aquifer delineation  
5   that I've done in Los Alamos or Sandia.  So, again,  
6   we're working with information that comes in piecemeal  
7   from several sources, and the effort's going to have to  
8   be to consolidate that information so the best judgment  
9   can be made.

10           **Q.    And do you see that as a Division**  
11 **responsibility or an operator responsibility?**

12           A.    Well, I think it's -- it goes out to all -- all  
13   points.  Whatever the State Engineer comes up with, we'd  
14   like to see it.  Whatever the operator -- we always like  
15   to see what they have.  So the point gets to be with all  
16   the other requirements that are coming to light and  
17   drilling becomes more aggressive, the necessity of the  
18   Division to have the ability -- rather than us trying to  
19   do it with the GIS database is to be able to have this  
20   information available for the district geologists to be  
21   able to make decisions properly.

22           **Q.    Thank you, sir.**

23                   CHAIRMAN CATANACH:  Thank you, Mr. Goetze.

24                   Any further questions of this witness?

25                   COMMISSIONER MARTIN:  I've got a quick



1 question.

2 RE CROSS EXAMINATION

3 BY COMMISSIONER MARTIN:

4 Q. In (2)(C), do you think -- in your opinion, is  
5 the wording in there so extensive or detailed that it  
6 emphasizes the importance of circulating cement in these  
7 cases?

8 A. I think upon discussion among Commissioners,  
9 our engineer got a little excited and that the point we  
10 wish to stress is that the cement be circulated to  
11 surface using the best management practices and industry  
12 standards. I mean, I think we don't need to get into  
13 details where things are located and what type of  
14 design. This is something that the operators are much  
15 better at as far as their drilling program. So I would  
16 concede that our language is a little bit overbearing.

17 Q. All right.

18 CHAIRMAN CATANACH: So do we have anything  
19 further at this point?

20 MR. LARSON: Not of you.

21 THE WITNESS: Okay. Thank you.

22 MR. LARSON: Mr. Chairman, can I have two  
23 minutes to consult with my witness --

24 CHAIRMAN CATANACH: Sure.

25 MR. LARSON: -- see if we're going to do

1 any rebuttal?

2 CHAIRMAN CATANACH: Okay. Let's take five.

3 (Recess, 2:18 p.m. to 2:28 p.m.)

4 CHAIRMAN CATANACH: All right. Call the  
5 hearing back to order.

6 MR. LARSON: Mr. Chairman, I'd like to call  
7 Mr. Maxey for a short rebuttal testimony.

8 CHAIRMAN CATANACH: Okay.

9 JOHN C. MAXEY,  
10 after having been previously sworn under oath, was  
11 recalled and questioned and testified as follows:

12 DIRECT EXAMINATION

13 BY MR. LARSON:

14 Q. Mr. Maxey, did you go to the State Engineer's  
15 Office in Roswell and look at well records in Section  
16 11, in Township 18 South, Range 26 East?

17 A. Yes, I did.

18 Q. And what did your research reveal?

19 A. What I did was went and pulled all the records  
20 in Section 11 of 18-26. And I listened to Mr. Goetze's  
21 testimony, and I agree with his findings about those  
22 wells as far as total depths and pod numbers. What I  
23 found -- and I have been out there twice, to the State  
24 Engineer's Office, once before the first hearing and  
25 then once before this hearing, and I found the same

1     thing in both cases.

2                     The wells that were 1,700 feet and have a  
3     pod number, I have a little concern. I didn't hear any  
4     depths from where these wells were producing. I think I  
5     heard the same thing in Mr. Peery's testimony. And I  
6     just don't know if we're pairing a pod number with a TD.  
7     The wells that are -- have a TD of 1,700 feet in Section  
8     11, if you look at the well log, they're oil wells.  
9     They were drilled to test the San Andres. And so we  
10    have a TD of 1,700 feet.

11                    There are three wells, if I recall  
12    correctly, in Section 11 that were actually permitted.  
13    On the permit, they state "water wells," and those TDs  
14    were, approximately, 750 feet.

15                    So my concern is that we don't lose sight  
16    of if there is freshwater protection, we need to know  
17    the depth. And so far we've identified -- I've heard  
18    testimony identifying artesian wells in this township,  
19    and that's good if, in fact, they're artesian and we  
20    know what depth they're producing from. I have been  
21    unable to determine or find any artesian wells. And the  
22    reason I looked in Section 11, specifically, before this  
23    hearing, was based on the Welder map, the TDS map that  
24    Welder has in his report, the chlorides map. He had a  
25    data point in Section 11, and that chlorides map was on

1 the deeper artesian. And so I went looking for that  
2 control point. The only water wells I could find as far  
3 as actual water wells, logs, were that approximate TD of  
4 750 feet. That would be somewhere in the confining unit  
5 towards the top of the artesian.

6 Q. I notice the Division's proposed modification  
7 I've got, so I'll give you another copy.

8 A. Okay.

9 Q. And focusing on the highlighted portion,  
10 12(2)(b), I think Chairman Catanach raised a question of  
11 what if there are no hydrocarbon shows in the San  
12 Andres? What are you left with at that point?

13 A. At that point you would continue drilling. And  
14 I guess we would be looking for the base of the San --  
15 or base of the artesian aquifer, but I don't know what  
16 that base is.

17 Q. And what if there is no artesian aquifer where  
18 you're drilling?

19 A. Then we've got a situation where we've got a  
20 rig on hole and we've got a problem, because we're not  
21 going to know what we're looking for and where we're  
22 supposed to be setting surface casing for that  
23 water-protection string.

24 Q. And you may not know this. This could be  
25 something the folks at Lime Rock know. But in these

1    wells they're drilling in the Yeso, once you get past  
2    the San Andres, where would the first oil show be?

3            A.    Well, I don't know where the oil shows are  
4    below the San Andres. All I can speak to is the mud-log  
5    sections that I've seen through the San Andres. There  
6    are shows through the entire San Andres.

7            Q.    And one last question: From your perspective,  
8    is it problematic that we're not designing the base of  
9    the artesian?

10           A.    Well, depending on how this gets worked out, it  
11    could be very problematic. It would be nice to know  
12    that. All parties, it appears, have given support to  
13    the Welder report, and within that report, you can  
14    identify a base of the confining unit and a base to the  
15    shallow fill aquifer. One of the components missing is  
16    the base to the artesian aquifer.

17                    MR. LARSON: That's all I have,  
18    Mr. Chairman.

19                    CHAIRMAN CATANACH: Any questions,  
20    Mr. Brooks?

21                                    CROSS-EXAMINATION

22    BY MR. BROOKS:

23            Q.    Is it difficult to determine, when you're  
24    drilling through it, where a water -- whether a water  
25    formation is fresh or saline and where it goes within

1     **one to the other?**

2           A.     When you're drilling?

3           **Q.     When you're drilling through it.**

4           A.     Whether water is fresh or saline?

5           **Q.     Yeah.**

6           A.     As far as the formation you're drilling

7 through?

8           **Q.     Yeah.**

9           A.     Yeah. I'm not sure. It's difficult to answer  
10 your question.

11          **Q.     I understand. Okay. Thank you.**

12                   CHAIRMAN CATANACH: Any other questions?

13                   COMMISSIONER BALCH: (Indicating.)

14                   CHAIRMAN CATANACH: Okay. This witness can  
15 be excused.

16                   We don't need closing statements. You're  
17 going to submit written closing statements?

18                   MR. BROOKS: Yes. We just need a date.

19                   CHAIRMAN CATANACH: I think we decided a  
20 June 6th deadline for the closings.

21                   MR. BROOKS: June 6th.

22                   CHAIRMAN CATANACH: And we will continue  
23 the case to June 13th.

24                   MR. BROOKS: At which time it will only be  
25 deliberations?

1                   CHAIRMAN CATANACH:   Only deliberations.

2                   So we're going to close the record -- or  
3   the evidentiary portion of the hearing today.

4                   MR. BRANCARD:   Mr. Chairman, I think it  
5   was -- my thoughts were to not draft an entirely new  
6   order based on this hearing but to essentially  
7   supplement temporary or an amendment to the order to  
8   which you've already adopted in the first -- I guess I  
9   would guess to the parties, in submitting closing  
10   statements, you know, (A) if there are particular  
11   findings in the original order that you think should be  
12   amended based on the testimony here, that you should  
13   identify them.   And vice versa, if there are findings in  
14   the original order that you are continuing to rely on,  
15   identify those.   So that would be helpful in terms of  
16   moving from where we've already established Commission  
17   findings to what needs to be changed and what needs to  
18   be added.

19                  CHAIRMAN CATANACH:   So your intent would be  
20   just to reissue the existing order with changes in the  
21   findings?

22                  MR. BRANCARD:   It would be a new order, but  
23   it would (A) probably add more findings based on the  
24   testimony, and (B) if necessary, amend some of the  
25   findings that were in the first order that we think have

1    been clarified or contradicted or superseded by the  
2    rehearing testimony.

3                   CHAIRMAN CATANACH:   Okay.   Is that clear to  
4    the parties?

5                   MS. KESSLER:   Mr. Commissioners, one  
6    question.   I think that it's clear from the joint  
7    application that there are only two issues that are  
8    being addressed and that we're submitting closing  
9    statements related to and proposed changes regarding --  
10   I just wanted to reiterate the designated area and also  
11   C(2).   Correct?   I don't think there is anything else  
12   that I think would potentially have notice issues  
13   associated with it.

14                  MR. BRANCARD:   Right.   But I think the  
15   Commission has brought up D as a potential area that you  
16   can amend as a way of dealing with the C(2) issues.

17                  MS. KESSLER:   Correct.

18                  MR. BRANCARD:   Okay?

19                  MS. KESSLER:   Okay.

20                  CHAIRMAN CATANACH:   So I think the  
21   intent -- probably at some point, maybe we would have to  
22   amend D.   So I would anticipate doing that at the next  
23   hearing.

24                         That's not going to cause any re-notice  
25   issues.



1                   MR. BRANCARD: No, as long as it's part of  
2 what is proposed by the moving party to clarify the  
3 ambiguity in C(2) and how to deal with the issue in  
4 C(2), which is how do you find where the casing string  
5 goes to. In this case, the offer has been to have the  
6 Division have a certain amount of discretion in  
7 determining that rather than trying to nail it down  
8 perfectly in the rule.

9                   MR. BROOKS: That sounds satisfactory with  
10 the Division.

11                  MR. LARSON: Agreed.

12                  MR. OLSEN: (Indicating.)

13                  MS. KESSLER: (Indicating.)

14                  CHAIRMAN CATANACH: All right. Is there  
15 anything further?

16                  MR. BROOKS: No.

17                  CHAIRMAN CATANACH: There being nothing  
18 further -- are we just closing the record?

19                  MR. BRANCARD: Closing the record.

20                  CHAIRMAN CATANACH: The record in this case  
21 will be closed today in Case 15487, and we will  
22 reconvene for deliberations on June 13th.

23                  Thank you, folks.

24                  (Case Number 15487 concludes, 2:39 p.m.)

25

1 STATE OF NEW MEXICO  
2 COUNTY OF BERNALILLO

3

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