

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

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

PROPOSED AMENDMENT TO 19.15.1 NMAC)
ADOPTING A NEW SECTION TO BE CODIFIED AS)
19.15.1.21 NMAC. THIS SECTION APPLIES)
TO THE CHIHUAHUAN DESERT AREAS OF OTERO)
AND SIERRA COUNTIES, NEW MEXICO,)
PROHIBITS THE USE OF PITS AND IMPOSES)
ADDITIONAL LOCATION, CONSTRUCTION,)
OPERATION AND TESTING REQUIREMENTS ON)
INJECTION WELLS AND RELATED FACILITIES)
USED TO DISPOSE OF PRODUCED WATER)

CASE NO. 13,269

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING

BEFORE: MARK E. FESMIRE, CHAIRMAN
JAMI BAILEY, COMMISSIONER
FRANK T. CHAVEZ, COMMISSIONER

VOLUME I: June 17th, 2004

Santa Fe, New Mexico

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This matter came on for hearing before the Oil Conservation Commission, MARK E. FESMIRE, Chairman, on Thursday and Friday, June 17th and 18th, 2004, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

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 CASE NO. 13,269

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A P P E A R A N C E S

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By: ALLETTA BELIN

* * *

A P P E A R A N C E S (Continued)

ALSO PRESENT:

DONALD A. NEEPER
New Mexico Citizens for Clean Air and Water
Los Alamos, New Mexico

BAIRD SWANSON
New Mexico Environment Department

OSCAR SIMPSON
President, New Mexico Wildlife Federation

DAN RANDOLPH
San Juan Citizens Alliance

* * *

1 WHEREUPON, the following proceedings were had at
2 9:09 a.m.:

3 CHAIRMAN FESMIRE: The last cause before the
4 Commission today, and the main event, is Cause Number
5 13,269, a proposed amendment to 19.15.1 NMAC adopting a new
6 section to be codified as 19.15.1.21 NMAC. This section
7 applies to the Chihuahuan Desert areas of Otero and Socorro
8 [sic] counties, New Mexico, prohibits the use of pits and
9 imposes additional location, construction, operation and
10 testing requirements on injection wells and related
11 facilities used to dispose of produced water.

12 The Division has asked for comments and has
13 received several responses to that call. These comments
14 will be made part of the record of this hearing and are
15 available to the public on the OCD website.

16 I understand that there are some late comments
17 that we've received?

18 MR. BROOKS: Yes, Mr. Chairman and honorable
19 Commissioners, we received yesterday comments from Bobby
20 Jones, Otero Mesa rancher; we received this morning
21 comments from Carl L. Johnson and from Trisha London.
22 These comments were received after the stipulated June 14th
23 deadline, and I believe it's the Commission's prerogative
24 to conclude -- to determine whether or not the Commission
25 wishes to consider these comments.

1 CHAIRMAN FESMIRE: Is there a motion to adopt
2 these comments and make them part of the record?

3 There being no motion to that effect, those
4 comments will not be made part of this record.

5 The next piece of business, there are sign-up
6 sheets available for those who wish to testify. I've only
7 gotten one so far. Would those who wish to testify or to
8 make statements on the record please make sure that they
9 sign one of those sheets prior to making that statement or
10 testimony?

11 And at this time we're going to call for
12 appearances from those who wish to present sworn testimony
13 of witnesses today.

14 MS. MacQUESTEN: Mr. Chairman, my name is Gail
15 MacQuesten. I'll be representing the OCD in this matter.

16 MS. BADA: Cheryl Bada, I'll also be representing
17 the Oil Conservation Division in this matter with Ms.
18 MacQuesten.

19 MR. CARR: May it please the Examiner, my name is
20 William F. Carr with the Santa Fe office of Holland and
21 Hart, L.L.P. I represent Mack Energy Corporation, Marbob
22 Energy Corporation and Yates Petroleum Corporation. I have
23 two witnesses.

24 MS. BELIN: May it please the Commission, my name
25 is Letty Belin, Belin and Sugarman, and I represent a

1 coalition of conservation groups that submitted written
2 comments on this and will be presenting one technical
3 witness.

4 CHAIRMAN FESMIRE: Ms. Belin, is there a name to
5 that coalition?

6 MS. BELIN: The Otero Mesa coalition.

7 CHAIRMAN FESMIRE: Are those all the appearances?

8 DR. NEEPER: I am Donald Neeper, may it please
9 the Commission. I am representing New Mexico Citizens for
10 Clean Air and Water. I will present technical testimony.

11 CHAIRMAN FESMIRE: Will the witnesses who expect
12 to give testimony today please stand?

13 (Thereupon, the witnesses were sworn.)

14 MR. BROOKS: A point of, I guess, order or
15 privilege, whatever we'd call it, before we get started
16 with presentations. It appears that there are more people
17 here than the number of seats, and I was wondering if we
18 might be able to get one our employees who are in the
19 audience to see if there's some way we can round up some
20 more chairs for the people who are standing.

21 CHAIRMAN FESMIRE: Richard or Roger, could you
22 guys see if we could round up some more chairs?

23 MR. BROOKS: Thank you, Mr. Chairman.

24 CHAIRMAN FESMIRE: The Commission will today
25 first hear the technical presentations of the Oil

1 Conservation Division technical staff. After that, members
2 of the public who wish to comment but are not offering
3 technical testimony will be heard, and after that we would
4 like to hear from public comment and technical
5 presentations at that point, in that order.

6 Before we begin, are there any scheduling
7 constraints today that the Commission needs to be aware of,
8 so we can accommodate people who've got travel
9 arrangements?

10 Okay. Ms. MacQuesten, once they get the chairs
11 in here, you can begin at that time. Okay?

12 Ms. MacQuesten, you may begin.

13 MS. MacQUESTEN: Mr. Chairman, honorable
14 Commissioners, we are here today to present the OCD's case
15 for the proposed Rule for the Chihuahuan Desert area of
16 Sierra and Otero Counties. The proposed Rule will prohibit
17 pits associated with oil and gas drilling and will impose
18 additional requirements for produced-water injection wells.

19 The OCD has seven witnesses today.

20 The first witness will be Bill Olson. He is an
21 OCD hydrologist and a member of the Water Quality Control
22 Commission. He will be describing the OCD's authority for
23 proposing this rule and describe the area covered by the
24 Rule. He will also be our primary witness on the
25 prohibition against pits. On the issue regarding injection

1 wells, Mr. Olson will also testify regarding contamination
2 cases related to injection wells and related facilities,
3 and he will address two of the specific provisions
4 regarding injection wells: the provision regarding
5 transportation lines and the provision regarding tanks.

6 Mr. Andy Core is here to testify. He is a
7 hydrologist with the State Engineer's Office. He will be
8 testifying regarding the water resources in Otero and
9 Sierra Counties.

10 Bob Sivinski from Energy and Minerals, Forestry
11 Division, is here to testify regarding the vegetation in
12 those areas.

13 And Rachel Jankowitz from Game and Fish will be
14 testifying regarding the wildlife.

15 Roger Anderson, the Bureau Chief for the OCD's
16 Environmental Bureau, will be testifying regarding the
17 injection well provisions regarding cementing, in
18 particular, the requirement to isolate the freshwater
19 aquifers with two cemented casing strings and the
20 requirement regarding cement bond logs.

21 Will Jones, OCD Hearing Examiner and Director of
22 New Mexico's UIC program, will be testifying regarding the
23 remaining provisions on injection wells.

24 We have a potential seventh witness, and that is
25 Chris Williams, the District Supervisor for District 1,

1 OCD. He is available to answer questions if issues arise
2 that he can comment on and help us on.

3 Before we begin with the testimony, I would like
4 to point out that you should have a binder in front of you
5 containing the OCD's exhibits. And there were copies next
6 to the donuts for the general public, and before I begin,
7 may I ask if there are people here who were not able to get
8 copies who would like copies?

9 CHAIRMAN FESMIRE: Ms. MacQuesten, would you make
10 sure that you use the microphone there, please?

11 MS. MacQUESTEN: Thank you.

12 MR. BROOKS: Mr. Chairman, I don't believe that
13 microphone provides any amplification. I think that's
14 solely for the benefit of the court reporter.

15 CHAIRMAN FESMIRE: Okay.

16 MR. BROOKS: I know Ms. MacQuesten speaks softly,
17 and those of us that office close to her appreciate that,
18 but --

19 (Laughter)

20 MR. BROOKS: -- at least here you'll have to try
21 to speak up.

22 MS. MacQUESTEN: Well, if my voice starts to go
23 down, if someone on the panel would just give me a little
24 sign, I'll try to speak up.

25 MR. BROOKS: Thank you.

1 MS. MacQUESTEN: We'll try to get extra copies of
2 the presentation for those who would like them.

3 In that notebook I'd like to point out a couple
4 of features. The first is that Exhibit Number 1 is a hard
5 copy of the PowerPoint presentation we'll be using today.
6 In that PowerPoint you'll notice that there are a number of
7 maps. It's hard to read in the PowerPoint copies, so we've
8 also provided larger size exhibits for you of those maps in
9 your binder. I'd also like to point out that we had to
10 distort some of those maps slightly to get them to fit the
11 formatting requirements for PowerPoint. The maps that are
12 in your packet as exhibits do not have that distortion, so
13 they will be easier for you to read.

14 The other thing I would like to point out is
15 Exhibit Number 2, which is a copy of the proposed Rule, and
16 there are three changes from the copy that was attached to
17 the Application.

18 The first change is that the Rule has been
19 reformatted to satisfy NMAC, so it will look slightly
20 different than the copy that was attached to the
21 Application.

22 The two other changes are substantive.

23 CHAIRMAN FESMIRE: Ms. MacQuesten, before you
24 start that, are there any other changes besides the
25 formatting on NMAC?

1 MS. MacQUESTEN: The two substantive changes are
2 in C.(5) and C.(6). C.(5), we made a change to the
3 provision regarding when cement bond logs shall be run.
4 And in C.(6) we changed the provision regarding produced-
5 water transportation lines. Our witnesses will be
6 addressing these changes.

7 Before I call the OCD's first witness, I would
8 ask Florene Davidson, the secretary to the Commission, to
9 report on the information regarding the advertisement and
10 notice for this proceeding.

11 MS. DAVIDSON: The Division published notice of
12 the proposed Rule on the Commission docket more than 20
13 days before the hearing date, as required by Rule
14 1201.B.(2). The Division published notice of the proposed
15 Rule in newspapers of general circulation in the counties
16 in New Mexico affected by the proposed Rule no less than 20
17 days before the hearing date, as required by Rule
18 1201.B.(1): *The Alamogordo News*, serving Otero County; *The*
19 *Herald*, serving Sierra County -- that's in Truth or
20 Consequences.

21 Although publication in other counties is not
22 required under the Rules, the Division also published
23 notice in the following newspapers: *Artesia Daily Press*,
24 *Farmington Daily Times*, *Gallup Independent*, *Las Cruces Sun*
25 *News*, *Lovington Daily Leader*, *The Observer*, *Portales News*

1 *Tribune, Rio Grande Sun, Roswell Daily Record, Raton Range,*
2 *and Union County Leader.*

3 The Division also published notice of the
4 proposed rulemaking in *The New Mexico Register* on May 14,
5 2004. The Commission file contains a copy of that notice.

6 In addition, the Application, the text of the
7 proposed Rule, and the advertisement were posted on the
8 Division website with a copy of the Commission's prehearing
9 letter.

10 CHAIRMAN FESMIRE: Ms. MacQuesten?

11 MS. MacQUESTEN: The OCD calls Bill Olson.

12 CHAIRMAN FESMIRE: Mr. Olson, for the record you
13 have been sworn, right?

14 MR. OLSON: Yes, I have.

15 WILLIAM C. OLSON,
16 the witness herein, after having been first duly sworn upon
17 his oath, was examined and testified as follows:

18 DIRECT EXAMINATION

19 BY MS. MacQUESTEN:

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

21 A. My name is William C. Olson.

22 Q. And where are you employed?

23 A. I'm employed by the New Mexico Oil Conservation
24 Division, Environmental Bureau, in Santa Fe, New Mexico.

25 Q. And what is your title?

1 A. My title is senior hydrologist.

2 Q. What are your duties with the OCD?

3 A. My duties involve compliance enforcement of Oil
4 Conservation Division and Water Quality Control Commission
5 Rules and Regulations regarding contamination of
6 groundwater, and I also an involved with the investigation
7 and remediation of abandoned sites that we carry out in the
8 reclamation fund. I also serve as the designee of the Oil
9 Conservation Division on the New Mexico Water Quality
10 Control Commission.

11 Q. Could you give us some brief information about
12 your education and relevant work experience?

13 A. Yes, I have a BS in geology and a master's of
14 science in hydrology from the New Mexico Institute of
15 Mining and Technology in Socorro, New Mexico. I've also
16 worked as a hydrologist in this capacity with the OCD for a
17 total of about 16 years. And I have worked for the New
18 Mexico Environment Department as a hydrologist for
19 approximately two years, and in that capacity I was
20 responsible for investigation and remediation of
21 contaminated groundwater at petroleum sites, as well as
22 working on a couple of superfund sites.

23 MS. MacQUESTEN: I offer Mr. Olson as an expert
24 in hydrology.

25 CHAIRMAN FESMIRE: Any objections? He is so

1 accepted.

2 Q. (By Ms. MacQuesten) Mr. Olson, I'd like to begin
3 by discussing the OCD's general authority with regard to
4 promulgating a rule such as the Rule that's proposed today.
5 Could you please tell us what general authority the oil and
6 gas Statutes give the OCD regarding this sort of rule?

7 A. The general provision falls under a couple
8 different sections in the regulations. It falls under
9 70- -- I guess 2-12; we have, I guess, a typo up there; it
10 says 70-1. -- (B).(21) and (B).(22). And the general
11 provision that applies to both of those sections is
12 regulation of the disposition of nondomestic wastes.
13 That's the overall general authority for environmental
14 activities.

15 Q. What is a nondomestic waste?

16 A. Domestic wastes would be those produced from
17 septage systems. So essentially, we deal with all
18 nonseptage wastes in the oilfield. If septage wastes are
19 commingled with oil and gas wastes, then we would have
20 authority over them. But solely domestic wastes, such as a
21 septage leach field, we do not have authority over those
22 activities.

23 Q. And this Section (B).(21), what does it say about
24 the purpose for regulating nondomestic wastes?

25 A. The purpose in (B).(21) is to regulate the

1 upstream activities, which is considered the exploration,
2 development, productions and storage of crude oil or
3 natural gas.

4 Q. And what are we protecting?

5 A. The statute is to protect public health and the
6 environment.

7 Q. How do you interpret protecting the public health
8 and the environment?

9 A. That has been taken to mean the surface water,
10 groundwater, soil contamination, as well as any potential
11 threats to the public. It could also include other issues
12 such as livestock and wildlife a well.

13 Q. Do you have examples of the OCD protecting
14 livestock and wildlife?

15 A. Yes, in OCD Rule 50, does -- for the pit rule,
16 which was adopted recently, in December of 2003, does cover
17 provisions for fencing, for protection of livestock and
18 netting of pits for protection of migratory waterfowl.

19 Q. Does this provision (B).(21) apply both to wastes
20 that would occur in pits and produced water that is
21 disposed of through injection wells?

22 A. Yes, it would include all wastes generated in the
23 oilfield, except the domestic wastes in the upstream
24 activities.

25 Q. If we could look at the next slide, Mr. Olson,

1 what is this provision?

2 A. 70-2-12.(B).(22) regulates the disposition of
3 nondomestic wastes in the oilfield service industry, the
4 transportation of crude oil and natural gas, the treatment
5 of natural gas, the refinement of crude oil, and this
6 includes the mainline transmission of natural gas as well.
7 This is commonly referred to as the downstream activities
8 from the wellhead or field activities, which are considered
9 the upstream activities.

10 Q. Now, are these downstream activities regulated
11 under the Oil and Gas Act?

12 A. They potentially are regulated under the Oil and
13 Gas Act that gives OCD authority for those activities,
14 however, it includes provisions for administering the Water
15 Quality Act. At this point in time, the Division does not
16 have rules for specific permitting of downstream
17 facilities, so the Division implements under their
18 authority, under this provision, the Water Quality Act and
19 Water Quality Control Commission regulations for permitting
20 of discharge permits for those types of facilities.

21 Q. So are downstream activities going to be covered
22 by the Rule we are discussing today?

23 A. Downstream activities are not, but they could be,
24 and that's why we have included this in here. There is a
25 potential in some types of facilities that are not

1 requiring a permit at this time, could be covered under
2 Rule 50 as well, or under these provisions.

3 Q. Okay, if we could have the next slide. Is there
4 more specific state authority that is relevant to
5 regulations regarding pits and injection wells?

6 A. Yes, that is conferred upon the Oil Conservation
7 Division as 70-2-12 -- I guess that's Section (15). That's
8 to regulate the disposition of water produced or used in
9 conjunction with the drilling for or producing of oil or
10 natural gas and directing the surface or subsurface
11 disposal of the water in a matter that will afford
12 reasonable protection against contamination of freshwater
13 supplies, as designated by the State Engineer.

14 Q. Now, is this provision relevant to both pits and
15 injection wells?

16 A. Yes, it is.

17 Q. And if we could have the next slide, can you tell
18 us about this provision?

19 A. This is 70-2-12.(B).(2), and this statutory
20 provision allows the Division to prevent crude oil, crude
21 petroleum oil, natural gas or water from escaping strata in
22 which it is found and into other strata.

23 Q. What relevance does this have to the issues we're
24 discussing today?

25 A. This largely has to do with the injection well

1 provisions that will be discussed later today.

2 Q. The next slide, please. Is there federal
3 authority regarding injection wells?

4 A. Yes, the injection wells are also covered under
5 the Clean Water Act, under the Federal Underground
6 Injection Control Program. This is a state-administered
7 program, and for the issues that we are discussing here
8 today it is involving the Class II wells and the supplies
9 to all wells in the State of New Mexico except for those on
10 Indian lands, and portions of these programs related to the
11 oilfield industry are administered by the Oil Conservation
12 Division, and non-oilfield activities of UIC nature are
13 covered under the New Mexico Environment Department.

14 Q. Does the OCD have authority to administer the UIC
15 program as it pertains to Class II wells?

16 A. Yes, they do.

17 Q. And are those the type of wells we're going to be
18 talking about today?

19 A. Yes, they are.

20 Q. If we could have the next slide. Now, we are
21 acting today under a specific directive, are we not?

22 A. Yes, there is an executive order from the
23 Governor of the State of New Mexico, Number 2004-005.

24 Q. All right. And I'd like to point out, a copy of
25 that executive order is in your packet as Exhibit Number 3.

1 We've used this slide to highlight some of the provisions
2 in the executive order regarding what we are directed to
3 protect, and I'd like Mr. Olson to talk about some of these
4 items.

5 A. There's three major issues that are brought up in
6 the order. One is about the Chihuahuan Desert in the
7 southern part of the State, and the Executive Order states
8 that this is a globally significant ecoregion identified by
9 the World Wildlife Fund, and it's an area deserving of
10 protection.

11 The second issue discussed is that there are
12 remnant desert grasslands in Otero Mesa and the Nutt areas
13 of Otero and Sierra Counties and that these are valuable,
14 unfragmented examples of the Chihuahuan Desert.

15 The Order also states that the region has
16 valuable underground water resources that need to be
17 protected from contamination.

18 Q. Did the Executive Order give the OCD specific
19 instructions or directives?

20 A. Yes, it did.

21 Q. And what were they?

22 A. There's, for the issues that we are here
23 testifying today, two major issues. The Order directs the
24 Oil Conservation Division to immediately propose rules to
25 prohibit pits. It also directs the Division to propose

1 rules to implement produced-water reinjection standards and
2 controls.

3 Q. Before we get into those two directives, I'd like
4 to ask you some questions regarding the procedure that was
5 used in proposing the Rule we're looking at today. Were
6 work groups used?

7 A. Work groups were not used in this case. We have
8 used them in our past rulemaking over the last few years,
9 and the reason they were not in this case is because the
10 directive from the Governor was that we immediately propose
11 rules on the pit prohibitions.

12 We also have a number of parties that are
13 interested in this, and due to the time constraints that
14 were placed upon us to issue rules and the number of
15 parties, we did not move forward with a work group at that
16 time.

17 However, we did issue this out for public
18 comment. And as I think was pointed out by our counsel
19 here, we did have a couple of changes that were made based
20 upon some of the comments that we'd received.

21 We had also originally looked at bringing this to
22 the Commission in April of 2004. However, with the lack of
23 a Director at that point we did not have -- and a third
24 Commissioner -- we did not have a full Commission at that
25 point to bring it forward. So it didn't come forward at --

1 this point in time, the June meeting here.

2 Q. Let's turn to the area that will be covered by
3 this proposed Rule.

4 A. Yes.

5 Q. We have -- On the screen is a copy of a map.
6 This map is also in your packet as Exhibit Number 4. Mr.
7 Olson, could you tell us what this map shows?

8 A. This map is taken from -- and was developed from
9 the -- with the New Mexico Forestry and BLM Resource
10 Management Plan, and this map is showing the areas that are
11 considered to be the desert grasslands, and it's showing
12 the vegetation type through the area that's being
13 considered for the proposed Rules.

14 Q. All right. Now, what is the area that we're
15 going to be covering with this proposed Rule?

16 A. It covers essentially all of this map except for
17 the portions that you see on the far left-hand side of the
18 screen, there's that green area right there.

19 Q. So those are the areas that don't have any cross-
20 hatching on them?

21 A. Yes --

22 Q. Okay.

23 A. -- the clear areas right there, those clear green
24 areas. There's one on the left-hand side, the western edge
25 of the map. Those are -- the green areas are designating

1 woodland areas. And so since the purpose of this is
2 protection of the desert grasslands, those areas were
3 omitted from the proposed Rules that we're looking at here.

4 The other area appears on the eastern side of the
5 map right there. There's the solid green area that has no
6 cross-hachures across that area.

7 Q. And is there a third area that's excluded?

8 A. Yes, there's a third area down in the far
9 southeast corner of the map that's also a green -- shows a
10 green woodland area, and that area is also excluded as not
11 being in a desert grassland setting.

12 Q. All right. If we could look at the next map,
13 please, and this map is also in your packet as Exhibit
14 Number 5. Could you tell us what this map shows?

15 A. This map is a map that was prepared by the State
16 Engineer's Office, and I believe he will be discussing this
17 map in a little bit more detail. We are just presenting
18 this here with myself at this time, just to show that there
19 are groundwater resources and basins associated across
20 here. You see the yellow divisional lines are individual
21 basins that are set out through this area.

22 And this is just to show that we have -- the
23 groundwater basins are fairly consistent with the maps that
24 we have put together on the grasslands as well, and both of
25 these maps, the grassland land type map, land vegetation,

1 and the water map, support the area that we are looking at
2 for protection of grasslands and water resources.

3 Q. If we could move to the next map, please, and
4 this will be in your packet as Exhibit Number 7 -- we're
5 skipping Number 6 because another witness will be talking
6 about Exhibit Number 6 -- Mr. Olson, I'd like to ask you
7 some questions now about the available oil and gas
8 information regarding these two counties. Could you tell
9 us what is shown in Exhibit Number 7 on the screen right
10 now?

11 A. This map that you see here is the surface
12 ownership map. The -- a little difficult to tell, you
13 know, with some of these colors, but the darker purple area
14 is the MacGregor Range there. To the left of that, the
15 larger purple area that extends all the way up to the north
16 part of the map is the White Sands Missile Range.

17 Q. And those are both military areas?

18 A. Yes, and those are military reservations at that
19 point.

20 Then you have distinctions as well on this for
21 federal, state and private lands. The private lands are
22 denoted in white on this map, the blue areas are state
23 lands, and the yellow areas are Bureau of Land Management
24 lands.

25 Q. Okay. Now just to be clear, the pointer, when

1 you were talking about that, was up in the far right-hand
2 corner in the dark yellow. That's not state, federal or
3 private, is it? What is that?

4 A. That is tribal lands in that portion of the map.

5 Q. Okay, but that is not included in the area
6 covered by the proposed Rule?

7 A. That is a portion of the areas that is excluded
8 from this Rule.

9 Q. So the area that we're talking about today
10 contains State, federal and private lands?

11 A. That's correct. And on this map you can see the
12 areas again that are not included as part of this proposed
13 Rule, as the areas to the west there, the clear areas
14 without any type of lines across that, as well as in the
15 upper northeast corner of the map. And then there's that
16 smaller area down in the southeast corner as well, that is
17 excluded from this proposed Rule.

18 Q. Thank you. If we could move to the next map, and
19 this is in your packet as Exhibit Number 8, what does this
20 map show?

21 A. This map is taken from the BLM's Resource
22 Management Plan, and it is showing areas that are excluded
23 from production or for drilling for oil and natural gas.
24 It's showing not just that but also other restrictions that
25 may occur.

1 If you'll see the -- what's looking to be the
2 reddish area in the central portion, which includes the
3 White Sands Missile Range and MacGregor Range, those are
4 areas that have been removed from drilling for oil and
5 natural gas.

6 You also have -- through this map, if you look at
7 the key, there are some other areas. The gray cross-hatched
8 area -- there's different areas in there, such as that
9 upper corner which, even though it's not included, are
10 areas where there are no federal minerals.

11 And then we have other designations on this map
12 for areas that are open to surface leasing. There's some
13 small blue areas and a few areas down in the southeastern
14 corner. They're hard to show up on these because they're
15 relatively small areas. And those are areas that have no
16 surface occupancy but would be allowed to access the
17 minerals from outside of that area.

18 The clear gray areas located down in --
19 throughout the map here, are areas that are open with
20 stipulations by BLM. And then the greenish areas are areas
21 that are open for drilling with standard lease terms and
22 conditions from the BLM.

23 Q. All right. So although that brownish area in the
24 center is included in the area covered by our proposed
25 Rule, that is an area where drilling is outright

1 prohibited?

2 A. That's correct.

3 Q. And do I understand you to say that there are
4 areas within the area included by our Rule that are
5 available for drilling but subject to certain restrictions?

6 A. That's correct.

7 Q. And those restrictions are imposed by whom?

8 A. The restrictions that are placed on those at the
9 moment are from the BLM.

10 Q. Okay. If we could go to the next map, please,
11 and this is Exhibit Number 9 in your packet, what does this
12 map show?

13 A. This map shows some recent restrictions in
14 amendments to the Resource Management Plan from the BLM,
15 and that's denoted in the two gray areas. Those are some
16 additional areas that have been removed from drilling
17 activity, largely due to their -- the pristine nature of
18 the grasslands in those areas, as well as they are
19 potential habitat for the Aplomado falcon.

20 Q. All right. Now just to orient us, where would
21 this appear on one of the larger maps? What area is this
22 showing?

23 A. Actually, the little jagged line you see is going
24 diagonally across there is the -- I believe that's the
25 boundary of the MacGregor Range. So that would be

1 occurring down in the -- along the southern boundary of the
2 map in that central piece of the southern boundary of the
3 maps that you were looking at previously. Actually, if you
4 go back I can show that to you.

5 The area that's down to the east of the red area,
6 that kind of triangular area that comes down from there --
7 no, no, down here.

8 CHAIRMAN FESMIRE: The northeast-southwest
9 triangle.

10 THE WITNESS: Yeah, it would be the southeast
11 quarter of that map, that area.

12 Q. (By Ms. MacQuesten) So roughly that grayish
13 triangle on this map corresponds to the triangle you see on
14 the more detailed map?

15 A. Approximately.

16 Q. All right. And the area there that -- BLM is
17 proposing to remove that from drilling; is that right?

18 A. Yes, they are proposing that as an amendment to
19 their Resource Management Plan.

20 Q. But that hasn't been finalized yet?

21 A. That has not.

22 Q. All right. If we could go to the next map, and
23 this is in your packet as Exhibit Number 10, can you tell
24 us what this shows?

25 A. This is -- again, this some areas in the Nutt

1 Grassland over in Sierra County, and the gray areas again
2 are some additional proposed areas to be removed for
3 drilling activities in their latest amendments, BLM's
4 Resource Management Plan. And again, that's for the
5 presence of pristine grasslands and potential habitat for
6 the Aplomado falcon.

7 Q. Do you know approximately how many acres are
8 going to be -- they are proposing to remove from
9 drilling --

10 A. I believe --

11 Q. -- just on these two maps, these additional
12 restrictions?

13 A. I believe it's somewhere around 30,000, 35,000
14 acres, approximately, between these two maps.

15 Q. If we could go to the next map, please, and this
16 in your packet as Exhibit Number 11, what does this map
17 show?

18 A. This is a map that was prepared from our RBDMS
19 database, and it's showing all wells that we have record of
20 being drilled in Sierra County.

21 Q. If you could look in your packet at Exhibit --
22 what has been marked as Exhibit Number 12 -- and we do not
23 have a slide for this; this is solely in the packet --
24 could you explain what Exhibit 12 is?

25 A. Yes, Exhibit 12 is a tabular listing of the wells

1 that you see pictured here on the map.

2 Q. Was this created for the hearing today?

3 A. Yes, this was created for purposes of this
4 hearing.

5 Q. Where does the information come from?

6 A. The information is obtained from our RBDMS
7 database --

8 Q. Could you --

9 A. -- which is our risk-based data-management
10 system.

11 Q. Could you explain the categories on this list?

12 A. Yes, listed on here you'll see the API number for
13 each well, the well name, the operator, the unit letter,
14 section, township and range location of each well. You'll
15 see the land type, which is designated as F for federal, P
16 for private and S for State land. There's also a listing
17 of when the wells were last produced or injected and a
18 field for any UIC permits that may exist for these wells.

19 COMMISSIONER BAILEY: Mr. Olson, would you please
20 put this map in perspective with the other previous maps?
21 Where is this in relationship to the other maps that you've
22 already presented?

23 THE WITNESS: This would be the western --
24 approximately western half of the maps that -- the full map
25 -- I can show you right here. This, I believe, is the

1 Sierra County line, right here. So this is going to be the
2 Sierra County portion of this map, essentially the left or
3 western half of this map.

4 COMMISSIONER BAILEY: Thank you.

5 Q. (By Ms. MacQuesten) So this map is covering all
6 of Sierra County?

7 A. Yes, this is all of Sierra County.

8 Q. If we go back to, let's see, slide number 15,
9 Exhibit 11.

10 Now, I notice from the list on Exhibit Number 12,
11 there's only one well listed with an actual well name, and
12 under well name, the rest of the wells show pre-ONGARD
13 well. What does that mean?

14 A. Those are wells that were in the system and
15 plugged prior to the ONGARD database that also came up,
16 which was in approximately 1993. So we do have -- They
17 don't show up in the regular operator fields because they
18 were never entered, however they do appear in the RBDMS
19 database system where they can actually get those in the
20 comment fields.

21 The one well that is shown here, though, I did
22 look this well up and there was some confusion about that,
23 whether that was actually a pre-ONGARD well, because it
24 listed that well as being spudded in the 1960s. So that
25 may potentially also be a pre-ONGARD well.

1 But all these wells essentially, on this -- on
2 Exhibit Number 12, appear to have been drilled prior to
3 creation of our databases in 1993.

4 Q. The column listing last production or injection
5 shows "None" for all of the wells in Sierra County. What
6 information did we have on these wells?

7 A. We have no information in our files that these
8 wells were ever produced.

9 Q. And the column for "UIC Permit" is blank. Why is
10 that?

11 A. Again, we have no record that there's ever been
12 an injection well permit issued for any of these wells.

13 Q. If we could move to slide 16, and we have a copy
14 of this map in your packet as Exhibit 13, is this a similar
15 map for Otero County?

16 A. Yes, this again is map created from our databases
17 of all the wells that have been drilled to date in Otero
18 County.

19 Q. All right, and if you would turn to Exhibit
20 Number 14 in your packet, is that a list of wells for Otero
21 County similar to the list we just went through for Sierra
22 County?

23 A. Yes, it is. I might just back up, maybe, for the
24 Commissioners, but that area is seen here as the area in
25 the eastern portion of the larger scale maps that you've

1 seen.

2 And then yes, then Exhibit Number 14 is the
3 similar listing, tabular listing, of the wells that have
4 been drilled in Otero County.

5 Q. Now, I notice that there are a number of wells
6 that actually have a well name on this list. What does
7 that mean?

8 A. Those are wells that were drilled after 1993 and
9 are fully populated in through our database.

10 Q. All right. But just like Sierra County, none of
11 these wells show any production or use for injection?

12 A. None have been produced or been used for
13 injection at this point.

14 Q. And like the wells in Sierra County, none of them
15 have been permitted for injection?

16 A. That is correct.

17 Q. There's a new column, though, with the notation
18 "Not in OCD definition" next to several of the wells. What
19 does that mean?

20 A. Those are wells that, even though they are within
21 the county, fall within those excluded areas that I pointed
22 out to you earlier.

23 Q. Have you reviewed the well files for the post-
24 ONGARD wells in Otero County?

25 A. Yes, I have.

1 Q. Were you able to tell whether any of those wells
2 were capable of commercial production?

3 A. Three of those wells were listed as potential
4 producing wells. One of those wells is the first well you
5 see on Exhibit Number 14. This is just outside that area.

6 Q. Do you approximately where it is on this map?

7 A. Yes, it would be up in the -- actually, it should
8 be one of those wells that's right in -- along the boundary
9 of the -- I believe it might be that one right by La Luz.
10 It falls just outside the area. It's right on the boundary
11 of the area that is excluded.

12 Q. All right.

13 A. That was one of the wells, and then the Bennett
14 Ranch Unit Number 1 Y and the Bennett Ranch 25 Unit Number
15 1 were wells that were listed as having potential
16 production. I believe they had -- out of the Bennett Ranch
17 1 Y I believe is approximately estimated at 2200 MCF per
18 day, and the Bennett Ranch 25 Unit Number 1 at
19 approximately -- estimated a gas production of about 3MCF
20 per day.

21 Q. Can you point out approximately where those two
22 Bennett Ranch wells are?

23 A. Yeah, the Bennett Ranch wells are approximately
24 down there at the base where you see that brighter green
25 dot in the middle. That's the approximate location of the

1 Bennett Ranch wells.

2 Q. Now, you mentioned that there were three wells
3 that had potential for commercial production. Was it
4 potential production of oil or gas?

5 A. It was potential production of natural gas.

6 Q. For all three of them?

7 A. For all three, that's correct.

8 Q. Was there any indication why they are not
9 producing now?

10 A. There was no indication in the Bennett Ranch
11 files, however there was a document in the -- let's see,
12 Ysletano Canyon Federal Number 1, that they have gas in
13 commercial quantities. However, they would need to drill
14 additional wells to justify the cost of a pipeline to get
15 the gas to market at that point.

16 MS. MacQUESTEN: These are the questions I had
17 regarding the OCD's authority and the area described by the
18 proposed Rule. Before I turn to questions regarding the
19 prohibition on pits, I'd like to ask if the Commission has
20 any questions of Mr. Olson about the topics he's testified
21 to so far.

22 EXAMINATION

23 BY COMMISSIONER BAILEY:

24 Q. Yes. I'm trying to make sense of some of these
25 maps in relationship to other maps that are presented.

1 Without section, township, range, and with different
2 scales, it's a little bit difficult.

3 A lot of these green dots indicating wells that
4 were drilled within Otero County appear to be located
5 within the areas shown under Exhibit Number 9 that you
6 characterize as pristine. Is that correct?

7 A. Yes, that's in the areas listed down in the
8 southeastern corner of the map, I think you're referring
9 to.

10 Q. So what do you mean by "pristine" if there have
11 already been wells drilled?

12 A. That is the designation that was put out by the
13 Bureau of Land Management as for the types of grasslands
14 that are in that area. I guess at that point I may not be
15 able to necessarily speak to that.

16 We may have another witness that's going to
17 address some of the grassland areas themselves. That's a
18 little out of my expertise.

19 I think -- my purpose on this was just trying to
20 orient you to where some of these areas were, and I think
21 that will be addressed with some of the other witnesses,
22 the specifics --

23 Q. Okay.

24 A. -- for the grasslands.

25 CHAIRMAN FESMIRE: Commissioner Chavez?

EXAMINATION

BY COMMISSIONER CHAVEZ:

Q. Yes, Mr. Olson, on Exhibit Number 4 -- this is a bit of minutiae, maybe -- there at the southwest corner of Sierra County the hachured area extended a little bit south out of Sierra County, that's not intended, really, to designate that the area out of Sierra County is included; is that just a mapping issue?

A. I think that's just a glitch in the mapping. This Rule is intended for the portions of Sierra and Otero County. It is not proposed to go outside of those two counties.

COMMISSIONER CHAVEZ: Okay, thank you.

CHAIRMAN FESMIRE: I have no questions.

DIRECT EXAMINATION (Resumed)

BY MS. MacQUESTEN:

Q. I'd like to turn, then, to the issue of prohibiting pits in the area that we've prescribed. Now this proposed Rule would prohibit all pits that are permitted under the Oil and Gas Act; is that right?

A. That's correct.

Q. For these two counties in the area that we have defined?

A. That's correct.

Q. Could you give us a little background, please, on

1 the types of pits that this rule would prohibit?

2 A. Essentially it comes out similar to our OCD Rule
3 50, is two major categories of pits which we refer to as
4 your short-term or long-term pits. Short-term pits would
5 refer to your drilling and workover pits. They're used for
6 a limited period of time and then are closed. You know,
7 under our Rules they look at closure periods of up to six
8 months or potentially up to a year with extensions.

9 The other type of classification would be the
10 long-term storage and disposal pits. Those are pits that
11 would be used for the life of the well and are going to be
12 containing largely separation and dehydration wastes,
13 mostly produced water.

14 Q. Going back to the short-term drilling and
15 workover pits, how do you define short-term? How short is
16 that?

17 A. It's not really defined. I mean, it's defined by
18 Rule 50 as drilling and workover, and that's usually --
19 they usually last for, you know, roughly a 30-day period
20 for use of a well, maybe a little bit longer depending on
21 what kind of problems they may have with drilling the well.

22 Q. And then a six-month period to close the well,
23 with the potential to extend that closure period for
24 another six months?

25 A. That's correct.

1 Q. What kind of contents go into short-term drilling
2 and workover pits?

3 A. Largely going to be drilling fluids, drilling mud
4 and cuttings, as well as potentially some produced water
5 and oil that float back during some of the drilling
6 activities.

7 Q. And you stated earlier that the long-term
8 disposal and storage pits are quite likely to contain
9 produced water?

10 A. Largely used for disposal of produced water.
11 There's dehydration waste as well, which is going to be
12 getting additional water out of the gas stream before being
13 placed in a --

14 Q. What do we know about the produced water in the
15 area that we've defined by this Rule?

16 A. Actually very little. The only well that had any
17 information was that one well that was right on the
18 boundary of the area, and I believe that was the --

19 Q. The Ysletano, if I'm pronouncing it correctly?

20 A. Yeah, Ysletano Federal Number 1, I believe. And
21 in there they didn't list it, they had encountered produced
22 water and did have an actual analysis showing about 31,000
23 parts per million of sodium chloride in the water.

24 Q. How does that compare to, say, seawater?

25 A. Seawater is going to have total dissolved solids

1 up around 26,000, approximately.

2 Q. So saltier than seawater?

3 A. Yes, this would be considered saline water.

4 Q. Now, you're not saying that all of the produced
5 water in this two-county area is going to have that saline
6 content, are you?

7 A. No, I think just trying to point out that we
8 really don't know what the quality is, but there is some
9 potential for poor-quality water in this area.

10 Q. What problems arise with water that has a high
11 chloride content?

12 A. Essentially what you're looking at is the salts
13 that are contained in the produced water, and the chloride
14 ion is the most significant one. It acts as -- actually
15 like a conservative tracer for water flow when you have
16 migration of produced water in the subsurface. A chloride
17 ion will move pretty much with the waterfront.

18 So we do have a lot of potential for problems
19 with groundwater contamination just due to the mobility of
20 the chloride ion, as well as the -- in general, the salts
21 that are in the produced water can cause surface problems
22 as well for plant growth, at the surface.

23 Q. Are there other substances commonly found in
24 produced water that constitute a potential environmental
25 hazard?

1 A. Yes, you can also have hydrocarbons as well if
2 the produced water is in contact with a hydrocarbon, a
3 liquid hydrocarbon in the reservoir. You may also have
4 dissolved hydrocarbons such as benzene, toluene,
5 ethylbenzene and xylene, which are light aromatic
6 hydrocarbons.

7 You could also have some heavier end
8 hydrocarbons, such as your polynuclear aromatics, such as
9 your naphthalenes. And potentially metals as well, could
10 be contained within those as well.

11 Q. What hazards do those substances pose?

12 A. Some of those substances have specific health
13 hazards associated with them. Benzene is a known human
14 carcinogen. The other constituents, such as toluene,
15 ethylbenzene and xylenes, aren't carcinogens but they do
16 have human health effects at levels that have been set by
17 the Water Quality Control Commission, as well as health
18 effects associated with naphthalenes and the polynuclear
19 aromatics and some of the metals as well, several metals.

20 Q. You spoke about the mobility of salts. How
21 mobile are these substances in produced water?

22 A. They are fairly mobile, however less mobile than
23 the chlorides. The hydrocarbons in particular can be
24 biodegraded as they're moving through the soils, so
25 sometimes you might see the chloride plume if you have a

1 joint chloride and salt problem and aromatic hydrocarbon
2 problem where the chloride front could be out in front of
3 the hydrocarbons, because they're being degraded as they're
4 being moved through.

5 But the benzene itself is a relatively mobile
6 constituent of the hydrocarbons. It's the first one to
7 break through. It's highly soluble in water.

8 And then other constituents are a little less
9 mobile, such as the polynuclear aromatics and the metals,
10 which get tied up a little bit more in the soil as it's
11 moving through, but they still can migrate and cause
12 contamination of groundwater.

13 Q. So how relevant is the mobility to the potential
14 for contamination?

15 A. The higher the mobility, the greater the
16 potential there's going to be for contamination of
17 groundwater. So things like your aromatic hydrocarbons and
18 your chloride ions and your salts have a pretty high
19 mobility in the subsurface, they have a high potential for
20 contamination of groundwater.

21 Q. If we could look at the next slide, please, Mr.
22 Olson, who prepared this slide?

23 A. I prepared the numbers that you see here in this
24 slide.

25 Q. And what was the source of the information used

1 to create this slide?

2 A. This is information that's taken from our
3 environmental case files with the Oil Conservation
4 Division's Environmental Bureau. They're on file just in
5 the Santa Fe office.

6 Q. So there are potentially other files showing
7 contamination that are included in the numbers here?

8 A. Yes, there's going to be files in our District
9 offices that are going to affect the total number, not the
10 groundwater cases. The groundwater cases are all handled
11 out of the Santa Fe office.

12 So those are the -- fairly -- those should be the
13 accurate numbers from what we have on file of groundwater
14 cases in the State.

15 The total number that you see there is the number
16 of -- total number of cases, and that's largely soil
17 contamination cases. And the groundwater numbers are a
18 subset of those numbers. Those are sites within, say, that
19 first one of the location sites of 6522 sites, 428 of those
20 sites also have contaminated groundwater.

21 I guess I could maybe go on with this. These are
22 really -- these are all sites that are from -- as a result
23 of contamination from pits. Now, what you'll be seeing
24 here is largely the results of the use of unlined pits,
25 prior to Rule 50. I just wanted to kind of make that

1 clear, there is a big distinction with this.

2 Q. When did Rule 50 take effect?

3 A. Rule 50 took effect on April 15th of 2004.

4 Q. So that Rule 50 represents a very recent change
5 in the requirements for pits?

6 A. Yes, it does. It requires permitting of all pits
7 and has specific requirements for locations and lining
8 requirements and things like that.

9 Q. So the numbers on this slide relate to pits that
10 were in place before that rule took effect?

11 A. That's correct.

12 Q. So when we're looking specifically at the
13 disposal and storage pits -- and those are the long-term
14 pits you talked about?

15 A. Yes, this is broken down here for long-term and
16 what would be considered short-term pits, which would be
17 the drilling and workover pits.

18 Q. And you're telling us that most of the pits that
19 are represented in those columns for the disposal and
20 storage pits were before Rule 50, so the contamination
21 represented here, you hope would not have happened if Rule
22 50 had been in place?

23 A. That's correct.

24 Q. Can you give us an example, then, of any long-
25 term disposal and storage pit that showed contamination

1 that -- a pit that would have satisfied Rule 50 but still
2 caused contamination?

3 A. We do have several pits -- Some of our brine
4 pits, which are double-lined pits with leak-detection,
5 actually have been constructed in accordance with -- or
6 they say they were constructed for Rule 50, they were done
7 under discharge permits, under the Water Quality Control
8 Commission Regulations. But the requirement for secondary
9 containment and leak detection would be the same for those
10 permits as under OCD Rule 50.

11 And we have several types of brine pits which are
12 essentially containing saturated brine, up around 180,000
13 to 200,000 TDS, and we have several of those that have
14 caused groundwater contamination, even though they were
15 designed and constructed to prevent that. There is a
16 potential for contamination even from those types of
17 facilities.

18 Q. So even though Rule 50 was enacted to try to
19 prevent this sort of contamination, there have been cases
20 where a pit that would satisfy Rule 50's requirements could
21 still cause contamination?

22 A. Yes, there is. I think that largely comes in
23 through not inspecting or leak detection that -- actually
24 to catch it and keep fluids out of those secondary
25 containment systems. If you keep fluids out, you shouldn't

1 really be having much of a problem, and then you could even
2 -- through to repair those, those systems. But it can
3 happen.

4 Q. And just to clarify things, the pit you're
5 talking about wouldn't be under Rule 50, it also wouldn't
6 be under this Rule either; is that right?

7 A. That's correct, those are sites that have been
8 permitted under the Water Quality Control Commission
9 Regulations for discharge permits.

10 Q. So you're using that pit just to illustrate the
11 potential problems still associated with double-lined pits
12 with leak detection?

13 A. That's correct.

14 Q. Let's look now at the short-term pits, the
15 drilling and workover pits. The chart shows 14 cases of
16 contamination, but two cases -- only two of those cases
17 were groundwater contamination; is that right?

18 A. That's correct.

19 Q. Can you tell us about those two cases?

20 A. Well, in one of those cases we had a salt
21 contamination of the groundwater. What actually had
22 happened and brought it to our attention was, the landowner
23 had come onto the site. This is a well that was plugged
24 and abandoned. And to the best of everybody's ability, it
25 appears that this was actually placed through the -- He

1 came in and it was the only level area out in some of the
2 sandhill country, and he decided that was a good place to
3 put a stock well. And so it appears that he put a -- he
4 drilled a stock well right through the vicinity of the
5 former drilling pit. And at that site we do have
6 contamination of groundwater with chlorides above the Water
7 Quality Control Commission groundwater standards.

8 The second site is a site that had -- it was
9 actually in a relatively shallow groundwater area, and at
10 that site we -- during the remediation of that site it was
11 discovered to have contamination in the groundwater with
12 benzene from the drilling pit.

13 Q. That was the known carcinogen you mentioned
14 earlier?

15 A. Yes, it is.

16 Q. Are there other problems that you have seen
17 associated with short-term pits that aren't showing up on
18 this chart?

19 A. Yes, there are. I guess maybe one would be on
20 the next slide, we have a few pictures of some. Here's --
21 One of the common problems out there is with pits that may
22 be around for some period of time. And this is just a, you
23 know, pit that's had the liner torn and it's been -- well,
24 a common problem up there also, a common problem for
25 potential source of contamination of the soils resulting in

1 having to do remediation at a site.

2 Q. Is this an example -- Is this a short-term pit or
3 a long-term pit?

4 A. This would be what we consider a short-term pit.

5 And going along with this, this is actually a
6 drilling pit here that was put in this last year during
7 some drilling in the Crow Flats area. And Crow Flats is in
8 the southeast portion of the salt basin, which on the map,
9 the large-scale map we gave you earlier, it's going to be
10 down in the southeast quarter of this area. And it doesn't
11 show up real well in this picture, but the liner itself was
12 just laid right over a lot of rock.

13 You can see -- actually, some of those little
14 things you see sticking up are just the rocks poking up in
15 through the liner at this point. And we had no indication
16 that this leaked, but this just points out the problems
17 with potential for leaks from single-lined systems like
18 this.

19 Q. And this particular slide shows a pit that is
20 within the defined area for this Rule?

21 A. Yes, this is a pit that was drilled in the area
22 that's proposed for this Rule.

23 Q. Did you happen to see this pit yourself?

24 A. Yes, I did, that's actually me on the far side of
25 the pit in the picture.

1 Q. Why do you worry about pits that are built on a
2 rocky area like that?

3 A. Mostly just for maintaining the integrity of the
4 pit, especially after -- as our Rule 50 goes, and we now
5 have in our OCD guidance for closure of pits. It's just a
6 potential for breaching of the integrity of the liner. And
7 if you do have salts in the pits, there's a potential for
8 future migration of contaminants from the pit such that --
9 in this case the pit was buried on site, and if the liner
10 has been breached and its integrity breached, there's a
11 potential for migration of contaminants from those in the
12 future.

13 Q. This pit was supposed to be buried on site?

14 A. Yes, that's the way the BLM permits -- what they
15 have allowed for. Now, I don't know if this one buried.
16 This company had drilled two pits out in this area. One
17 they had problems with in terms that they had some question
18 about some of the types of waste that went into them, and
19 in that case that one was being required to be hauled off.

20 I don't know if there was a similar requirement
21 for this one. I had not heard that there was. But there
22 was no reflection of that in the well file, that it was
23 going to be removed from the site.

24 Q. If this had been buried on site under BLM
25 requirements, what would they do to bury it?

1 A. Typically you just go and you fold the liner
2 back. You might be trying to mix some material with that
3 to solidify once it dries out, the mud and the cuttings.
4 And then essentially pushing the thing in on itself and
5 covering it with clean soil, is a common closure of
6 petroleum pits.

7 Q. So the contents and liner would remain --

8 A. The contents and the liner would remain, right,
9 that's correct.

10 Q. Are you aware of any wells that were -- or pits,
11 short-term pits, that were constructed like the one on the
12 slide that caused contamination?

13 A. The -- Yes, we've had one recently in the Lea
14 County area, which was a similar constructed pit, a single-
15 lined drilling pit, that before the rig was brought onto
16 the site they lost all the water and -- all the fresh water
17 and brine that had been placed in the pit, and I guess they
18 assumed at that point that somebody had stole the fluids,
19 so they came back and filled it up again and lost the
20 fluids a second time, as I understand. And at that site,
21 just in a short period of time, they lost 5000 barrels of
22 fresh water and 820 barrels of brine water.

23 At this point we don't know what the extent of
24 contamination is at that site, because they've just
25 completed the drilling of the well. They came back and

1 actually emptied the pit and re-lined it, so they're -- to
2 be able to use that for the drilling of that pit, means
3 they had the rig coming on.

4 And then once the contents are removed, we'll be
5 looking at investigating what the extent of contamination
6 is at that. But they lost a relatively large volume of
7 fluids in a short period of time.

8 Q. Are there alternatives to using pits like these?

9 A. The alternative to drilling pits would be the use
10 of closed-loop systems with mud pits.

11 Q. When you say closed-loop, could you describe
12 basically what a closed-loop system looks like?

13 A. A closed-loop system is essentially a system
14 that's carried out in -- they're simply open-top tanks that
15 the system is carried out there, set on the surface of the
16 ground.

17 Q. All right. Is there an alternative to long-term
18 storage pits?

19 A. The alternative to long-term type of pits would
20 be the injection systems, and disposal of the fluids into a
21 Class II UIC well. There's also potential uses that the
22 Division has looked at before for beneficial uses of
23 produced water, and that's dependent upon the quality of
24 the water. And if we have relatively high-quality water,
25 we have allowed water to be used for road-maintenance

1 activities, in some cases wildlife watering and livestock
2 watering.

3 And another big area that's been used more
4 recently is the re-use for drilling activities. Instead of
5 using fresh water for makeup water, a number at the moment
6 are using produced waters for makeup water for drilling.

7 Q. If you don't have access to a long-term pit, what
8 do you do with the produced water until you can get it to
9 an injection well or until you can use it for some
10 beneficial purpose?

11 A. Well, you can just store it at that point in
12 tankage, before you can either pipe it to an injection well
13 or haul it by truck for offsite disposal.

14 Q. If we could go to the next slide, please, I'd
15 like to have you discuss a comparison of a system using
16 pits versus a system using closed-loop or storage tanks and
17 talk about the difference in those two systems.

18 A. Well, with pits you're going to have a lot of
19 problem with detection of leaks. Even in some of our
20 double-lined systems they are rather difficult to locate
21 leaks at times, and also costly to repair, as well as tanks
22 are -- you know, you've got a -- usually a sealed tank,
23 you're looking at something that's a little less likely to
24 leak, although you can have leaks from those types of
25 systems as well, but it's less likely.

1 It's also, I think as I mentioned, difficult to
2 detect leaks. With the tanks sitting on the surface you
3 pretty much see it, especially if your tank is placed up
4 on, say, a gravel ring to keep it off the ground and keep
5 it out of contact with any moist soil at that point. And
6 so you'll see even leaks from the bottoms pretty much
7 coming out the bottom, or you'll see leaks in the sides,
8 which you don't see from a pit because you have a --
9 essentially a covered surface that you can't inspect.

10 With the pits there's also more danger to --
11 potential for wildlife, especially birds, getting in pits,
12 even with the netting requirements. I've seen some sites
13 that are netted in accordance with our Rule, that wildlife
14 have managed to get in. With tanks, obviously everything
15 is enclosed. You don't have that potential danger.

16 The other thing you have with pits, usually in
17 the closure, that comes in, that's allowed in our guidance,
18 is on-site burial in certain circumstances of the contents
19 of those pits. And that leaves a long-term liability with
20 the operator, as well as potentially for the State. If the
21 site becomes an abandoned site in the future, the State may
22 be left as the one attempting to address any long-term
23 liability from contamination of soils at a site, and you
24 have less long-term liability with tanks.

25 Q. All right. On the issue of pits being more

1 likely to leak and having more difficulty in detecting
2 leaks with pits, can you talk about what happens when a
3 leak occurs? What kind of remediation needs to take place,
4 and how much does it cost?

5 A. We've got a lot of numbers that come from unlined
6 sites that we've done, and if you're looking at relatively
7 simple -- just contamination of soils, you may be looking
8 at, you know, \$3000 to \$5000, trying to deal with
9 remediation of those soils. And if it's a little more
10 complex you could be looking at, you know, tens of
11 thousands up to \$100,000 for major soil contamination.

12 If the site resulted in any groundwater
13 contamination -- some of our simple sites on groundwater
14 contamination have been in the range of \$10,000 to \$20,000.
15 Major sites of groundwater contamination, you're looking at
16 extreme costs up in the range of hundred thousands of
17 dollars up into the millions of dollars.

18 Q. Where are you getting those figures?

19 A. That's just numbers that I've kind of collected
20 over the years in the course of the contamination cases
21 I've worked on, just -- It's not inclusive of all sites,
22 but it's just ballpark ranges of estimated costs of
23 cleanup.

24 Q. On the issue of danger to wildlife, do our Rules
25 require drilling pits to be netted?

1 A. They do not. Even Rule 50, our new Rule 50, does
2 not require netting of drilling pits, as long as any oil
3 that may have been produced in the pit is removed from the
4 pit.

5 Q. And what are the fencing requirements under Rule
6 50?

7 A. The fencing requirements that we have were set in
8 Rule 50 for protection of livestock. There was some debate
9 about that at the hearing, about to what level that fencing
10 should go. And the rule was promulgated with protection
11 for livestock.

12 Q. So would it include protection for wildlife?

13 A. No, it does not.

14 Q. What kind of livestock are they protecting? What
15 size animal are we talking about?

16 A. Essentially it's being done for cattle, cattle,
17 horses that might be grazing in the area.

18 Q. On the risks associated with burial on site, what
19 kind of problems have you seen arise from burial on site?

20 A. One of the biggest problems we've encountered
21 is -- in past practices of burial has been the pit being
22 closed and buried relatively close to the surface where the
23 pit contents may have just been mixed in with soil from
24 that area, essentially stirred up.

25 There might be a top coating of some soil across

1 that, but the problem has been that the shallow depth of
2 burial that's happened in a lot of those circumstances has
3 resulted in salts wicking back up to the surface and
4 essentially having a surface disturbance area where nothing
5 will grow in the future, just due to the high salt content
6 of the soils.

7 Q. Do you feel that Rule 50 has taken care of that
8 problem?

9 A. Rule 50 didn't really address that. We've tried
10 to address that in our guidance document, but there has
11 been quite a bit of controversy about that, because it's
12 not specifically set out in Rule 50. Rule 50 has some
13 general requirements for closure, but it does not specify
14 the actual methods for how that -- to occur.

15 Q. Do our current Rules for pits require future
16 surface owners to be notified that drilling waste has been
17 buried on their property?

18 A. No, they do not, and that was a big issue with a
19 lot of the landowners. It's been expressed to us through
20 Rule 50, and even over the last few months since the
21 implementation of the Rule, we've had a number of public
22 meetings, and that's been a big issue with landowners, that
23 they see this as a landfilling of solid waste on their
24 property without their permission, because you're
25 essentially leaving behind -- leave behind the mud and

1 essentially the cuttings, they're going to be relatively
2 benign because you're looking at just fragmented rock, but
3 then you are leaving behind a large synthetic liner that
4 you're then burying in place, and there has been a number
5 of case where you've had problems, especially with pits
6 that are buried near the surface, where that liner ends up
7 resurfacing and getting fragmented across there and then
8 having problems with cattle eating that. We've had reports
9 of cattle that have choked on -- and died from eating
10 plastic from some of the pit liners as well.

11 Q. If a pit is buried on site and it -- even
12 encapsulated properly, if a future surface owner doesn't
13 know it's there, can there be problems when that land is
14 later developed?

15 A. Yes, there's nothing that would prevent that area
16 from being disturbed in the future.

17 Q. Or even warn anyone that there was something
18 there to watch out for?

19 A. There is not a mechanism to place any type of
20 notifications or actually even notify the landowner of the
21 existence of that at that point.

22 Q. We received a number of comments telling us that
23 if we prohibit the use of pits, we're going to see a higher
24 degree of traffic in the area, trucks and vehicles on dirt
25 roads, and that this will create a great deal of dust.

1 Could you comment on that as an environmental hazard,
2 compared to the environmental hazards you've described
3 regarding pits?

4 A. I guess the main issue we come with that is kind
5 of from a land-use aspect. Usually the dust is seen as
6 kind of a -- is a nuisance issue and causes -- and tends to
7 smother some of the plants along the roadway. That's, at
8 least, what's been expressed to me by a number of the
9 ranchers. They have concern that their grasses don't grow
10 adequately along the road from a lot of the dust. I guess
11 that's -- That would be true if water was being trucked
12 from a site.

13 However, if water was to be going for injection,
14 which would be allowed under the Rules that we are
15 proposing, that that water would then be piped and there
16 wouldn't necessarily be that truck traffic. So it's a
17 little difficult to say what that impact would be because
18 it's the kind of decision -- the economic decision by the
19 operator whether they're going to go with, you know,
20 trucking fluids versus installing a Class II well for deep
21 well disposal of produced water.

22 Q. Does the dust raised by increased traffic in the
23 area represent a permanent environmental threat?

24 A. No, that's more of an effect while the activity
25 is going on, creates essentially a nuisance and potentially

1 inhibiting some of the plant growth along that area. But
2 it's more of a -- I would call that more of a short-term
3 activity, so...

4 MS. MacQUESTEN: I don't have any more questions
5 for Mr. Olson regarding pits. I do wish to have him
6 testify regarding several provisions on the injection
7 wells. But I'd like to stop at this point and ask the
8 Commissioners if they have any questions regarding pits.

9 COMMISSIONER BAILEY: Yes, I do. Shall we take a
10 break before --

11 CHAIRMAN FESMIRE: That sounds like a good idea.
12 Why don't we take a 10-minute recess. We will reconvene at
13 20 minutes to 11:00. That isn't very long to get cooled
14 off, but it beats sitting here for another 20 minutes or
15 so.

16 (Thereupon, a recess was taken at 10:30 a.m.)

17 (The following proceedings had at 10:40 a.m.)

18 CHAIRMAN FESMIRE: Let's sit down and get started
19 again, and at this time I'm going to issue an invitation
20 that I apparently don't have to issue. If the gentlemen
21 would like to take their coats off, I won't be offended.

22 MR. CARR: Ties?

23 CHAIRMAN FESMIRE: Maybe this afternoon.

24 Andy, you're going to maintain the formality of
25 the State Engineer's Office all day, huh?

1 MR. CORE: Absolutely. That's what holds me up
2 in the chair.

3 (Laughter)

4 MS. MacQUESTEN: He gets the best-dressed award.

5 CHAIRMAN FESMIRE: Ms. MacQuesten, if you'd like
6 to continue -- or -- Did you get a chance to ask a
7 question?

8 COMMISSIONER CHAVEZ: Let Jamie ask her questions
9 first.

10 CHAIRMAN FESMIRE: Oh, Jamie, I'm sorry.

11 COMMISSIONER BAILEY: I have some questions for
12 Mr. Olson.

13 EXAMINATION

14 BY COMMISSIONER BAILEY:

15 Q. You showed maps of what, a hundred wells drilled
16 in Sierra and Otero Counties? Do you have any
17 contamination reports from those wells that were drilled?

18 A. No, we do not.

19 Q. Have you looked for contamination, or have any of
20 the residents or landowners in the area discussed
21 contamination from those hundred wells that have already
22 been drilled?

23 A. I have not seen any. The only thing that had
24 come up was the investigation of one of the well sites that
25 I did last winter in response to a complaint from one of

1 the landowners, and that wasn't really about the
2 contamination from, say the pit.

3 There was another well being drilled down on the
4 Texas side, and they had just installed the liner in this
5 pit and they were getting ready to put some water in it to
6 keep the liner down, and they were having the water flow
7 over at the well on the Texas side, so the company had
8 actually had hauled some water from that. They were
9 looking to haul water.

10 Actually, there was more water than they could
11 handle at that well, and they hauled some of the water from
12 that well, from the drilling of that well, over to this
13 well, and supposedly it had a chloride content. We had
14 investigated that and from some results that we had saw
15 that it had, you know, elevated chlorides.

16 But it was placed and the portion of the pit was
17 designated for brine water, but it appears that there may
18 have been -- one of the haulers that might have come in
19 there, might have been one of the septage haulers, so they
20 might have had some other waste that went into that, and
21 there had been some complaints about the odors of it from
22 that pit. So that's the only site that I had worked on.

23 Now, there was complaints that they were using
24 water from that pit also for watering the wellpad and the
25 lease road that accessed that, and everything we found that

1 the company had reported, they had used the freshwater
2 portion of the pits for the watering. So we didn't see any
3 type of a surface issue that came up, even to the soil
4 sampling that had been subsequently conducted.

5 But that's the only complaint that I'm aware of
6 that has come out of that area to our office.

7 Q. And clearly all of those wells were drilled
8 before Rule 50 went into effect and were probably drilled
9 with unlined pits. Would you make that assumption?

10 A. That is possible. The ones -- what we know of
11 that have been drilled recently have been lined pits, but I
12 don't have any -- I don't know if they were lined or
13 unlined, to tell you the truth. I don't have any
14 information either way.

15 Q. Did I hear you say that the resource that most
16 probably could be produced from this area would be natural
17 gas?

18 A. Yes, on some of the APDs that I reviewed, they
19 listed oil and gas because they're wildcat wells, so -- at
20 that point. But the only thing that I have observed so far
21 has been some shows for natural gas.

22 Q. And so your discussions concerning hydrocarbons
23 which you said would be within the mudstream due to contact
24 with liquid hydrocarbons would not apply for the natural
25 gas reservoirs?

1 A. Not necessarily so. You could have a natural gas
2 condensate which is actually, I would say, worse than
3 having an oilstream in contact with the water, because you
4 have a very high volatile-content condensate that's very
5 high -- much higher in BTEX, usually, than your oils.

6 So there is potential -- If there is any
7 condensate associated with the gas, there's the same
8 potential for aromatic hydrocarbons there, potentially
9 worse of a concern than with an oil phase.

10 Q. But at this point we don't know if there's any
11 condensate associated with the gas, correct?

12 A. That's correct?

13 Q. Are there standards for natural gas within water
14 or groundwater standards that you enforce?

15 A. No, there's no -- You'd be largely looking at
16 methane standards. There is no methane standard for
17 groundwater.

18 Q. Could we go to the pit-contamination slide? That
19 one. Were all of those pits in one type of soil, or were
20 they river alluvium, or were they limestone, or is this a
21 conglomeration of all different types of soil within New
22 Mexico or -- Can you give me a little information on that?

23 A. Yes, this is a compilation of sites all over the
24 state, so they're going to represent a wide variety of soil
25 types. However, I'd say probably for those location pits,

1 probably the majority of them are going to be more in
2 alluvial materials, because I'd say that the majority of
3 that total number that you see there, that 6522, is sites
4 that have been conducted under the pit closures that are
5 carried out as part of the R-7940-C for the vulnerable area
6 up in the northwestern portion of the state.

7 So I'd say a large percentage of those are going
8 to be sites that are going to be located in alluvial
9 materials.

10 Q. So maybe some, or a very small percentage, would
11 be within karst areas? Were there any in the Carlsbad area
12 or the karst cave areas of the state that you've
13 investigated?

14 A. I don't believe there's any in the karst and cave
15 areas. We have a number of them that are in the -- you
16 know, the Lea County area where just -- we're looking at
17 migration through the caliche. That's probably fluid -- at
18 least we're moving through a fractured rock like that, you
19 know, that's relatively limited in thickness. But I can't
20 recall any of those that are in a karst terrain, to tell
21 you the truth.

22 Q. You talked about problems in the brine disposal
23 areas that have been permitted, that had the double liner.

24 A. Uh-huh.

25 Q. Can you share some of the lessons learned as far

1 as construction of those types of facilities, or was it
2 mostly administrative problems?

3 A. I think it was more of operational problem. It
4 seems to be that a lot of these -- that the fluids had been
5 in there for some period until the Division had discovered
6 them. It might have been -- the operator might not have
7 been monitoring the leak-detection system as the
8 requirements on the permits are if there is fluids in the
9 leak-detection system, they are to remove those fluids
10 immediately. They have to test them to see what the
11 chemical makeup of that is, so we could see if that was
12 potentially rainwater that might have been getting around
13 the primary liner and into the secondary system up near the
14 surface, near the anchorage, or whether there's actually a
15 leak in the liner, and that would be based on the chloride
16 concentrations and the total dissolved solids of the fluid
17 that's in the leak-detection.

18 But I'd say largely it's the fact that it --
19 fluids were allowed to remain in the leak-detection for a
20 period of time, which keeps a head, then, on that secondary
21 liner.

22 And then there's going to be problems with just
23 synthetics and the -- that enter that -- It is a synthetic
24 material that has some type of life, and if you either have
25 imperfections in the liner, that could occur, or it wasn't

1 installed properly, maybe the seams weren't welded
2 properly, because usually for those larger types of
3 facilities the seams are field-welded out there, because
4 they are large-scale ponds, and they might not have gotten
5 complete closure of their seams at that point, or one
6 opened up in the future because it wasn't completely
7 sealed.

8 Q. Does OCD have fines for bad actors who do not
9 comply with the permit operational requirements?

10 A. Yes, there's civil penalties that may be imposed
11 under both the Water Quality Act, which would be for these
12 types of facilities, or under the Oil and Gas Act.

13 Q. So that could take care of bad actors?

14 A. Yes, we -- that potentially could, but just -- I
15 think all we were trying to point out was that there is a
16 potential for problems here, but that is not to say that
17 that -- what you're referring to is essentially a
18 compliance and enforcement issue, I would agree.

19 Q. Could we go to the pits-versus-the-tank slide?
20 Could we not as easily create a slide that showed the
21 advantages of pits over tanks, such as less volume of mud
22 is available for well control under the tank system?

23 A. I guess that's true --

24 Q. I mean, you know, I can think of a half a dozen
25 advantages to tanks over pits. You know, Carlsbad just

1 looms so strongly in my mind. Would well control with
2 additional mud have been a factor? Not that we have
3 Carlsbad under discussion here, but I'm just concerned
4 about the volume of mud that could be available for well
5 control and the size of the surface disturbance. If we're
6 concerned about grasslands, do we have more surface
7 disturbance with the number of tanks necessary, as opposed
8 to a pit?

9 A. There potentially could be, if there is --
10 Consider the fact that you could have a pit of a variable
11 depth, which could be a certain set size. It is
12 potentially -- it is a potential surface issue, that you
13 could have a larger surface disturbance with tanks if you
14 had, say, one deep pit, that was a deeper pit, that was
15 handling those wastes.

16 So there could be advantages to certain types of
17 systems as well. I think we're just kind of -- highlight
18 more of some of the potentials for environmental threats on
19 that aspect, and then I'll admit I wasn't really looking at
20 some of the surface issues that you're discussing.

21 Q. You brought up the point that many surface owners
22 have issues concerning lack of knowledge of pit locations.
23 Does OCD still require P-and-A markers on old wells?

24 A. Yes.

25 Q. And those markers are placed when any well is

1 plugged and abandoned and the site is recontoured or
2 reclaimed?

3 A. That's correct. But if you go out to the site
4 you can't necessarily tell where the pit used to be at the
5 site, because -- You could probably find that out,
6 possibly, from a plat that might have been filed with the
7 APD and that might have shown where their proposed location
8 was, but there's nothing that really knows where the pit is
9 at that point, unless you can observe an area that maybe --
10 especially if the soils have been impacted by the salts,
11 you might see an area where nothing is really growing out
12 there, so...

13 Q. And my next question, last one, if no pits are
14 allowed, if only tanks are allowed, or closed-loop systems,
15 is your Bureau prepared to permit 711 disposal facilities
16 for waste muds within a reasonable driving location?

17 A. I mean, I guess if you look at this area being
18 removed, you would be looking at a 711 -- I think the way
19 we would look at it would be if the 711 permit -- if it's
20 restricting, say, a double-lined or whatever other type of
21 facility for surface disposal, a lined facility, if we're
22 banning lined facilities in this area, the distance that
23 they would have to drive would be -- you know, could be
24 substantial, unless they're crossing over to the -- you
25 know, to the Texas side, which is a closer area.

1 But yes, there would be a problem that
2 potentially could come up on a staffing level for
3 processing of permits if we have a large number of
4 applications.

5 There's been some talk about that from Rule 50
6 now, as well, with some of the changes that are coming in
7 through Rule 50 that we may be getting more applications
8 for commercial or centralized facilities. It hasn't
9 happened yet, but that's -- there's been some discussion by
10 some operators about that.

11 So there's a potential staff issue for permitting
12 of those types of facilities. It's something we would have
13 to deal with.

14 COMMISSIONER BAILEY: Those are all my questions.

15 CHAIRMAN FESMIRE: Mr. Chavez, do you have any
16 questions?

17 COMMISSIONER CHAVEZ: Yes, I have a few.

18 EXAMINATION

19 BY COMMISSIONER CHAVEZ:

20 Q. Some of these are more general, about the
21 Application, and if another witness would better answer
22 this, go ahead and say as much.

23 The description of this Application is for
24 provision for the Chihuahuan Desert area. However, what
25 you've described so far hasn't been specific. Were the

1 conditions that you described didn't exist within the
2 Chihuahuan Desert area, would you still want the same type
3 of descriptions -- or the same type of restrictions?

4 A. For the specifics of those areas, I'd probably
5 defer that, maybe, to one of our other witnesses. But I
6 just want to point out that, you know, we've relied on the
7 mapping of what was determined to be desert grassland
8 areas. So we're trying to coordinate that with the water
9 basin maps to say, okay, this is kind of an overlapping
10 area of these two, and that's why we try to do that and
11 actually exclude, then, some of those woodland areas.

12 But maybe if you've got something more specific
13 about --

14 Q. No, that's fine.

15 The requirement you have appears to be an
16 exception to Rule 50. Was there a reason that it was
17 preferable to have a separate rule for this area, rather
18 than an amendment to Rule 50 that would perhaps exclude
19 this area or have special provisions within Rule 50? What
20 was the preference for creating a new rule?

21 A. I think largely that the Executive Order directed
22 us to adopt a rule, so I think we tried to be specific, to
23 have specific provisions for this area, because it covers
24 more than just pits that's being covered by this proposed
25 Rule. We've got provisions for injection and

1 transportation lines and things like that, that it's a
2 little broader in reach than just the issues in Rule 50.

3 Q. Well, what I was concerned about is that the
4 provisions, what you're talking about here, could have
5 perhaps been reached, even though we haven't talked about
6 the other provisions yet in your proposed Rule, through
7 exceptions to existing rules, rather than a whole new rule.

8 Without putting words in your mouth, your answer
9 basically, was to try to comply with the Executive Order to
10 have a separate rule --

11 A. Well, I think it's --

12 Q. -- that steered you this way?

13 A. I think it's also trying to keep it condensed
14 into one set. I mean, if you were looking at having to do
15 this through amendments to other rules, we'd be amending a
16 whole series of provisions of, say, some of our UIC rules,
17 maybe even create a new rule for transportation lines, and
18 amending provisions for tanks and then the pits. So you'd
19 be looking at a number of provisions.

20 And I think it kind of made more sense to be
21 consolidated into a -- special provisions just for an area.

22 Q. Well, that leads me to my next question, in that
23 an operator who was wanting to know how to operate in New
24 Mexico might look at Rule 50 and think that they have all
25 that they need there about pits, because there's no

1 proposed cross-reference to your proposed Rule if they're
2 in Sierra or Otero Counties.

3 Wouldn't it be helpful to have some reference
4 within those rules which you're not amending, but which
5 would somehow direct the operator to these specific rules
6 in those areas?

7 MS. MacQUESTEN: Commissioner, if I could address
8 that question, I think a specific reference is probably a
9 good idea, but we tried to deal with that by placing this
10 new Rule in the general provisions that anyone who is going
11 to be operating in New Mexico should be aware of. So
12 anyone operating here should read this section of the
13 Rules, and they would find this special provision.

14 COMMISSIONER CHAVEZ: Okay, thank you.

15 THE WITNESS: Although I see a problem, if there
16 needed to be some kind of cross-referencing, that there is
17 sometimes confusion. If you look at one portion of the
18 Rules you think, that's okay, unless you're missing a
19 certain portion.

20 So I don't see that it's necessarily a problem if
21 the Commission wished to adopt some kind of cross-
22 referencing to the Pit Rule.

23 Q. (By Commissioner Chavez) I noticed also, there's
24 no provision for any administrative exception, at least
25 from what we've seen so far and throughout the rest of the

1 rules also. But is that intentional, or was that ever
2 considered, to adopt some provision for administrative
3 exception to the --

4 A. It was not something that we had considered to be
5 proposed, at least for looking at the pits. I mean, I
6 think a lot of our direction seemed pretty clear and the
7 executive order was to prohibit pits.

8 Now, we do have provisions in Rule 50 now that
9 allow for exceptions, and -- from the Rule, from any
10 provision of Rule 50, but it's not something that we are
11 proposing at this point.

12 MS. MacQUESTEN: Mr. Commissioner, it was an
13 intentional decision not to include any exceptions in this
14 Rule, and that was another reason for not making this Rule
15 part of Rule 50 where exceptions were allowed.

16 Q. (By Commissioner Chavez) Okay. Mr. Olson, you
17 referenced a water sample in the OCD records that had -- I
18 guess you interpreted that to be produced water from a
19 formation. I think it was 30,000 or something TDS or --
20 for salt. What was that reference again?

21 A. I guess -- I believe it was listed in one of the
22 sundry notices that came from the operator where they had
23 flowed -- they were doing some tests on gas production and
24 they flowed some water as well, and they actually had taken
25 a test, some basic testing of that water. But they didn't

1 have the specific analysis listed, they just listed -- I
2 believe it was listed in the sundry notice itself that they
3 had this quality water that they had encountered during the
4 test.

5 Q. Was your purpose of referring to that as an
6 example of what you might anticipate as produced water,
7 typical produced water from the area that's being -- of the
8 Application, or was that in reference to the possibility of
9 that produced water going into the drilling pit, or both?

10 A. I was thinking of it more as looking at the
11 potential of, this is a type of waste, just an example, of
12 a type of waste that could be generated.

13 I'm not going to necessarily say that it would
14 be, because I agree with Commissioner Bailey that it's a
15 large area, and you can't necessarily say something from up
16 in this point is going to be the same as what you're going
17 to encounter down in the southern portion, say, of Otero
18 County, and I think it was kind for illustrative purposes
19 of what we could have as a potential problem and to point
20 out that we really don't know ourselves what -- fully -- I
21 guess what information we're going to be generated from --
22 what type of wastes are going to be generated from these
23 activities in this area.

24 Q. Okay, you referred and had an exhibit, a slide of
25 a drilling pit in the Crow Flats area.

1 A. Uh-huh?

2 Q. Was the drilling fluid in that fresh water,
3 brine, salt? Do you know what the drilling fluid was in
4 that pit?

5 A. I believe that well was drilled with fresh water.

6 Q. Given that it was fresh water and that the pit
7 was on rock, how would that particular pit have posed a
8 hazard, had it been closed on that rock?

9 A. I don't believe that that one probably would have
10 been a problem, because that was essentially a dry hole.
11 So there wasn't really going to be any problem with waste
12 generated, that I see, generated from that site.

13 It was kind of, again, an illustrative problem of
14 what we've had -- what we could potentially see in that
15 area, because a lot of the carbonates are fairly near the
16 surface at that point, and if you're having to install a
17 pit, you may commonly encounter a circumstance like that
18 where you have a difficult terrain that's hard to set a
19 liner in, if it's a very -- you know, sharp rock where you
20 may have had to either blast to make a pit or essentially
21 carve one out, and there's just a potential for leaks from
22 construction of a pit in that type of a terrain.

23 But I would agree with you, I mean, in that one I
24 don't see any potential threat that actually came from that
25 specific pit for -- since it was drilled with freshwater

1 muds.

2 Q. Okay, since we've gotten there to the freshwater
3 mud, we'll go back to the example you used in the pit that
4 had lost water a couple of times and had been refilled.
5 Would that have been an issue had there not been saltwater
6 or brine introduced into that water?

7 A. If they just lost fresh water, that wouldn't have
8 been an issue.

9 Q. If the drilling fluid is made with fresh water,
10 what else would be in the drilling fluids that might be an
11 issue for contamination from these pits?

12 A. I'm not sure I understand what --

13 Q. You've mentioned -- if I understood your
14 testimony right, you said that with fresh water there's not
15 an issue.

16 A. Right.

17 Q. Okay, there's other additives that are put in the
18 drilling fluid to make the drilling fluid?

19 A. Right, yeah, you could have surfactants and other
20 types of materials that might be added. I don't know if
21 I'm -- not being a petroleum engineer and then getting into
22 the specifics of what they use in the drilling process, I
23 don't know if I'm necessarily the best person to answer
24 what specific additives they might be using.

25 Q. Well, you're testifying about drilling pits.

1 A. That's correct.

2 Q. Okay. The material that goes in the drilling
3 pits that you know of so far, what material in those
4 drilling pits, especially since you've shown two earlier
5 that caused contamination -- what was the material from the
6 drilling fluids that wasn't the fresh water that caused
7 contamination?

8 A. Well, in the one circumstance it was chloride.
9 Whether that was, you know -- it was somehow in there from
10 the pit. Whether it was produced water that was produced
11 back or whatever chlorides they -- content they had in the
12 pit area, as well as the other site was -- there must have
13 been some oil at some point, or condensate flowed into the
14 pit, and that's why there was BTEX contamination of the
15 area from that pit.

16 But that was the major problem that we've seen in
17 the southeast, of course, has been chloride and salt
18 content, just due to the high produced-water content down
19 there, as well as that they have to use brine to drill
20 through the salt sections.

21 Now as far as I know, there is not a salt section
22 in this area. I haven't seen any evidence of one at this
23 point. That's what the well that I went to inspect had
24 anticipated in their APD, encountering a salt section, and
25 that is why they had a brine segment to the pit, so that if

1 they encountered a salt section they would have switched
2 over to a brine mud at that point. But they did not
3 encounter one, so they never had to use brine at that site.

4 Q. Okay. The two incidents of contamination from
5 the drilling pits that we were just talking about, again,
6 one was because of chlorides that were introduced into the
7 pit --

8 A. Right.

9 Q. -- in the drilling fluid, and the other was
10 through hydrocarbons that had been introduced?

11 A. That's correct.

12 Q. If those had not been introduced into the pit
13 then, would you consider those contamination incidents?

14 A. If they had not been introduced, they most likely
15 wouldn't have migrated to groundwater at that point, and
16 there most likely would not have been contamination of
17 underlying groundwater.

18 Q. Okay. In your pit-versus-tank exhibit, again,
19 with the pit most likely to leak, as long as it's not
20 leaking chlorides or hydrocarbons, is there an issue in
21 your mind?

22 A. Not in my mind, no. There's not an issue, at
23 least for contamination of groundwater. There might be
24 other surface considerations, but...

25 Q. Okay. The risk of burial, what you pointed out,

1 if I understood you correctly, was two things: One was the
2 burial of chlorides or hydrocarbons which might be put into
3 the pit, and the other is the pit liner; is that correct?

4 A. That's correct.

5 Q. Now then, you hadn't mentioned it earlier, but to
6 expand on your understanding of what the statute requires
7 as far as regulating nondomestic waste from the oil and gas
8 industry, would you consider the pit liner, then, as
9 nondomestic waste to be regulated?

10 A. Yes, I would.

11 Q. Can a pit liner be disposed of on site in a
12 manner that does not harm human health or the environment?

13 A. I believe so. I mean, that's what we've looked
14 at through our guidance documents that we've been
15 developing recently for the pits, for implementation of
16 Rule 50. Under that we have covered the issue of the
17 burial and making sure that it's buried at a sufficient
18 depth at the site and that -- actually that the liner has
19 maintained integrity if they're going to do that, because
20 essentially you're putting a -- one piece of liner in
21 place.

22 The problem that's come up in other pits in the
23 past is where they've come back through with a Cat and
24 ripped through and shredded the whole thing and -- in the
25 process of mixing up the pit contents, and so now you have

1 fragments of liner that can end up surfacing. And that's
2 where I come back to more of the surface issues associated
3 with the liner coming back and causing a hazard to
4 livestock that start chewing on the liner. It's also quite
5 unsightly to go out to a site like that. You just see
6 shreds of plastic just everywhere across the site, so...

7 Q. You also stated that the drill cuttings are
8 relatively benign, and in that circumstance, then, is there
9 a problem with the drill cuttings being disposed of on site
10 if they're relatively benign?

11 A. I do not see a problem with that.

12 COMMISSIONER CHAVEZ: Thank you, that's all I
13 have.

14 CHAIRMAN FESMIRE: I have no questions.

15 MR. BROOKS: May I ask a couple questions?

16 CHAIRMAN FESMIRE: Surely.

17 EXAMINATION

18 BY MR. BROOKS:

19 Q. Mr. Olson, assuming there is a leak -- assuming
20 the liner is leaking, as we talked about lined pits, could
21 you describe some factors that might influence whether or
22 not that leak would cause contamination of groundwater,
23 other than whether there are contaminants in the contents
24 of the pit? Of course, that's a given. If there are no
25 contaminants in the contents of the pit, it's not

1 contaminated. Assuming there are, what factors might
2 influence or drive whether or not there's groundwater
3 contamination resulting from those lined pits?

4 A. They're largely going to be what the depth to
5 groundwater is at sites, probably one of the major
6 considerations. The other would be what the -- you know,
7 the volume that you've lost. And I'd say a third -- Well,
8 I had a thought there. I lost it for a minute, so...

9 Q. Would the nature of the material, the nature of
10 the strata in which your pit is located, would that have an
11 effect?

12 A. Yes, that was the other one I was just thinking
13 of that I lost. Yes, thank you.

14 Q. And would fracturing of that surface material,
15 would that influence --

16 A. Yes, that actually would influence it greatly.
17 And there is one circumstance, I guess, that I can think
18 of, coming back to Commissioner Bailey's concern about
19 karst terrain. We haven't had any problems with pits in --
20 of groundwater contamination that I can think of in some of
21 the karst areas, but we have had contamination of
22 underlying groundwater at around 200 feet through fractured
23 dolomites out in the Indian Basin area, so -- and down in
24 the Queen formation, and that's where the -- that is a
25 result of a produced water -- well, it's kind of a

1 transportation line for getting fluids to the gas plant at
2 that point, so it was a combination of fluids that are
3 coming in there, water, condensate and gas at that point.
4 So...

5 Q. Thank you. Switching to --

6 COMMISSIONER BAILEY: Could I ask --

7 MR. BROOKS: Oh, yes, sure.

8 COMMISSIONER BAILEY: Does a fourth factor
9 include a driving force?

10 THE WITNESS: The driving force would be more
11 important for a long-term pit, because you have a constant
12 head that would feed the area, especially if it's something
13 that hasn't been observed over time, that this thing has
14 been going on for some period of time, you have a constant
15 head.

16 If you do have a -- Otherwise you have like a
17 one-time release similar to a spill, I'd say, from the pit
18 I cited, that lost, in a couple instances, the water. I
19 would say it's probably more analogous to a spill because
20 you don't have a constant head. You have the fluids that
21 might have been lost from the pit, and then they came back,
22 of course, and added more to it, so they had two episodes.
23 But there is a constant head, as you're referring to, to
24 help drive that.

25 But you still have migration of the contamination

1 moving through unsaturated flow, and it will still move
2 under unsaturated conditions as well.

3 MR. BROOKS: Moving to a -- I'm sorry,
4 Commissioner?

5 COMMISSIONER BAILEY: That's all.

6 Q. (By Mr. Brooks) Moving to one other part of your
7 testimony, you were talking about the alternatives for
8 disposal of produced water when you did not have the
9 availability of an evaporation pit --

10 A. Uh-huh.

11 Q. -- and you suggested two, as I recall. One was
12 an injection well, and the other is the beneficial use --
13 if there is now beneficial use. The beneficial-use area is
14 a developing area, is it not? Heretofore there's been very
15 little beneficial use?

16 A. That's correct, and the Division has been
17 encouraging beneficial use for a number of years, just
18 because we try to limit the amount of freshwater impacts on
19 the resource for waters that are being used for drilling or
20 other purposes. If you can offset that, then you are using
21 less of our freshwater resources for development.

22 Q. As of now, though, is there a significant amount
23 of produced water being converted to beneficial uses in
24 southern New Mexico?

25 A. I would say it's not very significant.

1 Q. Now, the primary alternative, then, would be
2 injection wells?

3 A. It would be injection or, I guess there's one
4 other option, would be to -- hauling offsite to a
5 commercial or centralized facility, which could be an
6 injection well or --

7 Q. That would probably be an injection or a pit of
8 some kind?

9 A. Or a pit that -- right, that might have been
10 outside that area, that's correct.

11 Q. Of course, if there were not an available
12 alternative within this Chihuahuan Desert area, then it
13 could be trucked to other portions of the state or out of
14 state, correct?

15 A. That's correct.

16 Q. But those would be -- I've pretty well exhausted
17 the various alternatives that might exist, correct?

18 A. I believe so.

19 MR. BROOKS: Thank you, that's all my questions.

20 CHAIRMAN FESMIRE: I do have a question, Mr.
21 Olson.

22 EXAMINATION

23 BY CHAIRMAN FESMIRE:

24 Q. Concerning the salt section, you said that one of
25 the wildcat operators out there anticipated a salt section?

1 A. Yes, they did.

2 Q. Okay, but they didn't encounter one?

3 A. They did not encounter one, that's correct.

4 Q. And can you tell me that a salt section does or
5 doesn't exist throughout this region, or is it going to be
6 spotty, or is it going to absolutely not exist?

7 A. From what I've -- I haven't done really in-depth,
8 detailed look at the petroleum geology out there, but in
9 just the course of preparing for these hearings, I've been
10 looking through, just my own curiosity, through the geology
11 of this area, and I haven't seen in the -- at least the
12 couple publications I've looked at, indication that there
13 is a salt section there.

14 Q. Why did the operator anticipate one, then, do you
15 know?

16 A. I really don't know. I've discussed this as
17 well, with one of our District Supervisors, and he was a
18 little puzzled by why they would have thought there was a
19 salt section over there too, so...

20 CHAIRMAN FESMIRE: Go ahead, Ms. MacQuesten.

21 DIRECT EXAMINATION (Resumed)

22 BY MS. MacQUESTEN:

23 Q. Let me ask a few follow-up questions, Mr. Olson,
24 and I'm thinking now of those lists that we have showing --
25 identifying all of the wells that were ever drilled in

1 Sierra or Otero Counties, and there were just a few wells
2 that were identified by name, indicating that they had been
3 drilled after ONGARD, and that was sometime in the early
4 1990s. The remaining wells are older than that; is that
5 right?

6 A. That's correct.

7 Q. Do you know whether they are substantially older
8 than that?

9 A. I don't know, I didn't look at the dates on
10 those. I'm not sure exactly --

11 Q. Okay.

12 A. -- what the dates on those are.

13 Q. None of the wells in either county have shown any
14 production to date?

15 A. That's correct.

16 Q. Although there are -- you pointed out there are
17 three that appear to be capable of commercial production.

18 Of the remaining wells, do you know how many were
19 dry holes?

20 A. I believe -- I can only remember two of them off
21 the top of my head that I believe were considered dry
22 holes.

23 Q. How do you define dry hole, then?

24 A. Well, they didn't get any shows of gas at all.

25 One, they did abandon, but they said they had just a very

1 minor amount -- they didn't say -- I had this verbal
2 conversation with the operator. He said there was just --
3 nothing significant.

4 Q. Are you talking about the 80 or 90 or so wells
5 that were drilled in Otero and Sierra Counties when you say
6 that?

7 A. No, I'm just talking about two wells that I'm
8 familiar with in that area that I looked at last December.

9 Q. Okay, but you don't know about the wells that
10 were pre-ONGARD wells?

11 A. No, I don't.

12 Q. Okay, but we know they were all drilled and
13 abandoned prior to the early 1990s?

14 A. That's correct.

15 Q. We also talked about the pit that was created in
16 a rocky area, and we had a photograph of that pit. Does
17 building a pit in an area of rock pose any special
18 reclamation problems?

19 A. I guess in terms of if you have a release from
20 that, it's going to be harder to recover, especially if
21 you're in a fractured rock area, you're going to have a
22 great difficulty in cleaning up any types of contamination
23 if you do have any release from that, because you're going
24 to have -- the contamination is moving off into the
25 fractures, and you can't -- it's about impossible to chase

1 and clean that up in a fracture system.

2 Q. I was thinking of -- One of the Commissioners
3 asked the question, what if the contents of that pit didn't
4 contain any contaminants, and I was wondering, if you had
5 blasted a pit into rock or have removed rock with a tractor
6 or something to create a pit, is that area ever going to
7 look the same again?

8 A. Most likely not, because you've just destroyed
9 the soil profile, unless you replace -- come back and
10 replace the soil profile that existed.

11 Q. Put in loose rock to substitute for the solid
12 rock that was there before?

13 A. I still think you need some type of a soil matrix
14 that you have to put across the top of that. Then you may
15 end up with an issue, especially if you're buried that in
16 place and you've got all this rock you generate -- I mean,
17 what we've looked at through our guidance is that you're
18 essentially restoring your -- If you are having to bury
19 this pit under our guidance criteria and having to bury it
20 at depth, now you've created volume that you're adding to
21 that area.

22 So now you're going to have some volume of rock
23 that you're going to deal with potentially afterwards, and
24 I don't know how BLM, at least as a surface management
25 agency, is going to deal with that, if they want rock

1 scattered around or not, but...

2 MS. MacQUESTEN: Okay. I don't have any more
3 questions regarding pits, so I'd like to move on to the
4 injection well issues, if that's acceptable to the
5 Commission.

6 CHAIRMAN FESMIRE: Let me ask a real quick
7 question.

8 Mr. Carr and Ms. Belin, the opportunity to cross-
9 examine, would you rather wait and cross-examine on all
10 subjects at the end of this testimony, or would you like --

11 MS. BELIN: Yes, I would.

12 CHAIRMAN FESMIRE: Is that okay with you, Mr.
13 Carr?

14 MR. CARR: It's all right, as long as we have the
15 right to at some time ask some questions. Whenever is
16 fine.

17 CHAIRMAN FESMIRE: Okay. Why don't you go ahead
18 and continue, then?

19 Q. (By Ms. MacQuesten) All right, let's turn our
20 attention to the provisions regarding injection wells, and
21 in connection with this it might be helpful to look at OCD
22 Exhibit Number 2, the proposed Rule.

23 Mr. Olson, the proposed Rule regarding injection
24 wells, this adds to rules already in place by the OCD
25 regarding injection wells; is that right?

1 A. That's correct.

2 Q. It doesn't replace those rules entirely?

3 A. No, it does not replace them, it adds to them.

4 Q. All right. And the proposal applies only to
5 wells used for injection of produced water?

6 A. That's correct.

7 Q. Could you tell us very briefly and very
8 generally, how is water disposed of through injection?

9 A. Water is typically generated at the surface, the
10 entire fluid stream being produced by the well coming up,
11 going through separation, either at the wellhead or a
12 centralized point, and it's then collected and either piped
13 or trucked to an injection station where it's pumped into
14 the subsurface.

15 Q. What kind of area of subsurface are you looking
16 for, for a good injection well?

17 A. You mean surface area or --

18 Q. No, the injection zone. What do you look for,
19 for an appropriate injection zone?

20 A. I might defer that to our engineer who's going to
21 be testifying later. I don't normally work on the actual
22 injection portion of the downhole activities.

23 Q. Okay, is the goal, though, to protect any
24 freshwater zones that might be --

25 A. Yes, that's the overriding goal of the UIC

1 program and the OCD Rules and Regulations, is protection of
2 underlying sources of groundwater that have a beneficial
3 use.

4 Q. What do we know about protectible groundwater in
5 this area?

6 A. We know that there is shallow groundwater, I'd
7 say in the 200-foot range. On some of the APDs it had
8 listed potential water zones at 700 feet, and I'm not sure
9 where they actually got that information from.

10 We do also know from one of those wells drilled
11 this last year that they had encountered a large water zone
12 down at approximately 1155 feet in depth, they were
13 drilling with air at that point and then started flowing
14 water back. And they actually even had to haul some water
15 off at that point as they were generating more than they
16 could produce, and they reported this off as fresh water,
17 although the analysis they gave were a little spotty. But
18 it did appear from their analysis that they would have been
19 below the State standards for essentially drinking water
20 quality.

21 Q. So according to what they reported, this would
22 have been protectible groundwater?

23 A. Yes, according to what they've reported, and this
24 was down at a depth of 1155 feet, where the only water zone
25 they'd anticipated was down at around 280 feet, 250 feet,

1 somewhere in that range.

2 We also had indications from the well records on
3 one of the Bennett wells that they had encountered multiple
4 water zones, although we don't know what the quality of
5 that water was. They encountered, I believe, three
6 possible water zones as they had listed it at three actual
7 water zones, although there was no quality information to
8 say what the quality is, or even how much it could produce
9 at that point. But there was water zones, about six or
10 seven zones potentially encountered in that one well.

11 Q. And the information you're giving us on fresh
12 water today comes from your inspection of the well files?

13 A. Yes, it does.

14 Q. And from that inspection it appeared that
15 operators were finding water at unanticipated depths?

16 A. That's correct.

17 Q. We spoke earlier about alternatives to injection
18 wells, and you mentioned the use of evaporation pits,
19 approved beneficial use, and you also spoke about simply
20 removing that water to a commercial facility or a
21 centralized facility for injection elsewhere.

22 Let me ask you, what happens to the majority of
23 produced water in New Mexico? How is it handled?

24 A. The majority of the water is reinjected. I think
25 we usually look at 98, 99 percent of the produced water in

1 New Mexico goes for deep-well injection.

2 Q. I'd like to ask you about contamination cases
3 related to injection wells, and here I'm speaking about the
4 well itself rather than related facilities. Do you have
5 any examples of contamination resulting from injection
6 wells?

7 A. Yes, I was able to find two examples of that in
8 our files, both produced-water injection wells, Class II
9 wells, that had casing leaks. One of them was located in
10 the Caprock area, and one down by Jal, New Mexico.

11 Q. In your opinion, can produced water be disposed
12 of by injection in the Chihuahuan Desert area in a manner
13 that will protect the environment?

14 A. I believe so. I think that's been borne out by
15 the UIC program itself, and that's the purpose of the
16 program under the Federal Clean Water Act, is to protect
17 underground sources of drinking water. So I think that it
18 can be done in a manner to protect freshwater resources.

19 Q. All right. I'd like to ask you about two of the
20 specific provisions of the proposed Rule. We're leaving
21 the discussion of the other provisions to some of our other
22 witnesses, but Mr. Olson, I would like to ask you about the
23 provision regarding produced-water transportation lines and
24 then later go on to the provision regarding tanks, so let's
25 start with the produced-water transportation line.

1 And I'd direct your attention to Exhibit Number
2 2, the copy of our proposed Rule, and in particular Section
3 C.(6). Now, this proposal has been changed from the
4 proposal that was attached to the Application. Could you
5 tell us what the change was and why it was made?

6 A. We had done this in response to some of the
7 comments that we had received, as well as some concerns by
8 discussions with one of our District Supervisors. And the
9 concern was that we see some potential problems here for
10 potential of explosive gas vapors that might build up in a
11 head space --

12 Q. Let me back up and --

13 A. Sure.

14 Q. -- and just ask you, the original proposal
15 involved requiring double-walled pipe?

16 A. That's correct.

17 Q. And you wanted to move away from that because --

18 A. Because of some of these problems that we had
19 looked at that came up through the comments, and I think I
20 was just starting to mention them. I was looking at
21 potential gas vapor and the safety hazards from any
22 petroleum products, light-end products that might show up
23 in that vapor space.

24 The other problem is, it doesn't really -- still
25 doesn't prevent the corrosion of steel. If you have a --

1 you know, you still have a steel pipe that is not
2 internally protected at that point, you still have that
3 problem coming up, as well as potential problems with
4 corrosion, even though the -- that outer portion of the
5 pipe, due to possibly vapor inside the double-walled
6 system.

7 It's also difficult to predict where you're going
8 to have a leak. Unless you've got a large number of leak-
9 detection points all along the line, which is a little
10 difficult to do even with the double-walled system, then
11 you're going to have -- the difficulty is that you have a
12 long stretch of line, of telling where exactly that leak is
13 coming from and then trying -- looking and trying to repair
14 that.

15 So it's kind of a -- more of a practical matter
16 there for how you do that.

17 And then we also had comments from some of the
18 operators that -- just there's not really an availability
19 of double-walled pipe. It's just not something that's
20 readily available.

21 So at that point we looked at, is there another
22 mechanism that would achieve the same purpose of preventing
23 leaks or reducing the likelihood of leaks and spills from
24 produced-water transportation lines?

25 Q. So the OCD is no longer recommending that the

1 Commission adopt a rule that requires the use of double-
2 walled pipe in this area?

3 A. No, we are not. We replaced that with our
4 proposal for installation of pipes, at least produced-water
5 transportation lines, to be internally plastic-coated pipe.

6 Q. What is the benefit of that?

7 A. It is going to prevent -- not entirely prevent,
8 but it guards against internal corrosion of the steel.

9 Q. Now, in addition to requiring internally coated
10 plastic pipe, the proposed Rule also requires pressure
11 testing before initial use and annual testing after that?

12 A. That's correct.

13 Q. What purpose does that serve?

14 A. It serves the purpose of demonstrating the
15 integrity of the pipe prior to operation, and then it gives
16 you a mechanism for demonstrating that that pipe maintains
17 integrity through its lifetime.

18 And these are similar provisions that we have
19 placed on discharge-permit facilities, some of our larger-
20 scale facilities, for a period of time now, and that's
21 turned out to be fairly successful provisions for early
22 detection of leaks from lines and from any contamination.

23 Q. And just to clarify, the provision regarding
24 internally plastic-coated steel pipe would apply to all
25 produced-water transportation lines in this area, whether

1 they're laid adjacent to a road, whether they're above
2 ground, or whether they're buried?

3 A. That's correct.

4 Q. What kind of problem are we trying to solve by
5 requiring this special pipe?

6 A. We're trying to eliminate leaks and spills to the
7 maximum extent possible, which have been -- caused a number
8 of problems with groundwater contamination in the state.

9 Q. How many cases of groundwater contamination have
10 you documented involving produced-water transportation
11 lines?

12 A. In a cursory review, without getting to a
13 detailed review of all 900 case files, I managed to flag 22
14 sites that have results of -- produced-water transportation
15 lines that resulted in groundwater contamination.

16 Q. Do you have some pictures for us?

17 A. Yes, this is just an example of -- one side you
18 can see here is a -- this is a line that was -- fluid was
19 surfacing at the -- right about at the line, but it was
20 actually going down for some period of time before the leak
21 was discovered.

22 Q. Now, I see two lines, one going straight across
23 the page and the other sort of looping into that
24 depression. Which line was the one causing the problems?

25 A. The line that you see going through the ground,

1 the straight one that's kind a diagonal across there, is
2 the line, and it's actually -- you can see it leaking, with
3 the water spraying out. The second line you see there is
4 just -- is a hose over there, and they were sucking out the
5 -- right there. This right here is the produced-water
6 transportation line, and the other hose that you see here
7 is just a suction hose for keeping the excavation empty
8 while they're trying to repair this.

9 Q. Do you happen to know how this was discovered?

10 A. Well, it was discovered as -- the fluids had come
11 to the surface at that point, it became obvious that there
12 was a leak in the line.

13 Q. So originally this line was underground?

14 A. This line was an underground line, yes, that's
15 correct.

16 Q. Do you have any idea how much produced water
17 escaped from this leak?

18 A. I believe it's -- overall was reported out at
19 relatively small volume. I don't remember the number, to
20 tell you the truth. We didn't have any -- This site here
21 had resulted largely just in soil contamination and had not
22 resulted in any contamination of underlying groundwater.

23 Q. Okay. Do you have any other pictures?

24 A. Yes, I do. This is another leak that was --
25 traveled some distance just along a little low area, and

1 the water had -- pipeline leak -- again, it was a buried
2 line -- was somewhere up in this area, and it flowed down
3 through this area, and the next slide, came down and pooled
4 up over a larger area. And investigations from this site
5 showed that the chloride contamination had migrated down
6 and contaminated the underlying groundwater.

7 MS. MacQUESTEN: I'd like to ask Mr. Olson some
8 questions now regarding the provision on tanks, but I would
9 like to stop now and ask the Commission if they have any
10 questions on the transportation line issue.

11 EXAMINATION

12 BY COMMISSIONER BAILEY:

13 Q. Sure. You mentioned the explosive potential in
14 the vapor space connected with double-lined -- double-
15 walled lines. Can we extend that potential to the closed-
16 loop system that you advocated earlier?

17 A. I -- Not really being a petroleum engineer, I'd
18 probably want to defer that to someone else. I'd say it
19 could be a potential if you -- Anything that you've got
20 where you create the proper fuel of oxygen mixture in an
21 area potentially could be an explosive hazard, and if
22 that's in a confined space or other type of space like
23 that, that is a potential for a problem, I would say.

24 Q. Do you anticipate that you would be instituting
25 any guidelines for cathodic protection on these produced

1 water lines?

2 A. We have not done that at this point. The
3 Division has been working on trying to develop a work group
4 for ageing infrastructure.

5 Ageing infrastructure has been a big issue,
6 especially down in the Lea County area where we've got --
7 the oilfield is relatively old down there. We've had a lot
8 of problems with line leaks. But we don't have any
9 provisions in our Rules at this point for that, and it may
10 be an issue that might be addressed by this work group as
11 they try to look at a lot of the ageing infrastructure
12 issues.

13 COMMISSIONER BAILEY: That's all I have, thank
14 you.

15 CHAIRMAN FESMIRE: Commissioner Chavez?

16 EXAMINATION

17 BY COMMISSIONER CHAVEZ:

18 Q. Thank you. Mr. Olson, I have a quandary as to
19 whether or not it might be ambiguous to call these
20 produced-water transportation lines, as long as everybody
21 knew exactly what we were talking about.

22 A. Uh-huh.

23 Q. Do you interpret these produced-water
24 transportation lines as typical -- what might be produced
25 water -- might be called gathering lines for only produced

1 water, for the disposal of the produced water, and it does
2 not include central gathering lines that may contain
3 product and produced water?

4 A. The ones I was referring to here were systems
5 that were not combined systems, they were just solely the
6 produced-water portion of the system.

7 Q. Okay, I just wanted to be sure that we were clear
8 on that for enforcement purposes, if this wording is used,
9 that that's what your intention is, if that's what you're
10 describing. Might we typically call it a produced-water
11 gathering system?

12 A. Well, I think that was what we had intended to do
13 with this, was trying to cover through the injection and
14 the system itself that's being used after separation.

15 Q. Okay. Your testimony about the internally
16 plastic-coated steel pipe, you were addressing issues
17 having to deal with trying to prevent corrosion leaks, was
18 that your main concern?

19 A. Yeah, corrosion, internal corrosion, has been a
20 major problem with produced water lines.

21 Q. Okay. Would a solid plastic line that passed the
22 pressure test meet the requirements for the -- the
23 intention of what you're trying to accomplish with this
24 Rule?

25 A. It could.

1 Q. The testing that you're proposing, is that
2 testing that's supposed to be reported to the Division, or
3 would that be in some test reports that the operator is
4 supposed to keep for a certain period of time available to
5 the Division? How do you foresee that testing be monitored
6 by the Division for compliance purposes?

7 A. I would envision that it would be something that
8 the operator would maintain and that would be available for
9 inspection by the Division.

10 COMMISSIONER CHAVEZ: Okay, that's all I have.

11 EXAMINATION

12 BY CHAIRMAN FESMIRE:

13 Q. Mr. Olson, a question on closed-loop drilling
14 systems we were talking about a minute ago. Do you have
15 any expertise in one of those systems?

16 A. No, that is not my area of expertise.

17 CHAIRMAN FESMIRE: Will we have a witness who's
18 familiar with them today?

19 MS. MacQUESTEN: We'll have Roger Anderson to
20 address some of the safety issues, but we don't have anyone
21 who has considerable experience with closed-loop systems.

22 Q. (By Chairman Fesmire) But am I not correct in my
23 belief that these systems contain open steel pits that are
24 not necessarily pressurized vessels; is that correct?

25 A. That's correct.

1 Q. So the concern about gases building up within the
2 system probably is not a real concern in these systems, the
3 way they're configured and used?

4 A. I wouldn't think so, unless you have a large
5 airspace volume in the top where you might have something
6 accumulating in that portion of the tank before it's coming
7 out the top. But I would -- It is an open-top tank that's
8 -- at that point.

9 Q. Okay.

10 A. It just has a smaller surface area, possibly,
11 than the pit, and that's maybe why -- I know industry has
12 looked at that and made comments about that, that they see
13 that as more of a potential problem, because the open pit
14 you've got, you know, lots of air flow across that, and
15 less of a potential safety hazard with that, so...

16 CHAIRMAN FESMIRE: Okay. All right, Ms. Belin?

17 MS. BELIN: No.

18 CHAIRMAN FESMIRE: Commissioner Chavez?

19 COMMISSIONER CHAVEZ: No further --

20 MR. BROOKS: Mr. Chairman, a couple of questions.

21 EXAMINATION

22 BY MR. BROOKS:

23 Q. You said that corrosion of saltwater pipes had
24 been a problem, correct?

25 A. That's correct.

1 Q. And is the plastic lining an established,
2 recognized means of limiting that corrosion?

3 A. I believe it is.

4 MR. BROOKS: Thank you.

5 CHAIRMAN FESMIRE: That does bring a point up,
6 one further question.

7 EXAMINATION

8 BY CHAIRMAN FESMIRE:

9 Q. This plastic-lined steel pipe can be very easily
10 inspected, can it?

11 A. Yes.

12 DIRECT EXAMINATION (Resumed)

13 BY MS. MacQUESTEN:

14 Q. Let's turn to the provision number C.(7)
15 regarding tanks that are used in connection with injection
16 wells. Now, this proposed Rule would require tanks to be
17 placed on an impermeable pad surrounded by lined berms or
18 other impermeable secondary containment devices of adequate
19 capacity to contain leaks or spills. What is the purpose
20 of this provision?

21 A. The main purpose for this is prevention of
22 contamination. It protects the soil at that point from
23 leaks and spills. It gives a mechanism for protection of
24 leaks, especially from tank bottoms, and it's going to get
25 to containment of fluids as well, so that you can actually

1 recover those fluids without them being lost to the
2 environment.

3 Q. Does it have any effect on the ability to detect
4 a leak?

5 A. Yes, it does. I think you'd have -- through this
6 you would be able to detect leaks easier, because if you
7 have a leak in the bottom of the tank and you have some
8 impermeable surface at that point, the fluids are going to
9 come out the sides, off the bottom, and you will have a
10 mechanism for detection of leaks from bottoms of tanks, and
11 we've had a number of sites where we've had tank leaks
12 that, you know, caused extensive contamination.

13 Q. And could you compare that to a tank placed on
14 the ground?

15 A. In the circumstance where you have a tank placed
16 on the ground and you have a hole in the bottom, by the
17 time you see it coming out the side, it's been going down
18 -- especially if it's towards the center of the tank, it's
19 been -- any of the fluids at that point have been moving
20 down for some period of time before they ever surface out
21 the sides, especially, depending on the size of the tank.
22 If you have a larger-type tank, it's going to be a while
23 before you see that out at the edges, and then you have a
24 relatively extensive amount of contamination that you need
25 to deal with, and you now a somewhat permanent structure

1 there that's causing you problems for how you're going to
2 remediate that.

3 Q. Okay. Do we have examples of contamination
4 caused by leaks and spills from tanks?

5 A. Yes, we do.

6 Q. Could we turn to slide number 24? What does this
7 show?

8 A. This is just a result of some tank overflows
9 inside the bermed area. The dark areas that you see here
10 on the ground all around the battery are the results of
11 spillage inside the battery.

12 Q. Did this -- What was the substance in this tank?

13 A. This was produced water. There was a minor
14 amount of oil in there, but it was largely produced water.

15 Q. Did this result in any kind of contamination?

16 A. Yes, it resulted in some extensive contamination
17 of the soils around there, still working with the operator
18 on...

19 Q. All right. Could we have the next slide, please?

20 A. And again here you see another battery. This is
21 actually some final storage here, prior to the injection.
22 There's an injection pump right over in here. And here in
23 the foreground, in this area, you see historic spills that
24 have been occurring over a period time around this area of
25 this site.

1 Also when we were here, the pump itself, which is
2 located right about there, was actively leaking. It was
3 just continually wet ground around the pump. It was just
4 small leaks from the pump area.

5 Q. Were the leaks exposed here connected with
6 produced water or other substances?

7 A. Yes, this is a produced-water facility.

8 Q. What had to be done to remediate this site?

9 A. This is chloride contamination of the soil which
10 is occurring here, and the operator -- we've required them
11 to investigate or remediate the site. And they had come in
12 and excavated a large amount of this. They removed some of
13 the tanks because they were just a physical problem for how
14 we'd access some of those areas, and then excavated a lot
15 of those soils and removed them for disposal.

16 Q. Could we have the next slide, please? Can you
17 tell us about this circumstance?

18 A. Yeah, this is a site -- Now, this is not a
19 produced-water facility, this is just another tank-battery
20 facility, but it goes to the whole issue of just having
21 mechanisms for prevention of contamination. This is a site
22 where the tanks were leaking out the bottom and
23 contaminated the underlying groundwater, which is down at
24 about 20 feet or so.

25 But there was never really any contamination

1 really observed at this site. This was kind of discovered
2 as we were decommissioning the site. We never really saw
3 the contamination coming out the sides at the site. What
4 you're seeing down at the bottom is just groundwater, in
5 the open excavation, there's some product, some oil on the
6 water in the open excavation.

7 Q. So in this case the contamination wasn't
8 discovered until the tanks were physically removed?

9 A. Right.

10 Q. And although this is not a produced-water tank
11 situation, you could have the same situation with produced-
12 water tanks if they were not placed on a pad?

13 A. That's correct.

14 Q. Do you have examples of spills and leaks that
15 have not risen to the level of groundwater contamination
16 involving tanks?

17 A. I'm not sure --

18 Q. Do all leaks and spills get reported to the OCD?

19 A. No, all leaks and spills are not. We have
20 certain volume reporting limits. We have -- Under OCD Rule
21 116, the volumes for reporting limits are -- over 25
22 barrels is a major spill requiring immediate notification,
23 and then between five and 25 barrels is considered a minor
24 spill which requires subsequent written notification, and
25 spills under five barrels are not required to be reported.

1 And the problem that comes up, especially with a
2 lot of the batteries where you have continued minor spills,
3 is that you have a -- something -- each event is not
4 reported as a spill, because the operator sees it as that
5 event, but you have this cumulative effect over time of
6 repeated small spills at batteries, and we've seen this a
7 number of times where they've been up and reported because
8 they were -- we were told that they were less than the
9 reporting limit.

10 But you can see extensive contamination, the site
11 across, you know, an area.

12 Q. Would our proposed requirement that tanks be
13 placed on an impermeable pad within a lined berm offer any
14 protection for those circumstances?

15 A. Well, first of all it would contain those fluids.
16 They could then be recovered, but then they would not be
17 coming in contact with the ground surface. So they would
18 be essentially contained, if you want to think of it in
19 terms of contained in a pan, for lack of a better word, by
20 having an impermeable containment at those facilities.

21 Q. We received many comments on the use of the word
22 "impermeable" in this proposed Rule. What was OCD's intent
23 in describing the pad as impermeable?

24 A. What we've normally considered to be impermeable
25 is materials that have a hydraulic conductivity of less

1 than 1×10^{-7} centimeter per second, and synthetic liners
2 that you see out there typically meet this. They're
3 usually up in the range of -- at least what I've seen --
4 1×10^{-8} at 10 centimeters per second.

5 So nothing -- I would agree with him in the true
6 terminology, nothing is actually impermeable except maybe
7 steel, but when you start looking at a lot of the
8 mechanisms that are used, concrete or something, it all has
9 some of that inherent permeability to it, but...

10 Q. Where did you come up with the language of 10^{-7}
11 centimeters? Where does that come from?

12 A. Well, that's commonly used for our construction
13 of liners, it's used for long-term facilities as well as --
14 it's the EPA's requirement for construction of lined
15 facilities as well.

16 Q. If the word "impermeable" causes us difficulties
17 in this proposed Rule, what language would you suggest to
18 describe what OCD is asking for?

19 A. I don't see any problem with just specifying that
20 -- if there's a problem with that wording, just to say that
21 it will be lined with material having a permeability or a
22 hydraulic conductivity of less than 1×10^{-7} centimeters per
23 second.

24 Q. The proposed Rule also speaks of lined berms or,
25 quote, other impermeable secondary containment device.

1 What other secondary containment device were the OCD folks
2 thinking of?

3 A. Well, there's other things that could be -- come
4 in. I mean, typically what was really envisioned in this
5 is that we looked at other facilities that have had
6 synthetic type liners that have been laid down there across
7 the berms. It could also be any type of concrete
8 containment.

9 We've had facilities that have been built with
10 steel-type containment, and -- or it could be something
11 that achieves those purposes, maybe even something with --
12 where we have below-grade tanks that have double-walled
13 tanks to them, so essentially they have a mechanism for
14 containment and detection of leaks at that point, so...

15 I think at that point we just didn't want to
16 limit it to any certain type of thing, as long as it
17 achieved an overall performance standard, is what we'd be
18 looking at. That's the intent of that.

19 Q. Have impermeable pads and lined berms been
20 required as part of the permits for downstream facilities?

21 A. Yes, for any new tanks that are installed at
22 permanent facilities we have had that in as a permit
23 condition for some time now.

24 Q. Was that the language used, an impermeable pad?

25 A. Yes, we were essentially using a similar language

1 that we've used in our discharge permits, and we've never
2 had a problem with anybody commenting on what was
3 impermeable before, but if it's a point of confusion that
4 could be clarified.

5 Q. Okay. Have you had any problems from tanks that
6 met those permit requirements?

7 A. Not that I can recall. Actually, we've had even
8 some positive responses from some operators that were
9 reluctant to do it at first, but once they had a spill they
10 said, well, that was kind of nice because we were able to
11 actually just pick stuff up. Or some of them where they
12 had products and they didn't lose those products, and they
13 were losing money at that point, and they said that was --
14 recovered what they had for products, and it was fairly
15 easy to clean up at that point.

16 MS. MacQUESTEN: Thank you. I have no more
17 direct questions of Mr. Olson.

18 COMMISSIONER BAILEY: I have no questions.

19 COMMISSIONER CHAVEZ: I have some. Do you want
20 to wait until later?

21 CHAIRMAN FESMIRE: How long will it take?

22 COMMISSIONER CHAVEZ: It won't take that long.

23 CHAIRMAN FESMIRE: Why don't we go ahead and
24 finish the Examiner's -- the Commissioners' questions, then
25 we'll break for lunch and come back and continue from

1 there?

2 Go ahead, Mr. Chavez.

3 EXAMINATION

4 BY COMMISSIONER CHAVEZ:

5 Q. Mr. Olson, that Section (C) begins with "Produced
6 water injection wells located..." shall meet these
7 requirements. So it appears that the tank requirement
8 applies only to water storage tanks at injection wells; is
9 that the intent of this rule? And not to water storage
10 tanks at well sites, at producing well sites?

11 A. Could you point to me where you're at -- Okay,
12 that's C -- (7)?

13 CHAIRMAN FESMIRE: Subsection C.

14 Q. (By Commissioner Chavez) Subsection C says,
15 "Produced water injection wells..." shall comply with this,
16 and then it says "All tanks..." It appears to me to be
17 referring to water storage tanks at injection well
18 facilities, not water storage tanks at production
19 facilities. Is that the intent? That will --

20 A. That's the way this was conceived, that way. It
21 was covering these facilities where we would have a
22 potentially larger storage of the produced water.

23 Q. Okay. I have a question about enforcing the
24 provision there of adequate capacity to contain leaks and
25 spills, is how you would determine, say, if you were

1 inspecting the facility, what criteria you would use to
2 determine if the operator was in compliance with that
3 provision of that rule.

4 A. For our permanent facilities we've used the 1 1/3
5 times the volume of the largest tank or all interconnected
6 tanks, so that if there's a failure from one tank and the
7 tanks are interconnected and valved together, the valves
8 could be left open, and therefore all tanks could drain
9 down inside that area.

10 So that's what we have usually, although that's
11 not specified in here for -- such as a berming requirement.
12 I think that's what you're getting at.

13 Q. Well, that's exactly what I was getting at --

14 A. Good.

15 Q. -- because an operator wants to know, we need to
16 tell them how they can comply with this Rule, the size of
17 the berms. If we've got a methodology that's used, that
18 the Division looks up and says it should be 1 1/3 the
19 capacity of the tank, it might be more helpful to the
20 operator to know what they need to comply with.

21 Now, in that do you take into account the amount
22 of flow into that facility over time also?

23 A. We have not done that on our permanent
24 facilities. We've done it based upon the volume of the
25 tankage at the facility. So it would be -- If there's a

1 number of tanks there that are all interconnected, then it
2 would be the total volume of those tanks, not just, say,
3 the largest tank. If the tanks are interconnected, it
4 would be 1 1/3 times the volume of all tanks within that
5 enclosure.

6 Q. Okay. Is the definition that you use of
7 "impermeable", that you use when you're looking at other
8 types of permits, is that readily available to the
9 operators in a way that they can understand what materials
10 they can use to comply with that Rule?

11 A. Yeah, our records are -- We have open records for
12 all our permanent facilities, that information is
13 available.

14 COMMISSIONER CHAVEZ: Okay, thank you.

15 MR. BROOKS: Mr. Chairman, one matter.

16 CHAIRMAN FESMIRE: Sure.

17 EXAMINATION

18 BY MR. BROOKS:

19 Q. You referred in your testimony at one point to a
20 well report that identified water-bearing or possibly
21 water-bearing formations at certain depths.

22 A. That's correct.

23 Q. During the break that's forthcoming, could you
24 obtain a copy of that so we can make it part of the record?

25 A. Yes, I have it right over here. I can just make

1 a copy of it.

2 MR. BROOKS: Thank you.

3 CHAIRMAN FESMIRE: At this time, in just a
4 minute, we're going to break for lunch. When we get back,
5 Mr. Johnson, do you still have time constraints?

6 MR. JOHNSON: Well, I'd like to speak sometime
7 today. Last time I was up here I wasn't ever allowed to
8 get up and talk.

9 CHAIRMAN FESMIRE: How long do you think it would
10 take?

11 MR. JOHNSON: Just a short -- Three minutes,
12 maybe.

13 CHAIRMAN FESMIRE: Okay. We'll reconvene at one
14 o'clock, at which point Mr. Johnson will be allowed to make
15 his statement, and then we'll start with the cross-
16 examination of Mr. Olson. And we'll start with Mr. Carr,
17 and then we'll go to Ms. Belin, if that's satisfactory with
18 everybody.

19 At this time we're adjourned until one o'clock.

20 (Noon recess was taken at 12:00 noon.)

21 (The following proceedings had at 1:00 p.m.)

22 CHAIRMAN FESMIRE: Okay, let's go ahead and go
23 back on the record.

24 As discussed before lunch, we were going to give
25 certain people a chance to present public nontechnical

1 testimony before Mr. Olson was cross-examined.

2 What we've decided to do, because of the
3 temperature of the room, we're going to go ahead and go
4 through the public testimony. Anybody who wants to be on
5 the record with their public testimony is welcome to do
6 that.

7 We'd ask, then, that if you don't have a big
8 interest in six more technical direct examinations and
9 cross-examinations today, that if you would go ahead and
10 leave, sort of thin the room out, maybe the fans will work
11 a little better.

12 You're more than welcome to stay, and I'm not
13 saying that to run anybody off, but what we would like to
14 do is address the time constraints on some people and the
15 fact that some of the people who want to make a statement
16 have to get back to work.

17 So right now, Mr. Johnson, are you ready?

18 MR. JOHNSON: Yes, sir.

19 First of all, thank you for letting me speak. I
20 appreciate it, all of you.

21 Folks, I don't know if you all can see these
22 pictures over here. This is the real world, this is what's
23 happening as we sit in this room today. It's happening in
24 Lea County where the water sand is 18 feet below the
25 surface of the ground. So I don't know about all this

1 other testimony or anything, but this is as it is in
2 northern Lea County, right now.

3 I submitted a letter and mailed it June the 8th,
4 and I heard it got here yesterday, and it's not of record.
5 But it's my opinion on the Otero Mesa Governor Directive,
6 and I'd like to submit it anyway. I'm not going to read it
7 or anything.

8 I'm a third-generation rancher, northern Lea
9 County. Fourth generation is down there right now, still
10 working. We came to this ranch that I live on in 1914.
11 I've been there since 1961 in the middle of the oilfield,
12 active, ongoing oilfield, since 1961. Sleep there, eat
13 there, work there. I see it every day.

14 And the ranchers in southeastern New Mexico are
15 behind Governor Richardson's directive 100 percent on the
16 Executive Order 2004-005. But the ranchers in southeastern
17 New Mexico are a little bit perturbed that our part of the
18 country, there's no protection.

19 As I said, as we speak, this is what's going on
20 in our country. And yet our private property rights, our
21 livelihood, our surface, our water, is given no protection
22 whatsoever.

23 Since the last pit hearing that I attended, which
24 was a two-day affair, the oil companies are in an intensive
25 drilling program in our part of the country, and except for

1 one company, nearly every rule and reg on the OCD books and
2 on the State Land Office rules have been broken as to
3 drilling pits. Nearly every rule -- because I have most of
4 the rules and regs that the OCD have out. Voluntary
5 compliance won't work.

6 And I have a question for you. Is the Otero Mesa
7 Directive going to be voluntary compliance?

8 CHAIRMAN FESMIRE: I don't think I can answer
9 that at this point, Mr. Johnson. That's not part of this
10 hearing.

11 MR. JOHNSON: Okay, but I just -- I'm here to
12 testify that voluntary compliance as we have it in the
13 oilfield today won't work. And if you have the same deal
14 at Otero Mesa, this whole deal is a waste of time and
15 money.

16 I have a list of ranchers that I'd like to read
17 off that have polluted water wells in Lea County, and it
18 starts below Jal and goes north of Crossroads and goes from
19 Bronco to the Caprock:

20 Wilma Ford, Pierce Estate, Stokes and Hamilton,
21 Ray Hilburn, Bogle Farms, Byron Ford, Tommy Price, Field
22 Burroughs, Johnson Diamond and Half, Jimmy Cupper, McNeill
23 Ranches, Doom Ranches, Darr Angel, J. Anthony. And that's
24 just the tip of the iceberg, folks, of polluted livestock
25 and domestic wells in Lea County. That doesn't even touch

1 -- just a minuscule part of it.

2 I recommend statewide mandatory closed-loop mud
3 systems for all drilling and workover and completions.

4 We've covered the produced water today in depth,
5 and it's probably the biggest problem that we face. If I
6 have a barrel of saltwater spill on me, I'd rather see 10
7 barrels of oil, because where that saltwater -- that's it,
8 it's over, folks. That's the end of that production of
9 that country. And that oil will eventually break down and
10 something will grow.

11 This pipe deal, you have to have a rustproof,
12 bulletproof pipe, because they will shoot holes in it,
13 throughout all the system, the whole system.

14 Any leaks or any spills caused by produced water
15 should be immediately picked up per OCD Rules and
16 Regulations, hauled off to an authorized landfill, and new,
17 uncontaminated topsoil should be put in its place.

18 I am open to any questions that you all would
19 like to ask me, because I have never, ever, ever in my life
20 been asked a question by the OCD or the State Land Office
21 or the BLM, what could be done to diminish the rape and the
22 destruction of the oil industry. Not one time in my life.
23 And I live in it, I wake up in it, I go to bed in it, I eat
24 in it, I sleep in it. And never has any one person ever
25 asked me, what can we do, Carl, to stop it?

1 I guess that's all I've got to say, and I sure do
2 -- as I say, I thank you for letting me speak. But these
3 pictures, I'm going to leave them with you.

4 CHAIRMAN FESMIRE: Okay.

5 MR. JOHNSON: But that's how it is.

6 CHAIRMAN FESMIRE: Thank you, Mr. Johnson.

7 MR. JOHNSON: You don't have any question for me?

8 CHAIRMAN FESMIRE: I don't.

9 MR. JOHNSON: Okay, thank you.

10 MS. MacQUESTEN: Mr. Chairman, I have a question
11 in connection with Mr. Johnson's request to have his letter
12 entered into the record. Ms. Bada suggested --

13 FROM THE FLOOR: Can you speak up, please?

14 MS. MacQUESTEN: Sure. Ms. Bada suggested that I
15 take a look at the letter that the Commission issued on
16 June 2nd directing people how to make comments at this
17 hearing, and there is language that says all written
18 comments received prior to or at the hearing will be
19 considered. So I would ask the Commission to reconsider
20 its decision to exclude those comments that were received
21 after the June 14th date.

22 CHAIRMAN FESMIRE: Okay, is there a motion to
23 that effect?

24 COMMISSIONER CHAVEZ: I move.

25 COMMISSIONER BAILEY: I second.

1 CHAIRMAN FESMIRE: All those in favor?

2 COMMISSIONER BAILEY: Aye.

3 COMMISSIONER CHAVEZ: Aye.

4 CHAIRMAN FESMIRE: We will go ahead and consider
5 all comments made at the hearing or received at the hearing
6 today.

7 MS. MacQUESTEN: Thank you, Mr. Chairman.

8 CHAIRMAN FESMIRE: Mr. Boyd, are you prepared?

9 MR. BOYD: My name is Irvin Boyd and I'm also a
10 landowner in southeastern New Mexico. And I'd like to tell
11 Carl that my name was left off the list of contaminated
12 water. I do have contaminated water on my property.

13 And you know, my whole -- whenever I got involved
14 with the pit rules and the pit work group -- I was on the
15 pit work group -- met a bunch of people from all sides of
16 the industry and landowners and so forth. We'd come
17 together and work to the point to try to eliminate future
18 contamination. And my experience is, I think that a lot of
19 them are here to eliminate future drain on their
20 pocketbooks.

21 We've seen several pictures here that was
22 presented this morning. Those are not isolated cases in
23 Lea County. They're all over the oilfield. There's
24 companies growing large around Eunice, Odessa, Hobbs, that
25 are coming in here remediating leaks and spills, so this

1 can't be just an isolated area. We need to use Lea County
2 as a history lesson. Look at it and see what's happened
3 there.

4 I was -- Like this picture right here, the bottom
5 of the tank battery. It wasn't discovered until after the
6 battery was moved out and they were going to close this
7 location. You know, most of the batteries that are on my
8 property that have been moved out, they just move them out.
9 There's no contamination checks or anything.

10 Also, we've seen an injection water line leak
11 where it had a pretty good pond of water, and then also a
12 little trail of water on and off. I had to look several
13 times to try to make sure that wasn't a leak that happened
14 on my place Sunday morning.

15 This is not isolated. This particular line on my
16 property, I would like to say it was put in within less
17 than a year, but it could have been over a year but not
18 more than two years. It was new pipe that was put in to
19 replace several miles of old leaking injection lines. The
20 pipe that they put in was screw pipe, and it was plastic-
21 coated internally.

22 They come in with the intention of laying it on
23 top of the ground, and I asked them and talked with them
24 and myself and some of the adjoining landowners told them
25 that we didn't want screw pipe laying on top of the ground

1 that was carrying up to 2000 pounds of pressure, for us to
2 have to at times maneuver over and work around.

3 And I had seen the lines that this line was
4 replacing leaking, and it was pumping water at least 50
5 foot in the air. I've seen it from three-quarters of a
6 mile away, seen it leaking. And it's happened so many
7 times I knew it was there, I knew what it was.

8 But you know, there's lots of problems in the
9 oilfield. I would really love to see closed-loop systems.
10 I don't want to make it dangerous for the public by not
11 having an adequate amount of mud and fluids to control
12 their wells, but I think that it would cut the amount of
13 damages in a single location probably in at least a third
14 and maybe in half.

15 And you talk about excavating a pit and so forth.
16 When you go to excavating and you break your topsoil and
17 get down into the other stratas of soil, it doesn't recover
18 very quick, especially in Lea County. It takes a long
19 time. If that ground could be leveled to accommodate tanks
20 or pits for a closed-loop system, the damages wouldn't be
21 near as long-lived.

22 Carl's got some pictures up here. That's
23 probably on his property. I've got some on my property
24 that is nearly the same. I've got places where the pit
25 liner -- the sun has decayed it, and for 50 yards around

1 the pit, the wind has blowed this plastic, all kinds of
2 pieces. And you know, that doesn't say much for the
3 integrity of the liner.

4 Also, you see where a side of it's folded down or
5 blowed down. I had a small workover pit the other day, the
6 same thing happened. The liner fell over. When they
7 removed the liner at my request, underneath it, it was
8 laying full of oil, or the oil had run over, because oil
9 was on top of the water, and the water had run over and
10 down into the bottom of the pit. And these little workover
11 pits, some of them are maybe 10 foot deep, and some of them
12 are deeper.

13 But the disposal of the drilling pits on my
14 property, very fortunately, the last five wells that I have
15 drilled, the operators have carried the contents of the pit
16 and the liner out. And that is so much better than
17 bringing the 'dozer in and busting up the pit, the liner,
18 and then covering them up.

19 We talk about encapsulating a pit to prevent
20 escape of the contents for long-term life. First time that
21 somebody stakes a pipeline in to service this well, a ditch
22 machine runs across there, there's no encapsulation
23 anymore. If somebody comes in to set a service electric
24 pole, they bore a hole down through the encapsulation,
25 there's no encapsulation anymore.

1 I was visiting with one environmental guy on a
2 certain instance where they were trying to -- or did
3 encapsulate a huge contaminating leak on my property that
4 got the water. We had quite a bit of discussion, they're
5 still having discussion. They encapsulated it with a poly
6 liner at five foot below surface. I have lots of concerns.
7 There's lots of plants that have roots that go down further
8 than five foot. Also, there's gophers and stuff that dig
9 further than five foot deep. And that, to me, just takes
10 away the integrity of having a liner to encapsulate it.

11 And I know that there's lots and lots of problems
12 and it could be very costly to fix these problems. But
13 eventually they'll probably end up having to be cleaned up,
14 and the money that will be spent to prevent them from being
15 out there in the first place will be very minimal to the
16 money that it takes to clean it up. And we had at the pit
17 work group and the pit hearings, the OCD printed --
18 presented documentation of prevention cost as opposed to
19 cleanup cost.

20 One last thing that I'd like to ask, the list of
21 pit contamination cases that we've seen up here on the
22 board two or three times doesn't look too bad to me. If
23 there was only two cases of groundwater contamination out
24 of all the pits in New Mexico, that's not a big problem.

25 My question is, it shows 6000-something pits.

1 I'm sure that there's probably many multiples of that, of
2 pits. I don't think, and I know for a fact that on my
3 property I don't know of any pit or surrounding area of a
4 pit that's been tested to see if there's some
5 contamination.

6 So really and truly, when I look at that, that's
7 just some numbers that somebody wants me to see. It's not
8 really what's out there, because I believe that if we
9 tested around all the batteries that are historic, have
10 been there for a long time, I believe that if we tested
11 around a lot of these pits, it may not have progressed to
12 the groundwater yet, but I feel like it's on its way, and
13 if we ever get enough rain I think that it will make it.

14 But my hope is that as a group we come here to
15 try to find ways to stop the groundwater pollution and the
16 surface pollution and something that we can all live with,
17 and I appreciate your time. Thank you.

18 CHAIRMAN FESMIRE: Thank you, Mr. Boyd.

19 B.J. Brock, you've asked for two minutes?

20 MS. BROCK: Good afternoon, Mr. Chairman, members
21 of the Commission. My name is B.J. Brock. I'm
22 representing New Mexico Cattle Growers Association. I know
23 you all got my comments, and as a point of clarification,
24 since it was agreed to submit Mr. Lane's comments as valid,
25 do you all have a copy of his comments, or do I need to

1 give you this letter, before I start my presentation?

2 CHAIRMAN FESMIRE: We did get comments from New
3 Mexico Cattle Growers Association.

4 MS. BROCK: But you have Carl Lane -- Johnson's
5 comments?

6 CHAIRMAN FESMIRE: Mr. Johnson's comments?

7 MS. BROCK: Yes. You had denied him access, but
8 then you agreed to overturn that decision because of a
9 misunderstanding in the interpretation of your -- Oh, you
10 do have it? Okay.

11 CHAIRMAN FESMIRE: Yes.

12 MS. BROCK: I just wanted to make sure. I have
13 an extra copy.

14 I think you all have our comments. I did bring
15 extra copies if you need them.

16 First of all, I will be reading comments from our
17 executive director, Caren Cowan.

18 But before then, I would like to talk about --
19 I've been here before as well. The people that are before
20 you testifying are on-the-ground people who do live and
21 work there, and they raise their children. And the
22 problems and concerns that they're bringing to you are
23 valid and real, and they're asking for your help and for
24 your consideration of how serious an issue this is to
25 farmers and ranchers in the State of New Mexico. It's

1 very, very important. I appreciate you listening to them
2 with the attention that you have been.

3 I'm going to read Ms. Cowan's comments, and then
4 I'm going to end with a very brief comment of my own.

5 It says, Thank you for the opportunity to comment
6 on the above-referenced amendment. The New Mexico Cattle
7 Growers Association, herein referred to as NMCGA, has long
8 been in favor of pit guidelines that conserve and protect
9 the environment.

10 Excerpts from the proposed amendment state that
11 the Division proposes rules to prohibit pits associated
12 with any oil and gas drilling at Otero Mesa, further to
13 protect the groundwater resources of Otero Mesa and the
14 public health and environment, and propose regulations to
15 implement produced water reinjection standards and controls
16 to assure full protection of the groundwater resources of
17 Otero Mesa. The proposed Rule imposes additional location,
18 construction, operation and testing requirements on
19 injection wells and related facilities used to dispose of
20 produced water in the Chihuahuan Desert area. These
21 requirements strengthen existing rules to provide
22 additional protection from surface contamination and
23 groundwater contamination caused by leaks and spills.

24 NMCGA supports the proposed amendment. And I
25 know OCD has taken a lot of criticism and has had a very

1 hard time when they introduce these things. We want to go
2 one step further. The Association wonders why these
3 proposed requirements are limited to Otero Mesa. The
4 justifications for the proposed amendments reinforce
5 NMCGA's position that these requirements should be applied
6 statewide for all oil and gas drilling in New Mexico.
7 Protecting all areas from the lasting damage caused by pit
8 contamination and water injection needs to be a priority of
9 the Oil Conservation Commission and the Oil Conservation
10 Division of the State of New Mexico.

11 And she ends by saying thank you again for the
12 opportunity to comment.

13 I would like to add, there's no mention of
14 production wells, and we also feel that those are extreme
15 measure and the area of concern for you all to consider as
16 well.

17 I want to thank you for your time and the ability
18 to comment. I do stand for questions. I bet you don't
19 have any.

20 Thank you.

21 CHAIRMAN FESMIRE: Thank you very much.

22 Dan Randolph, you've asked for three minutes.

23 MR. RANDOLPH: Hello, my name is Dan Randolph,
24 I'm with the San Juan Citizens Alliance. We are a public
25 interest group based in the San Juan Basin. We've been

1 around since 1986, and I thank you for the opportunity to
2 comment.

3 We support the Otero area Rule before you, we
4 think that it is a positive step to protecting this
5 important area, and we fully endorse the need for it and
6 support it, with a few comments that I'll get to.

7 We also do request that the Commission look at
8 reopening the statewide rules for pits in general and also
9 produced water management that a lot of the issues that are
10 of concern, that we're dealing with today on Otero Mesa are
11 of concern elsewhere, particularly in the San Juan Basin
12 where I'm from.

13 A couple comments on the Rules as they are
14 proposed.

15 We would suggest the pressure testing and lining
16 of pipes for all waters, whether they be commingled or
17 after separation, that if you're dealing with commingled
18 water before separation, not only are you going to be
19 dealing with the brine and attributes of the produced
20 water, but you're also going to be dealing with the
21 hydrocarbons. Again, in a dry or semi-dry climate, you're
22 going to -- any spills there with the commingled water,
23 you're going to be attracting wildlife and livestock to
24 that water with hydrocarbons in it. Regardless of how
25 quickly they break down, they're still present in that

1 situation.

2 The other thing is the requirement that tank
3 batteries, produced-water tank batteries have secondary
4 containment. For injection sites we would suggest that
5 that also be the case where you have produced-water tanks,
6 even on site, whether it be an injection site or not.
7 Again, the same issues of concern are present in those
8 cases. You may be dealing with a smaller amount of volume,
9 but you may not be dealing with a smaller amount of volume
10 as well. So again, the rationale for having secondary
11 containment of the produced-water batteries makes sense
12 also, where ever those tank batteries are located.

13 And again, I just want to reiterate that a lot of
14 the concerns that have been raised with regards to
15 protecting the soils and waters of the Otero Mesa area are
16 ones which those of us who live elsewhere in the State are
17 also very concerned with and urge you to consider amending
18 your Rules to reflect that statewide.

19 Thank you.

20 CHAIRMAN FESMIRE: Thank you, Mr. Randolph.

21 Trisha London has asked for three minutes.

22 MS. LONDON: Yes, my name is Trisha London, and
23 I'm here as a resident in this beautiful state. I've lived
24 here since 1996, and what I've learned from the people here
25 regarding their public lands is that there's a deep love

1 for this place and the beauty of these lands.

2 I want to preface what I'm about to say with a
3 little bit here on this country's President, who has waged
4 an all-out war on any environmental regulations and
5 protections. And given that, I'm acutely aware that our
6 public agencies, regulatory -- federal and state regulatory
7 agencies, are under tremendous pressure to abide by the
8 wishes of Washington.

9 And given that, I actually spoke with a Carlsbad
10 BLM, Bureau of Land Management, field manager. He
11 indicated to me that there were only two cases of surface
12 or groundwater contamination that he could think of, and
13 after seeing the presentation here today I find that hard
14 to take in, to find credible.

15 So given the -- again, the tremendous pressure
16 that these good people -- they're good people, I'm not
17 thinking that we're dealing with bad people in the BLM.
18 They're under tremendous pressure, and I would like to
19 speak to you as this Commission with the duty you have to
20 decide how to handle this issue. I would implore you to
21 act not just within your official capacity but on the level
22 of one human being to another, after what you've witnessed
23 here today.

24 Again, if our country's President had the wisdom
25 and integrity to implement fuel efficiency standards for

1 our vehicles, for conservation of fossil fuels, we wouldn't
2 even be engaged in this debate over whether or not to drill
3 places like Otero Mesa. This is a place where many, many
4 values are enjoyed by many, many people, in places like
5 this.

6 Relatively few, speaking -- I guess hundreds of
7 people have been to Otero Mesa over the past two years,
8 since this issue has come to light. But this and places
9 like it have values that are important to many people, and
10 many, many values. Compare that to the short-term value we
11 would get from extracting the fuel reserves from this area.
12 you have to say, is that one industry's value system
13 overriding and destroying literally everything that other
14 people value in this place?

15 And that's what I would like to be emphasized, at
16 least from my perspective. And this is what I'm seeing
17 from other people. They want open spaces, uncluttered with
18 human impact and pollution, they want clean air, they don't
19 want to look at the impacts of the oil and gas industry in
20 places where they shouldn't be. And I'm not saying do not
21 drill anyplace, but some places probably should never be
22 impacted in this way.

23 The sentiments expressed to me by a renowned
24 grassland expert regarding Otero Mesa is that we haven't
25 even a baseline of what plants are in the Otero Mesa area.

1 And his personal experience, someone in his family has a
2 condition that's actually being benefitted by a chemical
3 from a bee. So what unknown chemistry awaits in these
4 flats that we haven't discovered yet?

5 So again, to give you a sense of the depth of
6 values that I think we're dealing with, we've got to
7 balance this out, is it even worth drilling places like
8 Otero Mesa?

9 So I applaud your efforts and the Rule that you
10 did implement on the pits. However, it's not enough, I
11 don't think it's enough, and again, especially for a place
12 like Otero Mesa.

13 Humankind, as far as the history of Otero Mesa,
14 again, people have been frequenting that area for tens of
15 thou- -- well, for ten thousand years, probably, and please
16 look at other values when you're considering this whole
17 issue.

18 Thank you.

19 CHAIRMAN FESMIRE: Thank you very much, Ms.
20 London.

21 John McDonald? You've asked for five minutes,
22 three of which it's going to take to get up here, huh?

23 MR. McDONALD: Sir, I'm very honored to be here.
24 I'm neither a biologist nor a speechmaker, so I'm going to
25 have to kind read this to not miss anything.

1 I would like to say, I'm a history buff. And you
2 know, when the country was first started by people like
3 Jefferson and so forth, they did want to create a strong
4 nation so it could defend itself economically and
5 politically against the other nations of the world. But
6 they didn't want to destroy the dad-gummed land in the
7 process. At the time of the 13 colonies, they couldn't
8 have imagined how big the United States would be someday,
9 nor could they have imagined how big the corporations of
10 this day and age are, or the damage they could do.

11 If we allow the oil companies to drill for oil at
12 Otero Mesa, the end result will be the ruination of the
13 birds, plants, animals and so forth that exist there now,
14 which will also probably destroy the ranches that are
15 there. It is pure fantasy to believe that we can allow an
16 oilfield to be put there and yet protect the land and its
17 resources, including the underground water supplies.

18 I'd like to repeat that. Underground water
19 supplies will be needed in the future in El Paso, Texas,
20 and smaller towns in New Mexico. This area is desert, and
21 without water, agriculture, civilization and so forth will
22 cease to exist down there.

23 I listened to a retired biology professor one
24 night from NMSU speak -- and by the way, he's a desert
25 expert. After hearing him explain what it would take to

1 try to save the land after they had been drilling for oil,
2 we all realized that the cost would be prohibitive. And
3 even if there were strict rules and regulations to follow
4 before drilling could begin, it's real simple: There
5 aren't enough people to enforce them.

6 And judging from past history -- and I am an ex-
7 Texan, so I know what I'm talking about -- the oil
8 companies will just go in there and make their own rules
9 and do what they want to do. That's how much damage an
10 oilfield can cause.

11 Yeah, a few jobs might be created, not
12 necessarily permanent ones. And you can believe, though,
13 the majority of the profits will go straight to the
14 headquarters of the oil corporations.

15 If we want to develop an improved economic base
16 in New Mexico -- and I'm all for it -- let's try to make
17 New Mexico an eco-tourism destination. Some of the smaller
18 nations in the world like Belize in Central America have
19 done so, and it's working. They're making money from
20 tourism and not destroying their land.

21 We also -- all of us need to flood Washington
22 with letters to pressure Detroit into building vehicles
23 that will run on alternative energy sources. Even our own
24 military would be better -- more secure if our vehicles
25 weren't at the mercy of the oil-producing countries, which

1 are some of the most politically unstable in the world.

2 Finally, I would like to say that during our
3 American history many men have fought, been wounded or
4 killed to protect our country, its people and its -- I'm
5 sorry -- precious land. Their families have paid the
6 terrible price also, and are still doing so. These men
7 want to come home to the same land they left.

8 I just want to leave you with one question. Were
9 all their sacrifices in vain? Just for nothing? Thank
10 you, sir.

11 CHAIRMAN FESMIRE: Thank you, Mr. McDonald. For
12 a non-speechmaker you did pretty good.

13 MR. McDONALD: Thank you.

14 CHAIRMAN FESMIRE: Steven Capra? You've asked
15 for three minutes.

16 MR. CAPRA: Good afternoon.

17 CHAIRMAN FESMIRE: Mr. Capra, are you here as a
18 representative of --

19 MR. CAPRA: I'm executive director of the New
20 Mexico Wilderness Alliance. Thank you very much for taking
21 a few minutes to hear my comments.

22 One of the great things about the job I have as
23 executive director of the New Mexico Wilderness Alliance
24 is, I get to travel around the state and I get to meet with
25 people all the time around this state. And the thing that

1 keeps being told to me by people all around the state is,
2 they're not stupid and they know when they're being lied
3 to, and they know what really is happening with oil and gas
4 development in this state. And there's a sense in people
5 that sooner or later they're going to be paying a big price
6 for what's going on.

7 The other thing that people realize is, we're in
8 the seventh year of a drought and there is no water to be
9 had. And one thing we realized is, underneath Otero Mesa
10 is probably one of the best reserves of water we have in
11 this state. And everybody comes to me and says, How are we
12 even considering drilling in a place like this, aside from
13 the aesthetics, given the importance of the water there,
14 and given the fact that we know at the end of the day we're
15 going to be taken advantage of?

16 And I think what the Governor has done has been
17 tremendous on this, because people are rallying behind his
18 efforts and saying, Finally, somebody is recognizing that
19 this industry that has been giving away -- You know,
20 there's kind of a rule of the Old West that we all
21 understand, and there's a folk lure of the Old West that
22 we've all experienced, and we love that, the sort of
23 lawlessness that goes with it.

24 There's one industry that's remained true to that
25 18th-Century thinking, and that's the oil and gas industry.

1 There are no laws that govern them. They feel that they
2 are empowered to do whatever they need to do. And I think
3 we're at a critical point for this state where we're going
4 to finally going to say to this industry, You like everyone
5 else have to follow the law, and the laws need to be put in
6 place to regulate what you do.

7 And that means that ranchers can ranch their land
8 and not have contaminated groundwater, and it means that a
9 place like Otero Mesa can be valued for what it is.

10 I went out to Otero Mesa last week and I've
11 listened and read a lot of what the oil and gas industry
12 has to say about it, and they tell me in their editorials
13 what a wasteland this place is. I went out last weekend,
14 and when I drove into Otero Mesa there was a rainstorm
15 occurring. And I want to tell you something. Driving into
16 Otero Mesa in the middle of the summer at eight o'clock at
17 night, with the rain falling and the pronghorn running
18 across that place and the smell of creosote in the air --
19 you tell me it's a wasteland. This place is incredible.

20 And you guys are doing, I think, a great job if
21 you say to the oil and gas industry, This time the answer
22 is no. And if you're going to do it, you're going to do it
23 by the law. And laws are going to be put in place that
24 you, like everyone else in this country have to follow.

25 Thank you very much for your time.

1 CHAIRMAN FESMIRE: Thank you Mr. Capra.

2 Mr. Parsons? You've asked for five minutes.

3 MR. PARSONS: Thank you. I have two handouts for
4 the Commission.

5 Thank you, my name is David Parsons. I'm
6 representing myself. I'm the sole proprietor of a
7 consulting business in biology and conservation, but I'm
8 going to keep my statement in fairly general terms today.

9 I'd also like to start by incorporating by
10 reference the official comments that were submitted to you
11 in writing by the New Mexico Wilderness Alliance as a
12 supplement to my statement here today.

13 What I'd like to do is, first of all, thank you
14 for the opportunity to address the Commission and take a
15 little different tack and talk about the concept of
16 balanced development.

17 Those who support protection of the environment
18 are often criticized, and criticized pretty harshly, for
19 being radical and protectionists, for being unwilling to
20 compromise, for being opposed to balanced development. And
21 the way I view the world, the environment is already on the
22 short end of the teeter-totter when it comes to a balance
23 between development and environmental destruction versus
24 environmental protection.

25 To illustrate that point, I've handed out those

1 two handouts. They're maps, and the first one shows all of
2 the point locations of oil wells in the State of New
3 Mexico, and they're so many that in the southeast and
4 northwest corners those dots join into just a black blob.

5 And the other map that I've shown you is the map
6 showing all the roads in the State of New Mexico. And the
7 two sort of go together hand in hand, and if you look where
8 the most dense development of oil and gas drilling is on
9 those maps and then look at the roadmaps, you'll see that
10 that's where the most dense networks of roads also exist in
11 the state.

12 And I'm sure you'll hear a lot of testimony about
13 the effects of oil and gas development the kinds of
14 ancillary activities that come along with that -- for
15 example, the pits, which is the point of your hearing today
16 -- and you'll hear a lot of testimony about the adverse
17 effects of those on animals in particular, on groundwater
18 quality, surface-water quality, on just the quality and
19 health of the environment in general.

20 So I'm not going to elaborate on those points
21 except to say that all these activities combined, the oil
22 and gas wells, the pits that go along with them, the roads
23 that come and the pipelines that come and all the land
24 disturbance that comes with those and the potential for
25 contamination have the potential to have devastating

1 effects, and have had devastating effects, on wildlife and
2 on ecosystems.

3 And you'll notice on the map that shows the oil
4 wells, there are two little blue circles. And the one in
5 the -- further to the east is the area that's under the
6 proposal by the Bureau of Land Management that we're
7 calling Otero Mesa. It's 1.2 million acres. And the other
8 little blue circle is a place we call the Nutt Grasslands.
9 And both of those circles represent the last, best example
10 of an intact grama grassland, desert grassland ecosystem
11 left in the entire North America. Virtually, it's an
12 endangered ecosystem, if could be so bold as to use that
13 term.

14 And I might add that those in the environmental
15 community are only seeking to protect about half of what's
16 shown in those blue circles on the maps. And maybe call it
17 stupid, but we think that that certainly represents a more
18 than fair, balanced approach to protection of the
19 environment versus the need to access fossil fuels in that
20 area.

21 So all I ask is that we accept and we recognized
22 the balanced approach based on a full understanding of the
23 situation, the history that has preceded this particular
24 event, and that we not continue to just look at protecting
25 half of half of half of half, until we're down to a postage

1 stamp left as the only representative of Chihuahuan Desert
2 grasslands.

3 This is our last chance, really, to protect a
4 meaningful chunk, an ecologically functioning chunk of
5 Chihuahuan Desert grassland, with its prairie dogs, with
6 its potential for supporting endangered Aplomado falcons,
7 its native herd of genetically pure pronghorn antelope.

8 In the field of conservation science, which has
9 made great strides in the last couple of decades in
10 understanding the kinds of scale that are necessary to
11 protect functioning environments and to protect the process
12 of evolution and naturally occurring wildlife populations,
13 tells us that we really need to protect and think in terms
14 of protecting intact ecosystems in the range of at least a
15 thousand square miles or greater, or it's really not really
16 worth it, other than maybe protecting a few examples of
17 some of the critters that live there and some sort of half-
18 functioning ecological processes.

19 So I just wanted to bring that to your attention
20 and ask you to promote the strongest possible regulations
21 that would serve to protect the last and best remaining
22 chunk of functioning Chihuahuan Desert grassland left in
23 this state, and on the continent for that matter.

24 Thank you.

25 CHAIRMAN FESMIRE: Thank you, Mr. Parsons.

1 For clarity on the record, Counsel tells me that
2 we need to identify the two handouts that Mr. Parsons has
3 handed out. The exhibit -- Exhibit 1 -- This is Exhibit --
4 How many exhibits have you had in the hearing now?

5 MS. MacQUESTEN: We have 16 exhibits.

6 CHAIRMAN FESMIRE: Sixteen. Exhibit 17 will be
7 the oil and gas well maps in New Mexico, and Exhibit 18
8 will be New Mexico roads.

9 Mr. Steitz? You've asked for five minutes.

10 MR. STEITZ: I'll keep my comments brief. My
11 name is Jim Steitz with the Southwest Environmental Center,
12 and so we're a small nonprofit membership-based group in
13 Las Cruces. We're one of the smaller groups that's very
14 concerned about the Otero Mesa, but the majority of our
15 members actually live very close to this place. The
16 majority of our membership lives in the Las Cruces area,
17 and we also have a number of members in other small towns
18 in New Mexico like Alamogordo, Carlsbad, so forth.

19 We strongly support the Rules that have been
20 proposed by the OCD. We believe that the groundwater
21 resources of the Otero Mesa are very important, and they
22 should be given the very highest priority of protection by
23 these Rules. We fully support the ban on waste pits for
24 this area that's been proposed.

25 However, we also believe that the Rule concerning

1 the reinjection well should be strengthened. We do
2 recognize that the Rules that have been proposed are
3 certainly an improvement from the regulations as they stand
4 now, but we would recommend that these be strengthened to
5 include an outright prohibition on these reinjection wells.

6 We believe that because of the difficulty in
7 nature of ensuring compliance with these Rules, as well as
8 the remoteness of the Otero Mesa and just the sheer
9 difficulty that's involved with making sure the oil
10 companies do this kind of thing right, we believe that the
11 Rule concerning reinjection wells should be very simple and
12 easy for everybody to understand, which is no reinjection
13 wells on the Otero Mesa.

14 Certainly, to be clear, our organization is
15 opposed to any gas development on the Otero Mesa. We
16 believe this land is so very important and so special for
17 its whole variety of resources, including those that aren't
18 necessarily under the jurisdiction of this Division, that
19 it should be protected in its entirety.

20 However, I will echo what Steve Capra said about
21 how people react when they hear about this water issue and
22 the conflict between oil and gas development and these
23 water resources. They can't believe that we're even
24 considering it.

25 We in Las Cruces -- the fact that our stretch of

1 the Rio Grande is going dry more and more kind of acutely
2 reminds people of the water situation we face, and they're
3 simply aghast that we would even be considering our style,
4 I guess you could say, of oil and gas development on the
5 Otero Mesa. In fact, when I so much as bring up the words
6 Otero Mesa, they start using various expletives to describe
7 these companies, but that's okay.

8 However, to the extent that -- If any oil and gas
9 development is to happen on the Otero Mesa, it has to be
10 done absolutely right, with the most stringent safeguards,
11 and certainly that means a higher cost for any companies
12 that would endeavor to do this. However, we believe that
13 is not a reason to refrain from these Rules.

14 We saw not too long ago the Bureau of Land
15 Management retract many of its proposed protections because
16 the oil and gas companies deem them to be infeasible. That
17 was the word that they used to describe water they stripped
18 back from those protections.

19 We believe the Oil Conservation Division should
20 enact the strongest protections, regardless of how the oil
21 and gas companies feel about what the cost will be. And
22 quite frankly, if that makes it not feasible for them to
23 engage in developments, then that should be considered a
24 sign that perhaps we don't really need this natural gas
25 that badly, and if they can't make a profit off it then so

1 be it.

2 And lastly, I just want to comment very briefly
3 on some of the policy context that we see on this issue.
4 States increasingly are having to fill in the regulatory
5 gap that the administration is leaving on issues ranging
6 from wetlands to climate change to energy. New Mexico
7 stepped in there with a renewable portfolio. We believe
8 this is yet another example of an appropriate place for a
9 state government to step in and to provide the protections
10 that the federal government unfortunately has not provided,
11 and has no intention of providing, as it would seem.

12 This is a place where New Mexico has such a
13 strong vested interest that we really need to step up and
14 protect our resources to the utmost extent of your
15 statutory authority, regardless of what the administration
16 -- or how badly they want this natural gas.

17 That's all I have to say. Thank you much.

18 CHAIRMAN FESMIRE: Thank you, Mr. Steitz.

19 Nada Carver -- Culver? You've asked for two to
20 three minutes.

21 MS. CULVER: My name is Nada Culver. I'm with
22 the bad handwriting. I represent the Wilderness Society.

23 The Wilderness Society is part of a coalition of
24 conservation groups that you have heard referred to as the
25 Otero Mesa Coalition. We have presented somewhat

1 voluminous comments about it. I don't want to recap all of
2 those, but I did want to present some highlights because
3 our coalition will be presenting the testimony of Shoemaker
4 and Associates on some of the water issues that pertain to
5 Otero Mesa.

6 We had originally retained Shoemaker and
7 Associates to help us assess the risks to the water beneath
8 the Otero Mesa area in response to the BLM plan, and the
9 same risks obviously are informing the Commission's
10 rulemaking that's going on today, and we wanted to present
11 the same risk analysis that you could hear.

12 We have focused on the Salt Basin area because it
13 is beneath the heart of Otero Mesa and is an acknowledged
14 source of groundwater. But as discussed in our comments,
15 we think that there is water that merits protection and
16 analysis and investigation in all of the area that's been
17 defined in the Rule as the Chihuahuan Desert area,
18 especially when we're talking about oil and gas
19 development.

20 These are desert grasslands, they have -- they're
21 fragile habitat. There are a number of species that we've
22 heard mentioned already that depend upon this. By the
23 nature of being grasslands, they have relatively shallow
24 soil, so intrusive operations such as pits can certainly do
25 irreparable harm. These are very difficult areas to

1 revegetate and reclaim, and some of the science that's been
2 submitted in response to the BLM plan and which we've
3 submitted with our comments indicates that there has been
4 virtually no successful reclamation of these grasslands.

5 The water systems in this area, including the
6 Salt Basin but also the other basins, are closed basins and
7 they are shallow depth. So from our perspective
8 contaminants can travel into the groundwater from the
9 surface with some ease, and this certainly goes against
10 using pits, including temporary pits. Those pits pose a
11 risk to wildlife and to livestock, but also to the water,
12 when they can find surface entry points.

13 So we do support the rulemaking to the extent
14 that believe pits, including temporary pits, should be
15 banned in the Chihuahuan Desert area. We also recognize
16 and appreciate the additional hearing requirements and
17 monitoring of injection wells. We believe that these wells
18 are not appropriate in this area, especially where ever we
19 have a fractured basin. I think unless there's -- we need
20 a lot more information and investigation of these resources
21 before we endanger them and do damage that we can't recover
22 from.

23 In our comments we've also suggested additional
24 protective measures we think are appropriate in this area.
25 For instance, restoration requirements, float valves on

1 tanks, and also that any tank battery that is being used
2 should have similar protection, not just the injection-well
3 tanks. The same damage, if not more damage, can be done
4 from other tank leaks, and we think that should be a wider
5 Rule. And there shouldn't be any disposal onsite in these
6 areas, due to the sensitive nature of the environment.

7 We are very glad to see the progress that's being
8 made in the protection of the Chihuahuan Desert area, and
9 we do commend your efforts in the face of some of the
10 pressures we've talked about before.

11 Thanks.

12 CHAIRMAN FESMIRE: Thank you, Ms. Culver.

13 Oscar Simpson, you've asked for four minutes.

14 MR. SIMPSON: Thank you, Mr. Chairman and members
15 of the Commission. My name is Oscar Simpson. I'm
16 representing myself, but I'm also the president of the New
17 Mexico Wildlife Federation, and we have submitted comments
18 through the New Mexico Coalition -- New Mexico Wilder- --
19 Wildlife -- New Mexico Otero Mesa -- Otero -- Coalition for
20 Otero Mesa, excuse me.

21 My comments generally reflect the overall mode of
22 lack of prevention as far as the Oil Conservation Division
23 or the Bureau of Land Management. Prevention is the best
24 solution.

25 The General Accounting Office just recently,

1 within the last nine months, released a report that says
2 the cost benefit by having strict regulation and preventing
3 of contamination paid more than by a ten-to-one margin.
4 And it's very evident that without water in New Mexico we
5 have nothing, and economic development will be nil.

6 So the short-term gain from production without
7 being checked as far as quality control, protecting our
8 groundwater resources, our surface resources and our
9 wildlife can't be compared or measured as far as economic
10 benefit.

11 So that needs to be seriously looked at in the
12 context of actually forming some regulations and operation
13 and maintenance practices.

14 So if you consider the cost benefit, like we go
15 to the closed-loop system -- I just got through talking --
16 I went up to Silt, Colorado, this past weekend and talked
17 to Incana, an operator up there. He says it pays a lot
18 more to have the closed-loop system than having to go out
19 and even construct the pit or actually the remediation and
20 cleaning up or disposal of the pit material or the drilling
21 muds and fluids.

22 So that needs to be cognizantly evaluated, and
23 I've seen other studies in the past that said that it's
24 just a -- basically changing their mode of operation, and
25 it also is a very preventative measure to protect not only

1 the surface soils but also groundwater resource.

2 Operation procedures. As you look at the general
3 operating procedures now, versus even what you're proposing
4 here, they're not really quite up to what I would call best
5 management practices to protect the resource. In other
6 words, you've identified lined tank batteries that has to
7 do with injection facilities.

8 The majority of those facilities that are leaking
9 and spilling, based on my years from 1981 through 1984,
10 through working for the OCD, and my last six months of
11 going out and looking out in the field, you have a lot of
12 speaks -- spills and leaks, associated with the production
13 and especially the tank batteries, large volumes. Large
14 volumes of water that's going unchecked and unremediated,
15 causing problems.

16 Therefore, your wholehearted attempt to -- just
17 to line the injection tank batteries is very good, but you
18 need to apply that to the whole production operation and
19 those tank batteries associated with that. You treat the
20 produced water as though it was basically nontoxic, and you
21 exclude the potential for the condensate or gasoline and
22 oil and other glycol additives that will be released as
23 basically inconsequential and not really addressing the
24 potential threat to groundwater resources or the potential
25 that it may have to wildlife, by them consuming those

1 contaminants.

2 For example, the tank batteries on some of the
3 facilities in the newer operations have float valves.
4 Float valves prevent -- if the tank gets too full, it shuts
5 down the facility operations or at least sends out a signal
6 to the operator that they need to do something instead of
7 letting the tank overflow. That is a -- should be a
8 requirement, along with lining those tank batteries and
9 with a lined berm.

10 The second item to do with that is your injection
11 wells. My past review of your data indicates that you
12 don't enforce the pressure limitations on injection wells.
13 You're not reporting -- they're not reporting -- you need
14 to report on a continuous basis the volume and injection
15 pressure, and if they go over that injection pressure you
16 need to shut down the well. You don't have any of those
17 quality controls, which is easily done engineeringwise but
18 is not being incorporated in any of the Rules and
19 Regulations. And you've got injection wells even operating
20 to date without any injection pressures. There's no
21 telling what that's causing to the groundwater resource.

22 And then going to injection wells, you're
23 proposing to allow injection wells in an unknown aquifer
24 that both the Bureau of Land Management and in talking to
25 your own staff, you don't know the areal or vertical extent

1 of the groundwater resources or even how to case and define
2 your injection facilities.

3 I would use the case of the Vermejo model
4 contract for the coalbed methane. They have actual monitor
5 wells of the groundwater resource, once you define where
6 those groundwater resources are. So, my first preference
7 is no injection wells until you really define what is safe
8 and not safe, and when you do put the injection wells, or
9 if you do allow them, that you require groundwater
10 monitoring.

11 A lot of our ground injection facilities are only
12 on faith basis, looking at we hope we're doing it right, we
13 hope the casing and the cementing procedures have
14 mechanical integrity. But when you go back and look at a
15 lot of this stuff that's leaking, it's all failed, it's out
16 of sight, it's out of mind, and now the quality assurance
17 can't protect our groundwater resources.

18 You also need to -- I already talked about the
19 shutoff systems for the injection wells. If you go over,
20 you shut down the system.

21 And the distribution lines to those injection
22 wells, it's very easily to have check valves and monitoring
23 pressures. If the pressure falls or the pressure fails due
24 to a failure leak, you can have automatic shutoff systems
25 in an area for isolate the big spills and leaks that's been

1 showing up in the database. That's easy to do. That's not
2 being done.

3 Basically, it's -- and the old assumption is,
4 it's just produced water, it causes minimal damage.
5 Produced water, most of the time, kills the vegetation.
6 It's practically unfeasible, really, to clean up the soils,
7 especially if produced water or the brine water affects
8 groundwater, it's almost impractical to clean it up.

9 Spills and leaks. Spills and leaks are
10 continually -- there's a large volume of them. When I was
11 working there from 1981 to 1984, we had thousands of spills
12 and leaks reports. That data now is not even available in
13 the records, let alone -- so that's -- from 1982 back, it's
14 not -- data are not available to the people to look at and
15 to monitor the continuing impact from numerous spills that
16 may be associated with an older well field or even the new
17 ones.

18 The spill and leak reports need to be drastically
19 reduced and changed. You need to go back down for produced
20 water. We recommend from one to five barrels for produced
21 water for minor leaks, and for major leaks above five
22 barrels, and that's within a 24-hour basis to take into the
23 accumulation of low, continuous leaks.

24 For your condensate and other toxic substances,
25 we consider five gallons to one barrel would be considered

1 a minor leak and reporting and anything above that should
2 be -- have immediate remediation cleanup for all those
3 toxic produced -- I mean the condensate oils or any other
4 fluids that they may leak.

5 Fencing and netting. It is critical that the
6 whole facility be protected to keep out the livestock and
7 the wildlife because I see numerous times only certain
8 portions of it being fenced off, but not all the areas are
9 being fenced off and prevented -- preventing wildlife from
10 -- or livestock from getting in there and being able to
11 consume some of these toxic substances.

12 As far as the drilling fluids, every production
13 facility -- every -- the drilling fluids in relation to
14 drilling operation, there is a in-depth report by the
15 drilling company that says what substances they put in
16 there. A lot of those substances are toxic, they have
17 material data sheets that could be easily incorporated as
18 part of a reporting requirement, what substances they put
19 in there.

20 For example, when you go switch to a brine
21 drilling mud, a lot of times they add diesel fuel. That is
22 very toxic. It's -- also can include a significant amount
23 of groundwater if it gets into a freshwater zone. Those
24 kind of reporting requirements should be incorporated into
25 the monitoring requirements of OCD, and they should be

1 monitored.

2 Thank you very much. Prevention is the best
3 solution, and I think the operation procedures and
4 monitoring procedures could be easily invoked, especially
5 with the limited staff you have. Thank you.

6 CHAIRMAN FESMIRE: Thank you, Mr. Simpson.

7 Dr. Neeper, you're listed both as a technical
8 witness and wishing to make a statement; is that true?

9 DR. NEEPER: That has to be an accident of
10 paperwork. I'm just a technical witness.

11 CHAIRMAN FESMIRE: Okay. Mr. Ganther?

12 MR. GANTNER: Yes.

13 CHAIRMAN FESMIRE: You said you were going to
14 need about ten minutes.

15 MR. GANTNER: Yeah, thereabouts.

16 CHAIRMAN FESMIRE: Okay.

17 MR. GANTNER: Mr. Chairman, honorable
18 Commissioners, my name is Bruce Gantner. I chair NMOGA's
19 Environmental Committee. I've been here before speaking to
20 you on different rules, and today I come here to speak
21 about this Rule.

22 As you know, NMOGA, the New Mexico Oil and Gas
23 Association, represents over 300 companies, major and
24 independent oil and gas producers, as well as
25 transportation, processing and refining of oil and gas in

1 New Mexico. We promote the conservation and orderly
2 development of oil and gas in the state, as well as the
3 protection, and committed to doing that with the protection
4 of public safety and the environment.

5 We first would like to comment that we believe
6 the OCD has erred by departing from its traditional
7 approach by not involving all parties, including the oil
8 and gas industry, to develop this Rule. Instead, the OCD
9 has taken the path of arbitrarily and unilaterally
10 establishing a Rule without stakeholder involvement.

11 In the past efforts -- the Pit Rule is an
12 example, the H₂S Rule, and the upcoming Vacuum Rule --
13 NMOGA representatives have worked with the OCD staff, as
14 well as public and nongovernmental organizations, such as
15 you've heard today, to establish pertinent and
16 comprehensive rules to address the issues and concerns of
17 the State. Although the process in those rules wasn't
18 always smooth and consensus wasn't always reached, it
19 benefitted all of us to hear all views and to work in a
20 collaborative and cooperative manner. We are extremely
21 disappointed that the OCD has denied industry and all
22 parties with the opportunity to do that.

23 Secondly, NMOGA would like to point out that as
24 with any other rulemaking, there first needs to be a need
25 before a new rule, or improved rules, are taken. And in

1 that regard, we feel that that's been neglected here.
2 Although we understand the Governor's Order was issued, we
3 believe that you as Commissioners and the OCD have the
4 responsibility to develop rules based on need and science,
5 and not on political posturing.

6 With respect to the proposed Otero Mesa Rule,
7 groundwater protection was repeatedly referenced as the
8 primary concern of the OCD in requiring various aspects.
9 As was provided by NMOGA testimony on the OCD Pit Rule,
10 NMOGA reviewed OCD files for specific examples of
11 groundwater impact cases for pits and below-grade tanks, to
12 see what problems existed. Based on that rule, we found no
13 evidence to us that drilling and workover pits were
14 associated with groundwater problems in the state.

15 And as you heard earlier, Bill Olson presented
16 his table, pretty much corroborated that with only two
17 cases of groundwater contamination found in over 30,000
18 wells drilled in the state over the years. So I would
19 speculate that these two wells, had they followed the new
20 Pit Rules, which are recently released -- that even those
21 two cases wouldn't be at present.

22 As a final note, we'd like to remind you that New
23 Mexico plays a vital role, critical role, in this nation's
24 effort to maximize production of domestic oil and gas,
25 given the impending shortfall that was predicted by the

1 National Petroleum Council study and other comparable
2 studies.

3 We recognize and acknowledge that development of
4 oil and gas resources in the state needs to follow prudent
5 and environmentally responsible practices to assure
6 protection of the public and the environment. However,
7 NMOGA believes that rules that go beyond what is reasonably
8 necessary for such protection are in reality denying access
9 to the development of oil and gas resources, and such
10 appears to us to be the case with this Rule.

11 The use of rulemaking to create substantial
12 obstacles to areas such as Otero Mesa deprives our nation
13 of vital new domestic energy resources, and New Mexico --
14 deprives them of new resources of revenue to offset
15 declines in existing production.

16 Now I'd just like to address just a couple of the
17 specific issues at hand, and these are already reflected in
18 our comments that we submitted as part of the record.

19 First of all with respect to pits, NMOGA proposes
20 that pits, following the current new Pit Rule, be allowed
21 in Otero Mesa, as provided under Rule 50. NMOGA contends
22 that there's no measurable or meaningful improvement that
23 the OCD can prove that groundwater or surface water would
24 be better protected than the current rules in place.

25 Based on current drilling practices in nearby

1 counties, drilling in Otero Mesa will typically be done
2 using either air drilling or water-based drilling fluids.
3 Air drilling simply cannot be done by a closed-loop system,
4 as venting gases and particulates into a closed system
5 would be dangerous to the people that are involved in the
6 work.

7 Water-based mud drilling has consistently been
8 shown to be benign, and the cuttings are not considered
9 toxic, and this was corroborated by Mr. Olson's testimony.

10 Both drilling practices are prevalent in other
11 areas of the state, even in riparian and other sensitive
12 areas where lined temporary earthen pits are allowed under
13 the new current state pit rule.

14 NMOGA will also point out to the OCD that there
15 are benefits for having the use of pits over closed-loop
16 drilling. The extra volume of water inherent in earthen
17 pits is extremely valuable if a well-control situation
18 occurs where water is required to kill the well.

19 Secondly, truck traffic is minimized for the use
20 of pits over closed-loop systems since the solids and
21 cuttings are benign and can be buried in place, versus
22 having to be hauled off for disposal.

23 As a final point, again, NMOGA would point to the
24 industry record in drilling thousands of wells using
25 temporary drilling and workover pits with, as Bill showed,

1 only two cases of groundwater contamination.

2 With respect to injection well permits, we don't
3 feel that there is a need to have an automatic hearing. We
4 feel that the current process in place that allows for
5 publication and then notice is plenty sufficient, and then
6 allowing for an administrative application where no
7 complaint or objection is provided.

8 With respect to the current UIC requirements,
9 which has the quarter-mile area or review or the value
10 divided by the EPA formula, that program, probably among
11 any from the EPA and the State, has one of the best
12 protective history in protecting groundwater. And as Bill
13 mentioned, there were two cases of -- I think he said liner
14 failure, that were discovered. And I would bet those were
15 discovered by the very measures that that rule provides,
16 which requires mechanical integrity testing every five
17 years, as well as monitoring by the operator on a daily
18 basis.

19 With respect to the cementing practices, again,
20 we feel that the state history, based on current cement
21 practices, which allows for OCD oversight but yet doesn't
22 require mandatory review, has had an excellent history in
23 terms of cementing practices in the state and doesn't need
24 to be changed.

25 I was going to comment on the double-walled

1 pipes, but it sounds like that's been changed. What I
2 would advocate, as Commissioner Chavez had mentioned, is
3 that you allow some other alternatives, such as totally
4 plastic pipe. Fiberglass is an example. It doesn't have
5 to be plastic-lined in terms of providing that.

6 Last thing I'd like to discuss is tank
7 containment, and NMOGA -- and from my experience, I can't
8 see justification for stipulating that the base of tank
9 containment be impermeable and the berm walls be lined.
10 The intent of OCD and federal SPCC regulations are that
11 spills are properly contained and prevented from reaching
12 surface and groundwater in the time frame it takes to
13 discover and remove such spills if they occur, and then
14 remediate it.

15 Industry's experience has been that the base and
16 walls of tank containment need not be absolutely
17 impermeable, as the term implies, but sufficiently
18 impermeable to prevent reaching groundwater and surface
19 water. If you'll look through the preamble of the recent
20 SPCC rule for 1999, EPA did not go into specifically
21 defining and designing how that needed to be done. They
22 said that that was a matter of good engineering practice,
23 and they declined to specify permeability in their rules.

24 As a final note, I would agree with Mr. Capra
25 that the rules and regulations that exist really apply to

1 all industry, and I stand before you today that NMOGA, my
2 company, and the companies that's part of NMOGA all stand
3 committed to fully comply with all applicable rules,
4 including the Otero Mesa Rule, once it's finalized.

5 Thank you.

6 CHAIRMAN FESMIRE: Thank you, Mr. Gantner. Are
7 there any other public comments that -- Sir?

8 MR. WHITON: Yes, sir, I was the first one here
9 and put my paper up there. I don't know what happened.

10 MS. SIMMONS: My paper is also up there.

11 MS. GOLDMAN: Mine's missing too.

12 CHAIRMAN FESMIRE: Okay. Are you Mr. Whiton?

13 MR. WHITON: Whiton, yes.

14 CHAIRMAN FESMIRE: Whiton.

15 MR. WHITON: Sir, I am speaking for myself and
16 also as president of the state chapter of Republicans for
17 Environmental Protection. Obviously as Republicans we are
18 for free enterprise, free markets, capitalism. We are also
19 very much for responsibility and obligation to future
20 generations.

21 I began in the early part of the year, sir, a
22 search for an example of environmentally responsible
23 drilling. I made several attempts to reach people at the
24 BLM, several attempts to reach people at industry. No luck
25 with BLM. Industry gentleman did call me back and gave me

1 some information and also suggested that I would find
2 environmentally responsible drilling almost anywhere in the
3 state that I chose to look. He refused to give me specific
4 locations, and I still have that issue out there. If
5 anyone in industry wants to take me on a guided tour of an
6 environmentally responsible drilling site, I'm open, see me
7 after the meeting, I'll give you my card, we can get in
8 contact.

9 No solid answer. I did go on a little expedition
10 up in the Aztec area recently, and we did a survey of
11 several gas wells up there, and again I'm still searching
12 for an environmentally responsible drilling site.

13 Our late President Ronald Reagan said, Trust but
14 verify. And that is my purpose. If I can find such sites
15 and see that this is the common practice, I'll be the first
16 to point out to all of my friends in the environmental
17 community that I have found such places and they do exist.

18 Now, I did see one sight that I would call --
19 came close, and it just so happened that that site was
20 right on the main highway, and I'm assuming -- well,
21 someone mentioned to me that that was probably the PR site.
22 That's where you take the elected officials, that's where
23 you take the dignitaries and say, look, we can see that.
24 That's what my companion said.

25 Now, the problems that I saw with these sites, I

1 could imagine problems with maintenance, maybe we had a
2 flash rainstorm and it was difficult to get the workmen out
3 there to make some repairs, and I could understand that.
4 What I saw however, was things that were just not done
5 right in the first place.

6 Now, it seems to me that whatever the rules are
7 that are in place, if a company was committed to
8 environmentally responsible development, they wouldn't need
9 any rules. They would be out there with their peers
10 saying, Who can do the best job? Who can have the cleanest
11 site? Who can have the best provision for any safety
12 problems that arise?

13 Sir, I saw giant tanks, somewhat similar to one
14 of the ones that was shown here, and if you notice on that
15 picture, yes, there was a berm around it, and I don't know
16 if it's required or not, but I would think somebody in
17 industry would say we ought to have a berm around a tank
18 that would contain the entire contents of that tank. I saw
19 berms that barely contained the base of the tank, much less
20 the contents of a 12- or 20-foot-tall tank.

21 Seems to me that every pit would be lined. I
22 can't imagine anybody in industry looking at the first
23 unlined pit they built and not saying, Gee, I think we
24 ought to do better. And then you remediate that pit and
25 make sure that all the rest of them are properly taken care

1 of. I saw some installations that were poorly sited so
2 that the pit was at the base of a hill, and again
3 intermittent rain, going to erode the hill, going to erode
4 right into that berm area and destroy the berm.

5 I saw unfenced wellheads. Seems to me that's a
6 real safety issue that any environmentally responsible and
7 safety-conscious industry official would want to take care
8 of to keep a workman from backing his truck into the
9 wellhead.

10 To me, it shows that there is no self-monitoring
11 by industry, that peer pressure apparently says, like
12 anything else, don't worry about it, we're all doing it,
13 it's fine. Shows no monitoring by industry. As far as
14 monitoring by government, I saw no evidence of that. We
15 did encounter one inspector on our tour. She seemed
16 untrained, she seemed unmotivated, she seemed to lack
17 knowledge. And also I might say in her defense, she seemed
18 discouraged. She seemed to evidence that this was a waste
19 of time, and she was generally ineffective.

20 We had a tank that was partially in the ground
21 and it was surrounded by some kind of green, really sick-
22 looking fluid, and she thought that that wasn't really
23 worth mentioning. So that kind of shows, at least in one
24 anecdote, what the BLM inspectors are like.

25 There has also been, in addition to me being

1 shown no spot where it's been environmentally responsibly
2 done, we also know that there has been no restoration of
3 any drilling site after repeated requests over a span of
4 years. No industry representative has ever come and said,
5 Let's go out and see this site that has been properly
6 restored.

7 Now, if you want to have a clue to what somebody
8 will do in the future, I think the best indication is what
9 they've done in the past. I've also heard people who are
10 against drilling as calling us NOPEs, meaning not on planet
11 earth, and that's not true. What we are asking for is,
12 yes, do your drilling, but do it in an environmentally
13 responsible way, making sure that we protect valuable
14 wildlife and habitat and, in New Mexico, liquid gold --
15 which is not oil, but it's water.

16 So my experience has been that Otero Mesa is not
17 the place for these people to experiment and try to figure
18 out how to do it and see if they're willing to comply.
19 Let's have them develop a site outside of Otero Mesa, and
20 if that comes up to standards, then we might consider
21 letting them into this sensitive area.

22 So prove your environmentally responsible
23 drilling, and let government prove that they can enforce
24 their own regulations.

25 Thank you.

1 CHAIRMAN FESMIRE: Thank you, Mr. Whiton.

2 Ma'am, you indicated that you'd like to make a
3 statement?

4 MS. SIMMONS: Yes.

5 CHAIRMAN FESMIRE: Could you state your name and
6 affiliation when you start, please?

7 MS. SIMMONS: Janice Simmons. I represent
8 myself. I don't want to sit down.

9 It has been mentioned in this room that one
10 should not make rules unless there's a need. I want to
11 respond to that.

12 I have more than once during these hearings seen
13 a grown man, a father, a grandfather, a rancher, come up
14 here and burst out in tears. That represents need. Okay?
15 That's need. I've never seen anything like it.

16 And what I want to mention is, it's not about the
17 ranchers, it's about us, it's about my children, it's about
18 your children. People's lives have been altered, they will
19 continue to be altered based on these decisions that are
20 being made with the people in power. How I want my life to
21 be altered should be my decision. Unfortunately, it's not,
22 sometimes. And I hope, I hope, I hope you make the right
23 decisions for all beings in this room, for all animals, for
24 all the future children and for all the earth that we walk
25 on.

1 Thank you.

2 CHAIRMAN FESMIRE: Thank you, Ms. Simmons.

3 Jennifer, you indicated you want to make a
4 statement?

5 MS. GOLDMAN: Yes, thank you.

6 My name is Jennifer Goldman, I represent the Oil
7 and Gas Accountability Project. Thank you for accepting my
8 comments today. We have submitted extensive written
9 comments, so I'll make these comments brief. I just wish
10 to highlight a few things that are in there.

11 The Oil and Gas Accountability Project, or OGAP,
12 is in support of Rule 21. On the subject of pits, the
13 prohibition of pit permits makes complete sense for the
14 Chihuahuan Desert area as part of our state policies,
15 because the history of the use of pits in New Mexico shows
16 that when pits are allowed, soil and water contamination
17 follow.

18 And I agree with a number of statements made here
19 today that the numbers that we're seeing are very, very
20 conservative numbers, and indeed we've promulgated Rule 50,
21 the Pit Rule, in large part, because there was no
22 comprehensive permitting framework. And there seems to be
23 a need for the OCD to collect a vast amount of more
24 information on pits. So these numbers to me are very, very
25 conservative and do not reflect the soil and water

1 contamination that is out there.

2 Just to add to that, much of what the OCD
3 currently knows about the number of existing pits in the
4 state comes from a voluntary industry survey issued in
5 1997, and that did come out in the last pit hearing.

6 Closed-loop systems are available and feasible in
7 the State of New Mexico and are emerging as an onshore
8 industry standard across the US and Canada. These systems
9 are required within the municipal boundary in Lovington,
10 and as one person put it to me recently, they certainly
11 weren't created for little old Lovington.

12 Closed-loop systems are documented as having
13 recently been used within the City of Farmington and
14 outside of New Mexico. OGAP's market research reveals that
15 one particular company, Brant Barko, offering closed-loop
16 system technology, has performed approximately 900 closed-
17 loop drilling operations in the Rockies within the last
18 eight years. The cost of closed-loop systems are
19 relatively low. They can reduce a company's production
20 costs and clearly result in waste reduction.

21 Detailed in OGAP's written comments are three
22 examples of closed-loop systems that demonstrate these
23 points. Here I wish to focus on just one example and the
24 fact that closed-loop systems clearly reduce volumes of
25 waste.

1 In our written comments, Exhibit 7 [sic], we
2 provide a case study from the Oklahoma Department of
3 Environmental Quality. This case study analyzes the
4 savings and benefits of an OXY USA exploratory well. By
5 utilizing a closed-loop system in concert with air-drilling
6 techniques, OXY's waste reduction amounted to 1.5 million
7 pounds, and disposal cost savings of roughly \$13,000.

8 So I would just note that that is contrary to
9 some of the public comments that were made already about
10 not being able to use closed-loop systems with air
11 drilling. I recognize that in every basin there are
12 different elements and that perhaps air drilling and
13 closed-loop systems are not technically feasible on Otero
14 Mesa, but I would just challenge that concept here today,
15 given this case study that is available to all on the
16 Oklahoma Department of Environmental Quality's website.

17 In 1999 the OCD estimated that 90 percent of all
18 drilling muds and cuttings, and 50 percent of all
19 associated wastes, were disposed of in pits in New Mexico.
20 This amounts to 18 million gallons of drill cuttings and 47
21 million gallons of drilling fluids disposed of in pits. By
22 rough calculations taken from these volumes of waste and
23 the number of wells drilled in 2003 I'm willing to say that
24 that amounts to 32,000 gallons of waste per well in New
25 Mexico.

1 Eliminating this waste through a prohibition of
2 pits on Otero Mesa is good for the environment, it's good
3 for surface users, and it's good for the industry's long-
4 term bottom line and liability. We are consistently
5 hearing from our market research that companies choose to
6 use these systems to limit their liability.

7 Finally, in regards to injection wells, OGAP
8 believes that based upon current information, that this
9 Commission should prohibit the use of injection wells for
10 produced water. Given the documented vulnerability of the
11 area's groundwater and lack of information with regard to
12 the safety of injection wells, we encourage the Commission
13 to exercise caution and prohibit injection wells in this
14 area.

15 Thank you.

16 CHAIRMAN FESMIRE: Thank you, Ms. Goldman.

17 Are there any other public comments that you'd
18 like to get on the record today?

19 Okay, why don't we take a 12-minute break. We'll
20 come back at 20 minutes to 3:00, and at that time we'll
21 begin with the cross-examination of Mr. Olson by Mr. Carr.

22 Thank you.

23 (Thereupon, a recess was taken at 2:28 p.m.)

24 (The following proceedings had at 2:40 p.m.)

25 CHAIRMAN FESMIRE: Okay, let's go back on the

1 record, please.

2 We're going back on the record now. One of the
3 things that I was reminded that we need to do -- Please.
4 One of the things that I was reminded that we need to do
5 is, the photos that were exhibits to Mr. Johnson's
6 testimony need to be entered as Exhibits -- from 19 through
7 30. There are 11 photos up there. I think that's
8 mathematically correct. So those will be entered as
9 exhibits.

10 And the next thing -- Ms. MacQuesten, is your
11 witness prepared to undergo cross-examination?

12 MS. MacQUESTEN: Yes, sir.

13 CHAIRMAN FESMIRE: Mr. Carr?

14 WILLIAM C. OLSON (Resumed),

15 CROSS-EXAMINATION

16 BY MR. CARR:

17 Q. May it please the Commission, Mr. Olson, we've
18 heard a lot of comments by people who have serious concerns
19 about various oil-and-gas-related issues. But your
20 testimony today really is focusing on two issues: a ban on
21 pits in a certain area in Otero and Sierra Counties, and
22 then additional limitations on injection wells in that
23 area; is that correct?

24 A. Overall, that's two of the major issues.

25 Q. Does it go beyond that?

1 A. Well, there's the requirements that were also in
2 the proposal for tank facilities as part of the injection
3 facilities and the produced water lines, but that's the --

4 Q. Again, related to injection facilities --

5 A. Related to injection facilities --

6 Q. -- is that right?

7 A. That's correct.

8 Q. Could you tell me how the area we're talking
9 about was selected?

10 A. Yes, the area was selected based on the two I've
11 shown earlier. I believe it was in OCD Exhibit 4 and OCD
12 Exhibit Number 5, are two of the major --

13 Q. And how was the area selected for inclusion in
14 this area? Is it the same area as covered by the
15 Farmington Office Resource Management Plan?

16 A. Yeah, I believe that's -- that's Carlsbad or --

17 Q. Maybe, that is --

18 A. Right.

19 Q. But it is the same area?

20 A. It is covering the same area across it, that
21 they're looking at. It did exclude certain areas like
22 those -- the woodland areas I described that fall outside
23 of the grasslands.

24 Q. But it does include substantially more acreage in
25 Otero Mesa and the Nutt grass area?

1 A. Yes, it does.

2 Q. In preparing your testimony, did you study this
3 entire area, or did you focus your effort on what we call
4 Otero Mesa and the Nutt Grassland area?

5 A. I didn't actually, I guess, focus just on that
6 one area. I mean, that's the area that I have been
7 familiar with from just some recent investigations, so that
8 was a point for me in bringing forth here as information
9 that I had from that. But I'll admit I have not been to
10 all these areas across the proposed area here.

11 Q. Have you studied them to be sure they demonstrate
12 similar geologic characteristics, things of that nature?

13 A. Actually, a lot of them are going to exhibit
14 different geologic characters, especially as you cross into
15 Rio Grande valley and get across some of the other areas.
16 So there are going to be different geologies across this
17 area.

18 Q. I believe you testified that we're here because
19 in March there was a directive from the Governor and that
20 you are trying to promulgate these Rules in response to
21 that directive; is that fair?

22 A. That's correct.

23 Q. And because of that short time frame, the
24 Division didn't follow the traditional approach of forming
25 a work group with a number of representatives of various

1 stakeholder groups and work the Rule in that fashion; is
2 that correct?

3 A. That's correct.

4 Q. When did you start working on Otero Mesa?

5 A. I don't know what the exact date is. I know I
6 was involved in the consultations and the development of
7 the draft rule. I don't recall exactly --

8 Q. Were you working on Otero Mesa prior to the time
9 the Governor issued the directive for the new Rule?

10 A. No, we were not.

11 Q. In developing the Rule and actually drafting the
12 language, were you involved in that effort?

13 A. In drafting --

14 Q. -- the actual text of the rule?

15 A. I was consulted on portions of the language for
16 -- involving environmental issues, yes.

17 Q. Do you know who drafted the Rule that we're
18 looking at here today?

19 A. It was drafted by the Division. I think that
20 would apply to our Division counsel, in consultation with
21 all the -- with parties within the Division.

22 Q. Do you know if there were consultations with
23 other State agencies?

24 A. I know there was with the -- there was -- we did
25 have some information that was provided to us from the

1 State Land Office, and comments on the Rule.

2 Q. Do you know if the State Engineer's Office was
3 contacted?

4 A. Yes, the State Engineer was contacted, and
5 actually they are going to be testifying here later today,
6 I believe.

7 Q. Other environmental groups? Air Quality Board,
8 was that considered at all?

9 A. No, not that I know of.

10 Q. Did it fall to you to justify or identify the
11 problem that you were trying to deal with here?

12 A. I think the problem that was brought to us was
13 protections for this area, so we have used things that have
14 been brought as problems across other areas, to try to
15 prevent that from happening in this area.

16 Q. And you presented two examples of proven
17 groundwater contamination from drilling pits; is that
18 right?

19 A. That's correct.

20 Q. And are those the best examples that you have,
21 Bill?

22 A. Those are the only examples we have through our
23 case file.

24 I would point out that this came up through the
25 pit hearings we had on Rule 50, is that -- one of the major

1 issues with this, we have a lot of these pits out there,
2 and I think some of the other parties today were bringing
3 this up, is that it is an issue that has not been fully
4 studied by the Division. We have not ever gone through and
5 done a comprehensive survey of installing monitor wells,
6 say, next to former drilling pits because we don't have the
7 resources to conduct those activities.

8 Q. Mr. Gantner presented a statement for NMOGA a few
9 minutes ago, and he stated that there had been in excess of
10 35,000 wells drilled in New Mexico. Does that seem like a
11 reasonable number to you?

12 A. Seems reasonable.

13 Q. And in justifying this proposal, you had two
14 examples you could cite from the records of the OCD; is
15 that correct?

16 A. That's correct.

17 Q. And wouldn't that appear to you, based on the
18 records and the data you have, to be a pretty good record?

19 A. Based upon our contamination cases, we have --
20 our sites there, I'd say we're looking at 900, maybe,
21 approximately, contamination cases across the state.

22 Q. And are they related to groundwater contamination
23 from drilling pits?

24 A. They are related to contamination, period, and
25 not specifically related to drilling pits.

1 Q. You have just come through a process where you as
2 an agency have adopted Rule 50.

3 A. That's correct.

4 Q. And there are new procedures for permitting all
5 pits; is that correct?

6 A. Yes, there is.

7 Q. And you file a C-144, I believe, and permit pits
8 individually at this time; is that right?

9 A. Individually, or they can be permitted under a
10 general permit for a like class of --

11 Q. But each of these applications requires review by
12 technical people employed by the Oil Conservation Division;
13 isn't that correct?

14 A. That's correct.

15 Q. And as part of that review, you are now
16 developing guidelines that further will expand and define
17 what you do as a regulatory agency in regard to pits?

18 A. Yes, the guidelines are there to guide the
19 implementation of the Rule.

20 Q. And part of the approval process for these pits
21 has recently been putting special stipulations and
22 requirements that are specific to individual pit
23 applications; isn't that fair to say?

24 A. That's correct.

25 Q. Is it your testimony as you've reviewed this

1 problem, looked at your records and looked at the new Rules
2 and the guidelines that are being developed, that there is
3 a problem with the Rules, or is there a problem with
4 compliance and enforcement of existing Rules?

5 A. You're saying -- I'm not sure if I understand
6 you.

7 Q. The question is, you have a new set of Rules.

8 A. Right.

9 Q. Is it your testimony that these Rules are
10 inadequate to protect groundwater?

11 A. I would say they do protect groundwater, and in
12 some circumstances they may not where you have installed in
13 -- especially with the burial that is allowed for pits.
14 That's probably one of my major issues in drilling pits, is
15 more in the closures versus the actual use.

16 Q. And so you're looking back at prior problems?

17 A. Prior problems, actually looking at the one
18 current problem that came up with loss of water from a
19 drilling pit in a short period of time.

20 Q. Isn't it possible under your current regulatory
21 scheme to address these problems without absolutely banning
22 pits?

23 A. I'd say that the mechanism is there to deal with
24 pits in the current Rule.

25 Q. If we look at the particular proposals in the new

1 Rules, the one you testified about was abolishing pits or
2 no longer approving pits across this area. Did you conduct
3 a study to determine whether or not pits were needed, or
4 did you just look at this in terms of a directive to ban
5 pits and to come up with the reasons why they should not be
6 and what the alternatives might be? Which approach did you
7 take? Did you analyze this problem head-on, should we have
8 pits, or was that actually already decided?

9 A. Well, we did not perform any scientific study, as
10 I think you're referring to, to go and look at this
11 particular area. It was brought to our -- brought to us as
12 a directive from the Governor to address this area, and
13 that's what we are attempting to do. It was done actually
14 as -- under the Order, to do this immediately.

15 Q. Is it your recommendation that if there is
16 drilling in this area, a closed-loop system would be
17 required?

18 A. I'm sorry, excuse me?

19 Q. Is it the recommendation of the Division
20 contained in these Rules that if there is drilling in Otero
21 Mesa, a closed-loop, completely contained system should be
22 required?

23 A. I think that's inherent in the proposal by not
24 allowing the drilling pits at that point.

25 Q. And I thought I heard you testify earlier that

1 you were not an expert on closed-loop systems?

2 A. That's correct.

3 Q. Did you say Mr. Anderson is going to cover that?

4 A. I am not sure if he was --

5 Q. Do you have someone who's going -- who has an
6 expertise in closed-loop systems who's going to testify?

7 A. Possibly Mr. Anderson may be. I'm not exactly
8 sure.

9 Q. Did you in the development of these Rules confer
10 with anyone who had actual experience with a closed-loop
11 system?

12 A. I did not myself.

13 Q. Did anyone that you know look at the potential
14 for gas collecting in one of these systems during, say,
15 hydraulic fracturing, and what the explosive potential
16 might be in that circumstance?

17 A. I did not.

18 Q. Did you look at whether or not there might be
19 unique characteristics in certain areas that would make a
20 closed-loop system potentially a dangerous thing to do?

21 A. I did not study any safety issues like that.

22 Q. Isn't that something that you probably would want
23 to know, if you had a work or study group looking at these
24 Rules?

25 A. Yes, I guess that was one thing. I think we

1 looked at it in the comments that may have come in too. I
2 mean, that was -- it was addressed, but I don't recall that
3 it was ever addressed in detail in the comments that we did
4 receive.

5 Q. You'd agree with me that comments don't
6 necessarily give you the same information that a work group
7 sitting down and discussing a problem might be able to come
8 up with?

9 A. I agree.

10 Q. When you look at using a closed-loop system,
11 there were comments, and people were stating that they
12 thought there would be reduced truck traffic on the roads
13 because of a closed-loop system. Did you attempt to
14 calculate the number of additional trips that would be
15 required to remove the drill cuttings or the fluids after
16 the drilling was over?

17 A. No, I did not.

18 Q. Did you confer with the Air Quality Bureau on the
19 impact that would have on the particulates in the air and
20 the other problems that might come from this set of Rules?

21 A. No, I did not.

22 Q. Is that something that if you had had additional
23 time you might have wanted to consider?

24 A. That's possible.

25 Q. When you accept comments from the industry --

1 You've already made one change in the Rule based on -- or
2 several based on those comments here today; is that
3 correct?

4 A. I believe there's -- Yeah, I believe there's two
5 changes that we made.

6 Q. And based on the presentations that are going to
7 be made here, is it possible that the Rules may further be
8 amended before they're finally adopted?

9 A. That's possible.

10 Q. Do you have any idea on whether or not there will
11 be another opportunity to view a draft of the Rule before
12 they're finally adopted?

13 A. I don't think so. I thought -- In my
14 understanding here, I thought the next action would be an
15 action of the Commission.

16 Q. Adopting the Rule?

17 A. Adopting the Rule based upon the testimony at the
18 hearing.

19 MR. CARR: And I would hope that the Rule before
20 the board today with the changes meets proper notice
21 requirements, and if it doesn't I would think there is an
22 opportunity to bring some expertise into the process that
23 might not have been there.

24 That concludes my questions of Mr. Olson.

25 CHAIRMAN FESMIRE: Thank you, Mr. Carr.

1 Ms. Belin, do you have any cross-examination of
2 this witness?

3 MS. BELIN: Yes, I do.

4 CROSS-EXAMINATION

5 BY MS. BELIN:

6 Q. My name is Letty Belin, I'm here on behalf of the
7 Otero Mesa Coalition.

8 My first question is that I'd like to know how
9 long is the longest time that a drilling pit or a short-
10 term pit might be open before it's closed. I think you
11 said before that an average time that a drilling pit might
12 be in operation is maybe 30 days, and then closure could
13 take up to 12 months. Are there temporary pits that are in
14 operation longer than 30 days?

15 A. I'm not really sure. I mean, the drilling
16 activities take place over a short period of time that's --
17 Usually driving the time for the final closure is that they
18 typically allow the pit, then, to evaporate from there and
19 dry out, and it's whatever time length it takes for that to
20 dry out is kind of a driving factor for the closure of the
21 pit then.

22 Q. So how long would you say is the longest time
23 you've known a drilling pit to be open before it's totally
24 closed up?

25 A. I'm aware of some that have been there for up to

1 a year. I believe under our prior rule, prior to Rule 50,
2 they were required to be closed within one year, and that
3 changed with the new Rule to be a six-month period with the
4 possibility of an extension of six months. So up to a
5 year, even under the current Rule. But I'm aware of a
6 drilling pit that had been out there for about a year
7 before it had been closed.

8 Q. About water-based drilling, there's been a lot of
9 comments about water-based drilling and comments from
10 industry saying that most of the drilling in the area
11 covered by this Rule is likely to be water-based drilling.
12 Is there any requirement that the drilling in this area be
13 water-based, freshwater-based?

14 A. You're referring to freshwater-based?

15 Q. Yes, I am.

16 A. No, there's not a requirement that that occur.

17 Q. So there could be other types of drilling used in
18 this Rule area?

19 A. That's possible.

20 Q. Are you aware of what type of drilling was used
21 for the wells that have already been drilled in the Rule
22 area?

23 A. I'm aware of it for two of the ones that I had
24 looked at and actually inspected this last year, and that
25 was -- on the one well, they had anticipated drilling with

1 brine at one point, but in the final result of what
2 happened out there they drilled the well with air until
3 they hit the freshwater horizon, and then they switched
4 over to freshwater-based mud and drilled the remainder of
5 the hole with freshwater-based mud.

6 Q. And you're not aware of what was used in the
7 other well?

8 A. I'm aware that the other well that I looked out
9 there was drilled with fresh water as well. I'm not sure
10 about some of these other wells that were listed through
11 there. I wasn't involved with that.

12 Q. And next, I know you had a colloquy with
13 Commissioner Chavez about what might be in the drilling
14 pits when fresh water is used for drilling, and I thought
15 that you said -- well, I won't try to characterize what
16 your testimony was in response to Commissioner Chavez's
17 questions. Are you aware that even when freshwater
18 drilling is used, that various additives and other
19 substances can end up in the drilling pit?

20 A. Yes, I'm aware of that.

21 Q. And such things as acids, corrosion inhibitors
22 such as hexavalent chromium, thinners, dispersants,
23 weighting materials such as barium sulfate, flocculants,
24 which can be acrylic polymers -- are you aware that all
25 those things can end up in the drilling pits?

1 A. It's possible, uh-huh.

2 Q. So that -- would you say that hazardous materials
3 can end up in drilling pits even when freshwater drilling
4 is used?

5 A. I'd make a distinction with hazardous materials,
6 because that has a certain connotation under federal rules
7 and regulations as things that are hazardous waste.
8 There's things that are potentially --

9 Q. Well, toxics or damaging -- maybe we should use a
10 different adjective. Dangerous substances can end up in
11 these pits?

12 A. Yeah, I might -- concede they might say hazardous
13 substance, as long as they wouldn't be considered to be
14 hazardous wastes at that point, because that's a certain
15 definition of what is a hazardous waste under federal
16 regulations.

17 But yes, there could be hazardous substances such
18 as metals and even other things that I had mentioned in my
19 direct testimony which are hazards to human health if
20 ingested.

21 Q. And that could cause serious contamination if
22 they got out of the pit?

23 A. That's correct.

24 Q. I wanted to ask a couple of questions about the
25 chart that was up earlier about your contamination database

1 and the number of incidents there. I'm wondering what
2 fraction of pits in the state have been tested for
3 contamination?

4 A. I'd say a very small fraction of them. I don't
5 know if I can give you an exact number, because we don't
6 have any numbers of pits that have been in existence over
7 time.

8 It hasn't been until just -- the new Rule now,
9 that there's now a permitting system for that. When we did
10 the -- one of our area studies up in the San Juan Basin in
11 the late 1980s and the early 1990s, I think at that time we
12 estimated somewhere around -- I believe it was somewhere
13 around 14,000 pits at that time may have been in existence
14 in the San Juan Basin alone.

15 So I don't know if I can give you a total number
16 for statewide. It's a lot less up in the San Juan Basin
17 now because of the subsequent orders of the Commission that
18 came out designating vulnerable groundwater areas up there
19 and then prohibiting unlined pits in those areas. But
20 there still may be pits that have replaced those pits that
21 are no longer allowed to be unlined, or they're going to
22 tanks, one or the other.

23 But there are still a large number of pits up in
24 the San Juan Basin outside the vulnerable areas. I just
25 don't have -- we don't have any specific numbers at this

1 point on what's...

2 We did receive a lot of information on pits
3 recently with OCD Rule 50. Companies -- As part of the
4 Rule, on April 15th companies were required to notify us of
5 the existence of all remaining pits that are out there
6 today, pits and below-grade tanks. But that data hasn't
7 been compiled yet. Some of it has been submitted to the
8 District Offices, some of it has been submitted to the
9 Santa Fe Office. It hasn't been all -- I don't believe all
10 that information has been synthesized into one data set
11 yet.

12 So there is some information out there, at least
13 for current -- what is currently existing out there.

14 Q. But in terms of actually on-site testing to see
15 whether there is contamination, would you say that less
16 than 10 percent of the pits or less than some percent of
17 the pits that exist have been tested for contamination?

18 A. Well, I'd say that if you come down to drilling
19 pits -- and I think the discussion that I just had with Mr.
20 Carr was that there was approximately 35,000 wells. I
21 think there was a drilling pit with most every one of those
22 and we've only looked at, according to what I've shown on
23 our database, 14 pits. So you're looking at something far
24 less than that, 14 out of 35,000 that have actually been
25 looked at.

1 Q. So in other words, there are likely many more
2 contaminated pits than showed up on your chart of the
3 numbers of contaminated pits in the state?

4 A. I would say that's likely.

5 Q. Is it a common practice in closing pits to use a
6 backhoe to rip the liner and then let the fluids seep down
7 before the it is closed?

8 A. I don't know if they're actually going and using
9 it as a mechanism for the seeping down, but that has been a
10 problem that's come up about coming in and ripping liners
11 and usually mixing in soil if you're trying to solidify the
12 remaining mass that you have left of the drilling pit,
13 which is still semi-solid then at that point.

14 So I don't know if it's necessarily for the
15 purpose of draining the fluids as for mixing fresh dirt in
16 there to kind of get it to be able to backfill and fill in
17 the excavation at that point.

18 Q. So it is common that the liners get ripped in the
19 process of closing up the pit?

20 A. It's common in some areas. I know from -- we had
21 some discussions with the BLM that that was a concern of
22 theirs, that they in some areas preferred that to happen so
23 they could actually close it out quicker.

24 Q. And can there still be contaminants in the soil
25 even after the pit has been closed?

1 A. I'm not sure I --

2 Q. The material -- the solids that were in the pit
3 at the time of the closing are still generally left there
4 at the site, after the pit is closed; is that correct?

5 A. That's correct.

6 Q. A question about the tanks and the requirements
7 for the lined berms. As I understand it, this Rule would
8 only require the lined berms for tanks associated with the
9 injection wells, but not other tanks; is that correct?

10 A. That's the way that the proposal reads, that's
11 correct.

12 Q. And as I understood your testimony earlier today,
13 you testified to contamination coming from other kinds of
14 tanks, not just from the injection-well tanks; is that
15 correct?

16 A. That's correct.

17 Q. So wouldn't it make sense to require the same
18 types of impermeable berming for all the tanks and not just
19 the tanks associated with injection wells?

20 A. I think that could be a logical outgrowth of
21 that.

22 Q. Would you agree that it is better to prevent
23 contamination than to try to discover it and enforce it and
24 then mitigate it?

25 A. Yes, that's been my mantra for 18 years.

1 (Laughter)

2 Q. Would you agree that it's also more cost-
3 effective to do so also?

4 A. Yes.

5 Q. Would you also agree that remediation rarely
6 restores the site, the soil and water at the site, to the
7 same pre-contamination state it was in?

8 A. I'd say in most cases it does not. You're always
9 -- Anytime you have contamination, you're going to have
10 some remaining portion that it's just not practical to
11 remediate. You remediate it to the best level that you can
12 so that it doesn't pose a threat for leaching to
13 groundwater to cause exceedance of the standards or to pose
14 potential public health threats if someone is exposed to
15 the soil at the surface. So there's always going to be
16 some remainder left behind, below that level.

17 Q. One last question about produced water. I
18 understand that produced water in its dissolved phase can
19 contain benzene and what are known as BTEX; is that
20 correct?

21 A. That's correct, it does quite often.

22 Q. And it can also contain naturally occurring
23 radioactive materials that might in some cases exceed the
24 Water Quality Control Commission standards for gamma
25 radiation?

1 A. I don't recall ever seeing any that's exceeded
2 the standards, to tell you the truth, in investigations
3 we've looked at. Usually -- I think a lot of what you're
4 referring to is a lot of naturally occurring radioactive
5 material, which ends up being more of a problem with scale
6 from radium deposition. I'm not sure if that's what you're
7 asking or -- I've never seen it as a problem with drinking
8 water with any radioactivity -- not with drinking water,
9 with produced water.

10 MS. BELIN: Okay, thank you very much. I have no
11 further questions.

12 CHAIRMAN FESMIRE: All right, Ms. Belin.

13 Mr. Carr, Ms. Belin, Ms. MacQuesten, we have sort
14 of an unusual situation. We've got a person here who --
15 from the New Mexico Environment Department who has asked
16 permission to ask Mr. Olson a question. I'm inclined to do
17 it, if there's no objection from you all with the
18 Commission.

19 MR. CARR: No objection.

20 CHAIRMAN FESMIRE: Ms. Belin?

21 MS. BELIN: No objection.

22 CHAIRMAN FESMIRE: Ms. MacQuesten?

23 MS. MacQUESTEN: No objection.

24 CHAIRMAN FESMIRE: All right. Mr. Swanson, are
25 you still here?

1 MR. SWANSON: Mr. Chairman, members of the
2 Commission, thank you for allowing me to ask a couple of
3 questions.

4 MR. SIMPSON: Little bit louder.

5 MR. SWANSON: My name is Baird Swanson. I work
6 for the New Mexico Environment Department.

7 CHAIRMAN FESMIRE: Mr. Swanson, are you here in
8 an official capacity, or is this a --

9 MR. SWANSON: Yes, I am. And I just had a few
10 questions.

11 EXAMINATION

12 BY MR. SWANSON:

13 Q. In listening to the testimony, Mr. Olson, I had
14 gathered a few impressions, and I wanted to go over them.
15 First of all, it seemed to be emphasized earlier, a lot of
16 discussion about freshwater drilling. And you had also --
17 correct me if I'm wrong, but you were under the impression
18 that there was little likelihood of the encountering of
19 evaporite sequence in salt formations in the drilling in
20 the area in question?

21 A. I'm not aware of it in that area. I know it was
22 anticipated, that I saw through one of the APDs that was
23 filed, but I'm not aware of it. But I haven't done a
24 detailed look at the geology of this entire region. I was
25 talking about the areas that I had looked at, over in the

1 Crow Flats area.

2 Q. Okay. And do you -- in these applications have
3 you been given a general range of depth of drilling that
4 will be sought after in order to test for gas reserves, oil
5 and gas reserves?

6 A. I seem to recall it was somewhere around 5000 to
7 7000 feet, where they hit the precambrian basement rock.

8 Q. Okay. In the process of drilling, are you aware
9 that there's a reasonable amount of uncertainty as to what
10 will be encountered until you actually go out there and
11 begin putting in holes?

12 A. I think that was one of the points of my
13 testimony, especially regarding occurrence of fresh water
14 in that area when they encountered at that one well site
15 fresh water at 1155 feet.

16 Q. Is it possible that among the other things that
17 would be encountered during drilling, that there might be
18 some horizons of hydrophilic shales?

19 A. It's possible.

20 Q. Okay. And are you aware of the type of steps
21 that are taken in the process of drilling when hydrophilic
22 shales are encountered?

23 A. Sometimes they use oil-based muds.

24 Q. Okay. Then you had also explained that part of
25 one of the drilling plans that you had reviewed anticipated

1 the possibility of a brine-based drilling. Is there any
2 other reason for brine, beyond -- for using brine in mud,
3 beyond drilling through salt formations?

4 A. It's usually for compatibility with formation
5 materials during drilling, so --

6 Q. Okay, is it also used in terms of a more heavy
7 fluid in order to counterbalance reservoir pressures at
8 times?

9 A. Yes, as weighting, uh-huh.

10 Q. So would it be fair to say that it's uncertain
11 what sorts of formations, pressures and gas and oil shows
12 might be encountered in the process of a new exploration
13 area?

14 A. I don't know if I understand your question. Can
15 you repeat that?

16 Q. Is it fair to say that there's an uncertainty
17 about the kinds of pressures that would be encountered if
18 no reserves were found in the areas to be drilled?

19 A. I think you're going into somewhat of an unknown
20 area when you're doing drilling in some of these areas, so
21 that's -- in wildcat drilling you're going to not
22 necessarily know everything that you're going to encounter.

23 Q. Right, okay. So it's reasonable, then, I think
24 -- and correct me if you think I'm wrong -- to assume that
25 there would be some uncertainties about the approach -- the

1 fluid program that would be employed, depending on what
2 conditions were ultimately encountered as drilling were to
3 go on out there?

4 A. Yes.

5 Q. Okay. The closed-loop system, would it, in your
6 mind, need to be something that would be adaptable to those
7 conditions as well, to the uncertainties and to the
8 conditions that might occur? For instance, having adequate
9 reserves to deal with pressures, et cetera, that might be
10 -- have to be planned on but not necessarily encountered?

11 A. I believe that's already a provision of the
12 Rules --

13 Q. Right.

14 A. -- that you have to have an adequate supply of
15 mud to control activities at the well.

16 Q. Okay. I guess, then, the last question I have
17 is, then it would be your testimony that it's not
18 necessarily the case that we would anticipate always
19 drilling with freshwater mud and therefore have to be
20 prepared for potential -- other types of mud to be
21 circulated in the system of drilling during the process?

22 A. I don't believe there's a specific requirement in
23 the Rules that specifies what type of mud to be used, but I
24 could be wrong.

25 MR. SWANSON: All right. Well, I was trying to

1 get a reasonable idea if there would be some variability.
2 That's all the questions I have for you. Thank you.

3 CHAIRMAN FESMIRE: Ms. MacQuesten?

4 MS. MacQUESTEN: I just have a housekeeping
5 question.

6 Mr. Olson, were you able to provide the
7 Commission with the document that Mr. Brooks requested from
8 the well file?

9 THE WITNESS: No, I've not done that yet. I'll
10 make a copy of that the next break.

11 MS. MacQUESTEN: Thank you.

12 THE WITNESS: I was a little unclear whether you
13 wanted the whole well file, which was a little thicker, or
14 just the document that referred to where they found water
15 at, from the --

16 MR. BROOKS: I had in mind only the document that
17 the witness referred to in his testimony, Mr. Chairman.

18 THE WITNESS: Okay, and I'll get that at the next
19 break.

20 CHAIRMAN FESMIRE: Any other questions?
21 Commissioner Chavez?

22 EXAMINATION

23 BY COMMISSIONER CHAVEZ:

24 Q. One more question, Mr. Olson. Are you aware of a
25 practice where sometimes the drilling pit has been

1 converted for use as a disposal pit, or at least that same
2 area had been used as a disposal pit after a well went into
3 production?

4 A. Yes, I'm aware of several of those.

5 Q. How does that affect the statistics that you
6 showed about contamination, if that was the case?

7 A. I don't believe these are the ones that I
8 included. There was a couple others that I had gotten
9 information on recently, but I didn't have any -- those
10 were actually lined pits, and I didn't have any information
11 on those of actual contamination from those, outside of one
12 where the -- well, he's having a spray system associated
13 with it that ended up overspraying the area, a spray-
14 evaporation system.

15 Q. Could some of the disposal pits that you refer to
16 in your list there, contamination sites, could some of
17 those disposal pits have previously been drilling pits?

18 A. It's possible. And I think one of the problems
19 we've had, especially down in the southeastern portion of
20 the state, we have some areas down there where it's not
21 clear what the full extent of the contamination of those
22 aquifers are. There are some areas down there where we
23 have some extensive salt contamination of ground water, and
24 the source of that has never been conclusively determined.

25 Some of it is related to the old Climax chemical

1 plant which had huge -- it was not regulated by us, but it
2 was a hydrochloric acid plant and there's huge chloride
3 plumes off of that. We have other plumes in that area, and
4 it's never been conclusively determined what the full
5 extent and sources of all of that contamination are, but it
6 is possible that -- some of the other sites that have been
7 converted or may have been in the same area as pits that
8 were used for drilling.

9 CHAIRMAN FESMIRE: Ms. MacQuesten, no further
10 questions of the witness, I guess?

11 MS. MacQUESTEN: Not from this witness, thank
12 you.

13 CHAIRMAN FESMIRE: Would you like to call your
14 next witness, please?

15 MS. BADA: Bob Sivinski.

16 DR. NEEPER: Point of order, Mr. Chairman.

17 CHAIRMAN FESMIRE: Yes?

18 DR. NEEPER: I believe all interested parties are
19 allowed to cross-examine; is that not correct?

20 CHAIRMAN FESMIRE: That hasn't been my
21 understanding, but we've been letting that happen. Are you
22 wanting to cross-examine the last witness?

23 DR. NEEPER: Yes, I'd like permission to cross-
24 examine Mr. Olson before you call other witnesses.

25 CHAIRMAN FESMIRE: Okay. If there is no

1 objection from the parties.

2 Mr. Carr?

3 MR. CARR: No objection.

4 MS. MacQUESTEN: No objection.

5 MS. BELIN: No objection.

6 DR. NEEPER: I am Don Neeper representing New
7 Mexico Citizens for Clean Air and Water.

8 EXAMINATION

9 BY DR. NEEPER:

10 Q. Mr. Olson, we have heard numerous references to
11 the effect that the new Rule 50 is expected or hoped to
12 avoid future contamination from pits so that all we'd be
13 left with is the legacy contaminations. However, Rule 50
14 did maintain some prior exemptions that were put there by
15 order. There were prior exemptions, in which case those
16 pits were not required to have liners.

17 Could you give us just an offhand guesstimate of
18 what fraction of the usable drilling area in the San Juan
19 Basin is exempt from liners?

20 A. There's a rather large percentage. I don't know
21 if I could give you an exact number.

22 The vulnerable areas that are up there were
23 incorporated into the current Rule, and those areas were
24 defined as 100 vertical feet from the San Juan, Animas and
25 La Plata Rivers and then 50 vertical feet from the channel

1 of all ephemeral systems. So there's quite extensive
2 fingering network that goes out through the base of all the
3 drainage bottoms. But a lot of the upland area, there's
4 some extensive area.

5 I don't know what to say on exact number, if it's
6 -- you know, it's -- there's a good portion of the Basin
7 that is not covered by the Pit Rule and is allowed to have
8 unlined pits.

9 Q. So it's fair to say if you're not drilling in an
10 arroyo or in a water channel, you don't need a liner?

11 A. If you're not within 50 vertical feet --

12 Q. Fifty feet.

13 A. -- of those or 100 vertical feet of the San Juan,
14 Animas and La Plata River, that's correct.

15 Q. Thank you. I think you showed on your chart that
16 there were something like 6700 cases of pit contamination.
17 I couldn't see the number. 6200, 6700, some similar number
18 like that.

19 It was mentioned earlier that you can assess
20 civil fines for bad actors who do cause contamination.
21 Among those 6700 cases, were any civil fines issued?

22 A. On these sites, I don't believe so.

23 Q. So in 6700 cases of pit contamination, we have
24 not had any fines? That is the case?

25 A. No, we have relatively low fining capability.

1 Actually, the cost of cleanup on any site would far exceed
2 probably what we could impose as a fine.

3 Q. So in fact, then, it would be your judgment that
4 the possibility of a civil fine is not really the kind of
5 hammer that prevents a bad actor from being a bad actor?
6 It would have to be some other preventive measure?

7 A. Well, I might point out that for the sites that
8 were out there, they were allowed -- A lot of these are
9 historic-type sites that during those periods were allowed
10 to discharge to unlined pits.

11 Q. So there was no violation?

12 A. So there wouldn't have been necessarily a
13 violation for discharging at that period in time.

14 Q. But in the future, even so, you said your
15 resources would be so limited that it's almost not worth
16 your resources to try to assess a fine? Did I understand
17 you correctly there?

18 A. No, we've always looked at the cost of cleanup as
19 being a rather large penalty, ensuring that we get the
20 resource cleaned up, which is the overall goal of the
21 regulations, is the protection of the resource.

22 Q. Okay. There has been some discussion that water-
23 based drilling fluids are cleaner than other fluids. When
24 you issue a permit for drilling, is the fluid specified or
25 is that up to the operator, and can he change it as he

1 feels he needs to?

2 A. I'm not sure if I'm the best one to answer that.
3 I don't actually process the applications to drill.

4 Q. All right.

5 A. Yeah.

6 Q. You may pass on that.

7 Regarding the discussion of double-walled pipes,
8 the proposed Rule was changed to eliminate proposing
9 double-wall pipes, and I believe you indicated that you
10 changed that based on some objections that there might be
11 dangers resulting from possible explosions in the annular
12 space; is that correct?

13 A. That was one -- I think one of the main reasons.
14 It's based largely on practicality of how to construct and
15 operate those types of systems.

16 Q. So this was an objection from the industry, then,
17 since it was a practicality issue?

18 A. Yes, there were some objections from industry on
19 that and also on the availability of double-walled pipe as
20 well.

21 Q. So industry did have some input, then, to
22 preparation of the Rule?

23 A. Well, that was based on the comments I believe we
24 received by the comment deadline. I don't know which --
25 what date that was.

1 Q. All right. Regarding the danger of explosion,
2 which was discussed, even if you had a double-walled pipe,
3 have you or did anyone who was submitting comments to you
4 look at whether, in fact, the expected contaminants in the
5 water, the light hydrocarbons, could reach the lower
6 explosive limit in equilibrium with air, given the known
7 Henry's coefficients of those contaminants?

8 A. I don't believe I saw any information like that
9 presented?

10 Q. So this is not a science-based judgment?

11 A. No, I would say probably not.

12 Q. Do you know if closed-loop systems are used
13 largely in any other state?

14 That is, is there a state where closed-loop
15 systems are the predominant mechanism?

16 A. I know they're used in some of the other states.
17 I don't know if they're the predominant method, I'm not
18 aware of that.

19 DR. NEEPER: Very good, thank you.

20 CHAIRMAN FESMIRE: Ms. MacQuesten, does that
21 result in any redirect on your part?

22 MS. MacQUESTEN: No, thank you, Mr. Chairman.

23 CHAIRMAN FESMIRE: Call your next witness,
24 please.

25 For the record, you have been sworn?

1 MR. SIVINSKI: Yes, I have been sworn.

2 ROBERT C. SIVINSKI,

3 the witness herein, after having been first duly sworn upon
4 his oath, was examined and testified as follows:

5 DIRECT EXAMINATION

6 BY MS. BADA:

7 Q. Could you please state your name for the record?

8 A. Robert C. Sivinski.

9 Q. Where are you employed?

10 A. I'm employed with the Energy, Minerals, Natural
11 Resources Department, Forestry Division.

12 Q. How long have you been employed with the Forestry
13 Division?

14 A. With the Forestry Division for 15 years.

15 Q. And what are your job responsibilities?

16 A. Seventy-five percent of my time I am a botanist
17 for the State of New Mexico, mainly studying rare and
18 endangered plants throughout the state, to fulfill the
19 requirements of the New Mexico Endangered Plant Species
20 Act, and to implement the state's full authorities
21 agreement with the US Fish and Wildlife Service to conduct
22 most of the research and recovery operations for endangered
23 plant species in New Mexico.

24 The other 25 percent of my time I work with
25 various land conservation programs, including the Forest

1 Legacy Program, the Natural Lands Protection Act, and the
2 Land Conservation Incentives Act

3 Q. Where were you employed prior to working for the
4 Forestry Division?

5 A. Prior to that by the same department, Energy,
6 Minerals and Natural Resources, but in the Mining and
7 Minerals Division for five years.

8 Q. And what were your job responsibilities there?

9 A. I was a coal mine reclamation specialist, and by
10 the end of that term I was the chief of the Surface Mine
11 Permitting Bureau.

12 Q. And what did you do in the coal mine reclamation,
13 what were your specific duties?

14 A. It was inspection and enforcement of reclamation
15 regulations that the State has that were based on federal
16 regulations, and approving mine plans and close-out plans,
17 such things like that.

18 Q. And what is your educational background?

19 A. I have a bachelor's degree in wildlife biology
20 from New Mexico State University with a minor in range
21 science. I have a master's of science from New Mexico
22 State, also in wildlife biology, and an additional two
23 years of graduate work at UNM in plant taxonomy and
24 systematics.

25 MR. BADA: I'd like to offer Bob as an expert in

1 botany and rare plants.

2 CHAIRMAN FESMIRE: Is there any objection?

3 So accepted.

4 MR. SIMPSON: Could you have the witnesses speak
5 louder? The background -- the air is -- hard to hear.

6 CHAIRMAN FESMIRE: Okay. Mr. Sivinski is
7 acceptable to the Commission as an expert.

8 Q. (By Ms. Bada) Bob, are you familiar with the
9 Chihuahuan Desert area in Otero and Sierra Counties?

10 A. Yes, I am. Like I said, I went to school in Las
11 Cruces. I also worked for the Bureau of Land Management in
12 the Las Cruces District for a year and in the Socorro
13 District for a year and spent most of my life in New
14 Mexico. My work with rare and endangered plants has also
15 taken me to practically every county in the state. I have
16 done quite a bit of field surveys in these two counties.

17 Q. Bob, did you take this photo?

18 A. Yes, that's on Otero Mesa, just north of the
19 Cornudas Mountains. This is the famous Chihuahuan Desert
20 grasslands with a lot of elk on it. I took this photo last
21 December.

22 Q. Could you run the other three?

23 A. Same area. This grassland, as you can see, does
24 have some minor shrub component, but that just adds to the
25 species diversity out there. It is predominantly

1 grassland, black grama, purple three-awn, Torrey muhly,
2 various native species of grasses, quite a diverse
3 assemblage of plants.

4 This is on the northern end of the Otero Mesa
5 looking at the Cornucopia Hills. This is more of a playa
6 area that's mostly burro grass and Tobosa grass.

7 As you can see, there's quite a bit of plant
8 diversity out here in the Chihuahuan Desert, especially of
9 yuccas, agave, cacti, as well as the grasslands. But this
10 is kind of a soaptree-yucca savannah out Otero Mesa.

11 Q. Could we go back to slide 9? Could you identify
12 the approximate area on this vegetation map of Otero and
13 Sierra Counties that contain Chihuahuan Desert vegetation
14 types?

15 A. Just about anything you see that isn't green.
16 These green designations represent coniferous woodlands,
17 starting with piñon-juniper elevation and up into higher
18 elevation coniferous forests. Below piñon-juniper we are
19 in Chihuahuan Desert, the Chihuahuan Desert ecoregion,
20 throughout the remainder of these two counties.

21 Q. What makes the Chihuahuan Desert important?

22 A. It's really a huge desert. It extends from
23 approximately Socorro in New Mexico on the north, all the
24 way down to Nuevo Leon in Mexico. About 70 percent of the
25 desert is in New Mexico, but the northern subunit of the

1 Chihuahuan Desert is predominantly in southern New Mexico
2 and west Texas.

3 It is one of three most species-diverse, as far
4 as plants and animals, of the arid regions in the world.
5 There is even greater species diversity in the Chihuahuan
6 Desert than there is in the Sonoran Desert next to us in
7 Arizona and southern California. Although that desert gets
8 much more attention because it has big saguaros, we
9 actually have greater species diversity in the Chihuahuan
10 Desert than the Sonoran.

11 The northern unit of the Chihuahuan Desert that
12 occurs from, say Chihuahua City up through New Mexico and
13 west Texas, was predominantly grassland in historic times,
14 and that's one of the things that make it really unique,
15 is, it is a desert grass.

16 Q. How much of the Chihuahuan Desert grasslands
17 remain?

18 A. There's various estimates. Anywhere from 50 to
19 70 percent of the Chihuahuan Desert grassland has been
20 eliminated and replaced with shrublands, less species-
21 diverse scrub. In this particular area, the Bureau of Land
22 Management has estimated that in the last 150 years
23 approximately 62 percent of the grassland in these two
24 counties have been highly degraded or eliminated.

25 Q. In New Mexico, what counties have a majority of

1 the remaining grasslands?

2 A. Can I use this?

3 Q. Uh-huh, sure.

4 A. There is a little bit of grassland going up the
5 Pecos River, not very much, but it's usually confined to
6 the river valley. The largest examples of remnant
7 grassland in New Mexico are from the Otero Mesa to the
8 southern end of the Tularosa Basin. Then the northern end
9 of the Tularosa Basin, there is some on the bajada of the
10 San Andres mountains and a band of grasslands coming down
11 the bajada of the Black Range in Sierra County.

12 There are some further north in the Jornada del
13 Muerto, although they're more spotty in that area, all the
14 way up to the city -- the National Wildlife Refuge near
15 Socorro.

16 So there are remnant spots of grassland in quite
17 a few places. In fact, if you get into a different section
18 of the Chihuahuan Desert, which is called the Apachean,
19 over in the boot heel of New Mexico and adjacent Arizona,
20 there are some remnant grasslands in those locations.
21 Probably the best known is the Animas Valley.

22 Q. Why are the grasslands in the Otero Mesa area
23 different than those in the other counties?

24 A. Mainly their size. It's really a large,
25 relatively intact piece. There are still impacts to that

1 area. They're somewhat higher in elevation, so they get a
2 little bit more rain. They're mostly black grama
3 grasslands, which are unusual for Chihuahuan Desert
4 grasslands. Down lower it's usually various species of
5 dropseed, but the density of background on this area is
6 really kind of outstanding, really an outstanding example
7 of a black grama grassland.

8 Q. Why are the desert grasslands important?

9 A. They're species diverse as far as plants, as far
10 as wildlife. You'll probably hear testimony from the Game
11 and Fish Department on why they're necessary for continuing
12 populations of the antelope, prairie dogs, various
13 predators in that area.

14 They have changed, though, over the last century
15 or two, due to the pressures on them, mainly through
16 grazing during drought periods and the elimination of
17 wildfire that typically maintains grasslands.

18 So just having these remnant pieces, it's
19 important to protect them, because animals move around.
20 They need to be able to migrate, such as birds. Even
21 larger animals will move from grassland to grassland, and
22 it's good to have quite a few in proximity to one another
23 so that movement -- those ecological processes can occur.

24 If we can maintain just the remnants we have, we
25 would have pieces of grassland all the way from the

1 Sevilleta National Wildlife Refuge, down through the
2 Jornada del Muerto, into the Tularosa Basin, across Otero
3 Mesa, down to the Davis Mountain-Marfa grasslands in
4 adjacent Texas, and then across the river to the remnant
5 grasslands in central Chihuahua

6 Q. We've heard a lot of talk about pits, so I wanted
7 to ask you about the problems that might be encountered in
8 attempting to reclaim the vegetation over pits where
9 drilling muds and other drilling wastes are buried.

10 A. I think it's going to depend on what it ends up
11 in the pits. In reclaiming coal mines, our experience was,
12 anytime you're dealing with very sodic material, a lot of
13 salts of sodium, that material can migrate into whatever
14 top dressing you use for the reclamation.

15 What you're burying these pits with, I assume,
16 would be suitable root material for plants. But yet over
17 time, if it's quite a bit of salt in that area, it can
18 migrate upward into the root medium and essentially
19 sterilize the soils.

20 Q. Are there any endangered or threatened plants in
21 Otero and Sierra Counties in this area of the Chihuahuan
22 Desert?

23 A. I wasn't finished on the reclamation part.

24 Q. Oh, sorry, go ahead and finish.

25 A. Also, when you disturb grassland soils, which are

1 out here typically fairly shallow because of a caliche
2 layer, when you mix all that up, you're breaking up that
3 soil horizon and typically making that area suitable more
4 for taprooted plants than you are for grasses, and you'll
5 see a lot of annual herbaceous species coming in and even
6 shrubs coming in. And it's perfect root medium for noxious
7 weeds as well, and we see that quite a bit in the well
8 patch, because noxious weeds follow the roads, the
9 pipelines, the wellpads, and it just takes a long time for
10 that -- maybe centuries, for that soil structure to
11 redevelop into grassland-type of soils.

12 Also, one of the main problems for reclamation
13 out here is, practically all of the species -- the grass
14 species that I mentioned that occur on this area, are not
15 available commercially. There has been so little
16 reclamation done in the Chihuahuan Desert that growers have
17 not begun to supply seed for reclamation purposes. There
18 is no seed source on the open market for black grama, for
19 Tobosa grass, for three-awn. All of the common grass
20 species out here, just about, are not available for
21 reclamation purposes. So even though this area might be
22 seeded for a post-impact land use, it's probably not going
23 to be seeded to effect restoration of what was there
24 before.

25 Q. Okay.

1 A. Now your next question.

2 Q. Thanks, Bob. Are there any endangered or
3 threatened plants in the Chihuahuan Desert in Otero and
4 Sierra Counties?

5 A. Yes, there are six. Two are federally listed
6 species. They occur on the Sacramento escarpment. One is
7 the Sacramento prickly poppy. That's a very endangered
8 plant that's on its way to extinction. It occurs on the
9 lower part of the escarpment.

10 Just north of that is the Todson's pennyroyal,
11 which occurs on gypsum outcrops on the escarpment. Those
12 both are federally listed plants.

13 There's -- Villard's pincushion occurs on the
14 escarpment just below Alamogordo. That is a state-listed
15 cactus.

16 Duncan's pincushion occurs all over here, near
17 T or C and the Mud Springs Mountains. That is a State-
18 listed endangered cactus.

19 And down in the Crow Flats area there's the
20 gypsum scale broom that occurs in the Alkali Lakes regions
21 of Crow Flats.

22 And at Cornudas Mountain there's an endangered
23 species of orchid called the shining coral root.

24 There are several other rare plant species out
25 here that do not have any formal protections under the

1 federal or the state law but could be pushed in that
2 direction, depending on what the land management in the
3 area occurs as.

4 For instance, the Guadalupe mescal bean is in the
5 Broke Off Mountains and the lower part of the Guadalupe
6 Mountain escarpment.

7 And just right in here on gypsum is the Guadalupe
8 blazing star and Howard's ringstem, which -- both of those
9 plants were just found ten years ago. They were unknown to
10 science until just ten years ago.

11 Q. The other thing I wanted to ask you is, how
12 complete are the biological studies of the Otero Mesa area?

13 A. Very incomplete. This is probably one of the
14 least botanically and biologically surveyed areas of New
15 Mexico. It's very remote. There hasn't been a lot of
16 agency interest in this area, because a lot of those types
17 of surveys are project driven, so there's been very little
18 survey in that area. I know I haven't looked at it all
19 that much myself.

20 And I mentioned those two plants that were just
21 discovered in the Cornudas Mountains. On the Texas side in
22 the last ten years there's been two new species of ants and
23 a new isopod discovery. So, you know, it's not just all
24 antelope and prairie dogs out there, there's quite a few
25 other endemic species that could be unique to this area

1 that just aren't known yet.

2 MS. BADA: I have no further direct questions.
3 Does the Commission have questions?

4 EXAMINATION

5 BY COMMISSIONER BAILEY:

6 Q. What impact have the hundred or so previously
7 drilled oil and gas wells had on the grasslands and on the
8 endangered species you talked about?

9 A. No impact on the endangered species to this
10 point. I have not personally looked at those hundred
11 wellpads but I'm sure they have roads associated with them,
12 which disturb large linear areas that could influence
13 ecological processes out there, such as roads stop fires.
14 Natural fire is very important in maintaining natural
15 grasslands, and roads stop fires.

16 So there could have been -- you know, it's all
17 incremental. I'm sure each pad disturbed a certain
18 acreage, each road disturbed a certain acreage. But when
19 we're talking about an area that only has 32 percent -- or
20 38 percent of its natural grasslands left, there are
21 incremental impacts that will push that number even higher.

22 Q. Have you seen how many of the wellpads have been
23 revegetated naturally?

24 A. You know, I've only looked at a couple of
25 wellpads in that area, and one was brand new, so I couldn't

1 tell. I looked at an old wellpad and a pipeline running
2 through the area that doesn't look like it's getting much
3 natural vegetation on there.

4 There are a few annual species, native annual
5 species coming in on them. But typically that isn't used
6 as a reclamation criteria because it really doesn't --
7 annual species typically do not support a post-impact land
8 use for, say, livestock grazing or wildlife habitat. And
9 they don't show up every year. When there's insufficient
10 rain they just don't come up, so they're not that useful.
11 We need permanent vegetation coming in on these things.

12 I did see some shrub species come in, but for a
13 grassland, adding more and more shrubs actually degrades
14 the grassland.

15 Q. Talk to me about plant succession order, of how
16 the grasslands become shrublands and how that's becoming
17 more and more apparent in this area, even without oil and
18 gas.

19 A. Okay. Out in this area, recovery -- if that's
20 what you mean, succession, coming back to a climax
21 grassland -- could be very slow, perhaps centuries.
22 Perhaps never at all, if the soils are completely changed.
23 For instance, there's very little of it in Sierra County,
24 but there is some in the Jornada del Muerto.

25 But throughout Doña Ana County and southern Luna

1 County, along the Mexican border, that was all grassland at
2 one time, and now it's nothing but mesquite coppice dunes.
3 The soils have moved away, and they're piled up around very
4 long-lived shrubs. That area is never going to be
5 grassland again.

6 So if you do really dramatic changes out there,
7 recovery probably will not happen at all. There will be a
8 different community, and the plants and animals associated
9 with that community will no longer be there.

10 There are some creosote areas that move into
11 overgrazed areas, especially grazed areas that were
12 overgrazed during severe drought such as the late 1800s,
13 the early 1900s, even the 1950s there was quite a bit of
14 shrub dominance moving into Chihuahuan Desert grasslands in
15 southern New Mexico, simply because they were being
16 overgrazed during really dry periods. That is somewhat
17 ameliorated lately, but it still does occur, and we are in a
18 drought right now.

19 Q. So with all this creosote area, where would they
20 be on the map that we can eliminate them as grassland?

21 A. I think this is a vegetation map.

22 MS. BADA: Yeah, that's right.

23 THE WITNESS: Grasslands are the light yellow
24 color?

25 COMMISSIONER BAILEY: Uh-huh.

1 THE WITNESS: Now, throughout that area there is
2 going to be islands of shrublands. This is very gross
3 scale, but you can see where the grasslands remnants are in
4 this two-county region. Everything that's darker than that
5 is now a shrubland.

6 Q. (By Commissioner Bailey) So what would be the
7 harm of having oil and gas exploration in those areas of
8 the darker yellow and the gray and the other areas that are
9 not grasslands?

10 A. Ah-hah. The Chihuahuan Desert as a whole, the
11 grasslands -- especially in the northern part, the
12 grasslands make it special. Okay? So those are remnants
13 that would be good to keep, because there are whole suites
14 of flora and fauna that depend on that.

15 But not all of it is always grassland. There are
16 gypsum outcrops that support really rare plants and
17 animals, there are isolated mountain ranges that are
18 shrubby with rock outcrop that support really diverse
19 species assemblages of plants and animals. So those in
20 themselves are important as well. I think the whole of the
21 Chihuahuan Desert is important, but there are certain
22 elements that we're losing because of our management of
23 those areas, that deserve greater attention.

24 Q. But are you saying that there are no areas within
25 this vast map location where we don't have grasslands, that

1 we can't have oil and gas either?

2 A. Oh, I didn't say that, no. I'm saying that the
3 Chihuahuan Desert is important. There are certain elements
4 that are more important than others, possibly, and -- Just
5 because it's not a grassland, though, doesn't mean that
6 it's not threatened.

7 I wouldn't say that you can't disturb any of it.
8 There's disturbance going on out there all the time. Not
9 just oil and gas, but there's ranch roads out there,
10 there's towns out there, there's highways, there's ORV
11 traffic, there's all sorts of impacts going on out there.
12 I'm not saying that oil and gas has to stop in all parts of
13 the Chihuahuan Desert. That isn't my point at all.

14 Q. Just for a point of clarification, one of the
15 other folks who gave testimony said that this was the only
16 area for Chihuahuan grassland in North America. You did
17 clarify that this is simply the northernmost area of --

18 A. I think he --

19 Q. -- of a grassland that extends way into Mexico?

20 A. I think the intent was, this is one of the best
21 remnant examples on Otero Mesa of Chihuahuan Desert
22 grasslands left in New Mexico, and I would agree with that.
23 There are some good smaller examples in other places, such
24 as in Sierra County on the bajada of the Black Range, in
25 the Jornada del Muerto and in the Tularosa Basin, but they

1 are much smaller.

2 And there are other grasslands outside of these
3 two counties that are Chihuahuan Desert grasslands.

4 Q. Why do we have a huge area of the upper triangle
5 that's white between Sierra and Otero County? Is there not
6 grassland in through that area too? See how Otero County
7 goes north and south on that western boundary, and then
8 Sierra County comes up at an angle? But yet it appears
9 from the map that we have grasslands throughout the whole
10 area.

11 A. I'm not seeing where you're --

12 Q. North of I-25 --

13 CHAIRMAN FESMIRE: She's talking about the white
14 area.

15 Q. (By Commissioner Bailey) The big white
16 triangular area to -- Go south, go south, go south, go
17 south, go east, go east --

18 CHAIRMAN FESMIRE: The uncolored.

19 Q. (By Commissioner Bailey) Yeah.

20 A. Oh, this. That's Doña Ana County.

21 Q. Okay.

22 A. And this is Luna County, and this is Hidalgo, and
23 this is Chaves and this is Eddy. They all have Chihuahuan
24 Desert in them.

25 Q. But we're not including that county in this

1 discussion?

2 A. Apparently not. Apparently this discussion
3 centers around the Governor's Order, Executive Order, on
4 the Chihuahuan Desert in these two counties.

5 COMMISSIONER BAILEY: That's all I have.

6 CHAIRMAN FESMIRE: Commissioner Chavez?

7 EXAMINATION

8 BY COMMISSIONER CHAVEZ:

9 Q. Is there a -- since you've worked in reclamation,
10 do you foresee there's a reclamation land that could be
11 used by the oil and gas industry, or planning for
12 reclamation during drilling production and final
13 abandonment of operations that would minimize impacts or
14 even restore the grasslands after it's done?

15 A. I would love to see that. We've done that with
16 our mining industry in New Mexico already. Mining, all
17 types of mining, but especially coal mining in New Mexico,
18 have very strict regulations on reclamation standards and
19 what can be called successful reclamation. There is no
20 requirement yet, that I'm aware of, in regulation -- to
21 regulate the oil and gas industry on how they leave their
22 sites when they're finished.

23 Q. In studying what's happening with the Chihuahuan
24 Desert, especially that extends outside of New Mexico, the
25 practices that are proposed under this Rule, are they --

1 Have you looked at the other practices, in other parts of
2 the Chihuahuan Desert in Texas and New Mexico?

3 A. No, I have not.

4 COMMISSIONER CHAVEZ: Okay, thanks. That's all.

5 EXAMINATION

6 BY CHAIRMAN FESMIRE:

7 Q. Quick question. When you come into one of these
8 grassland areas and you disturb the soil, dig deep enough
9 to create a pit, does that provide an assured degradation
10 of the grassland? I mean, does that destroy the grassland
11 at least from that point, in the pit area?

12 A. It would if all you're hoping for is for natural
13 revegetation of the site, because what would come in --
14 Once you mix the caliche layer or other subsoil layers with
15 the topsoil layer, you're not going to get grassland back,
16 you're going to get taprooted plants, shrubs and herbaceous
17 plants, that, in that area, just through natural
18 revegetation.

19 If you could top-dress the site with a topsoil
20 material that could support grass growth and successfully
21 seed grass on that area by using an appropriate seed mix
22 and possibly even irrigation for the first couple of years,
23 you could probably get it established as grassland and it
24 would stay that way.

25 Q. But you're telling us that seed mix isn't

1 available commercially?

2 A. No, and I don't know very many operators that
3 would be willing to irrigate the site, especially during a
4 drought period, to ensure that the grass comes in before
5 the other taprooted plants come in.

6 CHAIRMAN FESMIRE: Ms. Bada, I have no further
7 questions. Do you have a cross-examination, or can we --
8 further direct examination, or can we go to --

9 MS. BADA: I may have some redirect, but let's
10 see if there's any other cross.

11 CHAIRMAN FESMIRE: Mr. Carr, do you have any
12 cross-examination of this witness?

13 MR. CARR: No, I do not.

14 MS. BELIN: No questions.

15 MS. BADA: I had a couple questions that I wanted
16 to follow up on.

17 FURTHER EXAMINATION

18 BY MS. BADA:

19 Q. You talked earlier about the difference between
20 Sierra and Otero Counties as far as the highland --

21 A. Uh-huh.

22 Q. -- Chihuahuan Desert grasslands. Could you --
23 Are there large areas of that in the other counties?

24 A. Of the high --

25 Q. Of the black grama?

1 A. Black grama grasslands?

2 Q. Yeah.

3 A. There are small areas of it in this county. In
4 the Tularosa Basin, right up around here, is a good example
5 of black grama grassland. In this county there is little
6 spots of it here, but not a big, huge area. And that's
7 about it. So it is kind of a unique area, as far as a
8 desert --

9 Q. So you wouldn't see that in Lea County or Eddy
10 County or --

11 A. In Eddy County it's going to mostly be in playa
12 bottoms and along the valley bottoms and mostly consist of
13 alkali sacaton, which is a much taller grass species and
14 more of a monoculture. It's not nearly as species-diverse.
15 And that's true of a lot of these playa areas, such as the
16 Middle Tularosa Basin.

17 MS. BADA: I have no further questions.

18 CHAIRMAN FESMIRE: Mr. Carr, I assume you have
19 no --

20 MR. CARR: (Shakes head)

21 CHAIRMAN FESMIRE: Ms. Belin?

22 MS. BELIN: (Shakes head)

23 CHAIRMAN FESMIRE: Why don't you call your next
24 witness?

25 MS. MacQUESTEN: The OCD calls Roger Anderson.

1 ROGER C. ANDERSON,
2 the witness herein, after having been first duly sworn upon
3 his oath, was examined and testified as follows:

4 DIRECT EXAMINATION

5 BY MS. MacQUESTEN:

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

7 A. My name is Roger C. Anderson.

8 Q. And where do you work?

9 A. I work for Energy, Minerals and Natural Resources
10 Department, Oil Conservation Division.

11 Q. What is your title there?

12 A. I'm the Environmental Bureau Chief.

13 Q. What are your duties as the Environmental Bureau
14 Chief?

15 A. My duties are to supervise the staff of the
16 Environmental Bureau in the conduct of the enforcement of
17 the environmental regulations in the oil and gas industry.

18 Q. Does it also include the investigation and
19 remediation of contaminated sites?

20 A. Yes, it does.

21 Q. Could you briefly outline your education and
22 relevant work experience for us?

23 A. I have a bachelor of science in chemical
24 engineering from New Mexico State University. Following
25 graduation I went to work for Dow Oil Division at Dow

1 Chemical Company, worked for them for 11 years as a field
2 engineer, a cementing and stimulation engineer, a district
3 engineer, a service manager, and ended up as a district
4 manager.

5 At that time I left Dow and Schlumberger took
6 over Dow Oil. I left and came to work with the State of
7 New Mexico and have been since February of 1986 with the
8 Environmental Bureau.

9 MS. MacQUESTEN: I would offer Mr. Anderson as an
10 expert environmental engineer.

11 CHAIRMAN FESMIRE: Any objection?

12 COMMISSIONER BAILEY: No objection.

13 COMMISSIONER CHAVEZ: No.

14 CHAIRMAN FESMIRE: He's so admitted.

15 Q. (By Ms. MacQuesten) Mr. Anderson, I had some
16 questions for you regarding the cementing provisions in the
17 proposed Rule regarding injection wells, but before we get
18 to that I wanted to ask you, your experience as
19 Environmental Bureau Chief for the OCD, does that include
20 participating in rulemaking proceedings?

21 A. Yes, it does.

22 Q. And in fact, are rulemakings often initiated
23 under your name, as this one was?

24 A. This one was, yes.

25 Q. You were present during the public comment period

1 in this case, were you not?

2 A. For a portion of it. I had to leave for a
3 conference call.

4 Q. Okay. There were some comments from people who
5 felt that in order to have a rulemaking proceeding, we had
6 to first demonstrate a need, we had to show an existing
7 harm before we could propose a rule. Other individuals
8 commented that they would like to see OCD act to prevent
9 problems before they start.

10 What is your view on this issue?

11 A. The Statutes require us to regulate the
12 disposition and nondomestic waste resulting from the
13 exploration, development, production or storage of crude
14 oil or natural gas to protect the public health and the
15 environment. In my opinion as a layman, jailhouse lawyer,
16 I don't see anything in there that says, after we've had a
17 10-percent failure rate or after we've had three incidents.
18 I see it as protecting the public health.

19 Q. So you are in the camp that advocates prevention
20 rather than --

21 A. That's correct.

22 Q. -- reaction?

23 A. That's correct. B.(22) says the same thing.

24 Q. So your opinion on that, you would cite the
25 Statutes in support.

1 A. That's correct.

2 Q. Thank you. I'd like to go back to the cementing
3 provisions in the proposed Rule regarding injection wells,
4 and to illustrate your testimony we have a diagram here.
5 Can you tell us where this diagram comes from?

6 A. This diagram came from the Environmental
7 Protection Agency website.

8 Q. All right, and what is it supposed to show?

9 A. It is a typical injection well, although since
10 they did not have a Class II well this is a typical Class I
11 injection well.

12 Q. And I'd like to have you use this just for
13 illustration purposes to help people understand how these
14 things work. Could you trace what would happen to produced
15 water coming into an injection well and going to the
16 injection zone?

17 A. Okay, once the produced water is separated and
18 sent to the injection well as just produced water -- it's
19 already been filtered, and there's an injection pump that
20 will pump the injection water down through the valve, and
21 there's a pressure gauge on that. There's the injection
22 pump, and it pumps it downhole, down through the injection
23 stream and in -- through tubing, and into the formation.

24 Q. All right. What do you look for in an
25 appropriate injection zone for a produced-water injection

1 well?

2 A. Compatibility with the injection fluid, a
3 capacity to accept it at pressures that will not fracture
4 any confining zones.

5 Q. What do you mean by confining zones?

6 A. Confining zones are defined as zones that will
7 confine the fluids in the zone that you want it to go into
8 and not allow fluids to go up into other zones, whether
9 those zones are water-bearing or not.

10 Q. All right. Now in this particular example, I see
11 over on the right a confined aquifer. Is that the area
12 that in this diagram you're trying to protect?

13 A. Oh, this one up here, if that's the one you're
14 talking about, that's a confined aquifer, so this is a
15 surficial aquifer. Those are all in this diagram
16 underground sources of drinking water that are -- in the
17 State of New Mexico it's defined as anything with 10,000
18 parts per million total dissolved solids or less. Now,
19 this aquifer is confined between two confining zones.
20 That's why they call it a confined aquifer.

21 Q. Now, we're going to be talking about casings, and
22 could you use this diagram to point out what casings are
23 and explain what they do?

24 A. This diagram has two strings of casing and one
25 string of tubing. This one has a surface casing and what

1 I'll call for this as an injection well the injection
2 string, and then it has the tubing run in on a packer
3 inside the injection string.

4 Q. What are casings made out of?

5 A. Steel.

6 Q. And can you point out where the cement is on this
7 particular diagram?

8 A. This diagram shows on both strings of casing,
9 both the surface -- cement circulated to the surface. It's
10 kind of the grayish. And the injection string has cement
11 circulated to the surface also.

12 Q. In general, what purpose does cementing serve in
13 protecting groundwater in an injection well?

14 A. What the cement will do is, it will confine, it
15 will not allow the injected fluids to go up the outside of
16 the casing. And of course once it gets up into the surface
17 casing it can go across and back up into an underground
18 source of drinking water. It protects the underground
19 sources of drinking water from contamination from the
20 casing. It also protects the fluids from going into other
21 zones that are not wanted -- that you don't want it to go
22 into.

23 Q. Now, I take it -- you testified before that the
24 confining zone should keep the produced water that's
25 injected into the injection zone from coming up into the

1 groundwater?

2 A. That's correct. If the pressure of the -- the
3 injection pressure is kept below the fracture pressure,
4 then it will confine all the fluids into the zone, your
5 target zone.

6 Q. But there could be a path going along the side of
7 the casing?

8 A. If there wasn't any cement there, there would be.
9 Cement has to be run in the hole, and there's an annular
10 space between the open hole and the casing, and that's
11 where they place the cement.

12 Now, the quality of the cement determines whether
13 there's annuluses or microannuluses either between the
14 cement and the casing or the cement and the formation.

15 Q. Did you have a chance to review the well files
16 for the post-ONGARD wells in Otero County? Those are the
17 ones that were --

18 A. Yes, I did.

19 Q. -- of record after the early 1990s.

20 A. Yes, I did.

21 Q. Did those files contain evidence of any cementing
22 issues?

23 A. They had evidence of lost-circulation areas.
24 Some of them were considered to be severe in that when
25 cement is actually circulated to the surface, in one fell

1 it fell back 550 feet. And in two wells it never even --
2 they were -- even though there was 50-percent excess
3 calculated in the cement, they were never able to circulate
4 any cement to the surface. Therefore, there had to have
5 been some lost-circulation zone somewhere downhole.

6 Q. Was there any indication of fluid loss?

7 A. Yes, and that could very well be because -- why
8 they couldn't circulate cement, plus every cement job that
9 I looked at, except for one which did not list the cement
10 in the notice, every one of them used extensive fluid-loss
11 additives.

12 Q. What does that tell you about these wells in the
13 area?

14 A. That tells me that one of these zones, whether
15 it's water zones or a confining zone, has high porosity and
16 high permeability enough to take steal the cement from the
17 wellbore.

18 Q. What happens when --

19 COMMISSIONER CHAVEZ: I'm sorry, I didn't
20 understand that last part.

21 THE WITNESS: To take away the cement and not
22 allow it to circulate.

23 COMMISSIONER CHAVEZ: Okay, I'm sorry.

24 Q. (By Ms. MacQuesten) What happens when cement is
25 exposed to a highly porous formation?

1 A. Well, two things can happen. If it's porous
2 enough to accept the cement particles, you're just going to
3 pump it into the formation. If it's not porous enough --
4 if the permeability is not high enough to accept the size
5 of cement particles, which are pretty big, it will
6 dehydrate the cement and it will probably give you a filter
7 cake along the formation wall of dehydrated, unset cement,
8 which really has not compressive strength whatsoever.

9 Q. So that dehydrated cement would not provide the
10 necessary barrier to prevent the produced water from coming
11 up the side of the casing?

12 A. That's correct.

13 Q. With that background, I'd like to take a look at
14 two of the provisions regarding injection wells that deal
15 with cementing. If we look at Exhibit Number 2 just to
16 orient us, the first one we're going to talk about is
17 number C.(4) which requires freshwater aquifers to be
18 isolated throughout their vertical extent with at least two
19 cemented casing strings. And then it also has specific
20 provisions regarding new wells and regarding existing wells
21 that are converted to injection.

22 Let me ask you about the general provision first.
23 According to the proposed Rule, the OCD is asking for all
24 wells used for injection of produced water in this area to
25 have two cemented casing strings throughout the vertical

1 extent of any freshwater aquifer. What purpose does this
2 requirement serve?

3 A. This purpose is a conservative approach to
4 protect the underground sources of drinking water.

5 Q. How can you -- Can you get two cemented casing
6 strings on an existing well, if it didn't already have two
7 cemented casing strings through the aquifer?

8 A. It's possible. If the top of the original cement
9 can be determined and you can perforate through the casing,
10 the casing has enough integrity you can perforate through
11 it and you can clean out the annulus with scavenger fluid
12 and you can squeeze cement through it. It's possible to do
13 it.

14 Q. Now, Mr. Olson testified earlier this morning
15 that at least one operator found fresh water at a
16 significant depth, at --

17 A. 1155 feet, yes.

18 Q. Can aquifers at that depth be isolated with two
19 cemented casing strings?

20 A. Yes, they can.

21 Q. Let me ask you about the specific provisions in
22 the Rule for existing wells. It requires continuous
23 adequate cement from the casing shoe to the surface on the
24 smallest diameter casing string. Could you point out what
25 is meant by that, using the diagram?

1 A. On this diagram, the smallest diameter casing
2 string would be this injection string right here.

3 Q. So -- And this diagram shows continuous
4 cementing?

5 A. This shows continuous cement on the smallest-
6 diameter casing string.

7 Q. How can this be done on an existing well that's
8 going to be converted to injection?

9 A. If, say, you run a bottom log or there is
10 evidence that this string of casing -- Say they already ran
11 this string, this string has already been run, and there is
12 cement outside it but they cannot determine whether there's
13 cement outside the surface casing or not. A liner can be
14 run inside the injection string if it's large enough casing
15 and cemented to the surface.

16 Q. Given what the proposed Rule requires for an
17 existing well to be converted to injection, in your
18 estimation how likely is it that an existing well would be
19 able to be converted to injection?

20 A. The older the well, the less likely it would be
21 able to be converted. The records are sketchy on some of
22 the old wells. I don't know that anything can be
23 determined, whether there is casing outside any of these --
24 I mean cement outside any of the casing strings. The newer
25 wells, it's feasible, it's likely that they could be. The

1 older they are, the less likely it is.

2 Q. Let's look at the specific provisions regarding
3 wells that are actually being drilled for the purpose of
4 injection. The proposed Rule requires cement to the
5 surface on all casing strings except for the smallest
6 diameter casing, and that shall have cement raised to at
7 least 100 feet above the casing shoe of the next larger
8 diameter casing. Can you explain what that means using the
9 diagram?

10 A. Okay, using this diagram, making some assumptions
11 that this casing string is below, for example, the well
12 that Mr. Olson testified about, 1155 -- say this is down
13 around 1200 feet, 1300 feet -- these two strings would have
14 to be circulated -- well, that actually -- By the Rule,
15 1300 feet would have to be right here, so that there are
16 two strings of casing over all underground sources of
17 drinking water, fresh water.

18 If -- And if they ran another injection string
19 inside here, the cement would only have to come up to 100
20 foot within the next largest casing string.

21 If the zone -- that water zone was down here, it
22 would only have one casing cemented over, they'd have to
23 bring the cement up over, back up into this one to make
24 sure that there were two casing strings with cement over
25 all freshwater zones, if this was the lowest one.

1 That's a little confusing using this diagram,
2 because this one is pretty cluttered.

3 Q. If someone intended to drill a well for the
4 purpose of injection --

5 A. Uh-huh.

6 Q. -- can the requirements of this Rule be met?

7 A. Yes, I believe they can. At the present time
8 there a lot of unknowns. We don't know where the lowermost
9 water is, which would add to the expense of drilling it.
10 But it can be done, yes.

11 Now, I do want to say that these regulations
12 mirror what we are now requiring for Class I wells in the
13 State of New Mexico under Water Quality Control Commission
14 Regulations. They're exactly the same requirements.

15 Q. So these requirements are being met right now for
16 a different class of wells?

17 A. That's correct.

18 Q. Let me ask you some questions about a different
19 provision. This is the provision requiring cement bond
20 logs after each casing string is cemented, and this is
21 C.(5). If you could take a look at OCD Exhibit Number 2
22 and C.(5), I notice that there's a change in language from
23 the version of the proposed Rule that was attached to the
24 Application. Certain language, quote, during new
25 construction, close quote, has been removed from the

1 proposed Rule and has been changed to "during drilling".
2 Why was that change made?

3 A. The change was made because "during new
4 construction" created some confusion within the Division
5 that -- is, say, running a liner inside an old well, is
6 that considered new construction? In some areas it's
7 considered a rework, so it's not new construction. So we
8 wanted to make sure that we knew that there was good cement
9 outside a casing in all cases that we were going to permit
10 an injection well.

11 Q. So any time a casing string is cemented, you want
12 a cement bond log --

13 A. That's correct, and that's to verify that there
14 is cement there and it's good, competent cement.

15 Q. Okay. Now, in this requirement you're not trying
16 to say that wells that were constructed many years ago
17 would have to have cement bond logs now to show the OCD?

18 A. They would help, although a well constructed in
19 1940, chances are you're not going to have a good bond log
20 on any of the strings. But there may be good records, you
21 know, that the examiner could evaluate and things like
22 that.

23 In any case, if you -- you're not going to run a
24 bond log -- And I just talked to Schlumberger the other
25 day. If you're trying to run a bond log between two

1 strings of pipe to get the integrity of this cement out
2 here, you have about a 50-percent success ratio at a
3 \$25,000 cost.

4 Q. Is that another strike against using an existing
5 well to convert?

6 A. If there isn't adequate -- It would be if there
7 isn't other adequate data available for the Examiner to
8 consider.

9 Q. Let me ask you why you are requesting cement bond
10 logs. What useful information do they provide?

11 A. It will let us know the basic condition of the
12 cement outside the pipe that you just cemented, whether
13 there are any microannuluses involved between the pipe and
14 the cement and between the cement and the formation. It
15 will tell us that, yes, it did in fact come to the surface,
16 a good cement came to the surface.

17 Q. So it would point out whether we had any of those
18 problems that you identified earlier in your testimony?

19 A. That's correct.

20 Q. Now, the Rule requires that an operator of an
21 existing well being converted to injection demonstrate
22 adequate and competent cementing of all casing strings.
23 How can that be done?

24 A. That can be done by the bond logs, temperature
25 surveys, possibly drillers' logs if they're detailed

1 enough, service company logs that cemented the wells if
2 they're detailed enough.

3 Q. Can a cement bond log be run on the smallest-
4 diameter casing within an existing well?

5 A. Yes. You mean -- Yeah, that's where it's most --
6 Yeah, that's where it's been happening, that's where it's
7 most effective.

8 Q. Okay. Let me turn away from the cementing issues
9 and ask you some questions regarding safety that came up on
10 closed-loop systems versus tanks. What kind of safety
11 issues are you aware of regarding wells that are drilled
12 without pits that are using a closed-loop or tank system?

13 A. I do not claim to be a safety engineer. I have
14 talked to drilling companies, and I have been on a number
15 of closed-loop systems. And to answer a question that was
16 asked earlier, a great deal of wells are drilled in
17 Michigan and Colorado using closed-loop systems. I don't
18 know what the percentage is, but a great deal of them. I
19 was a cement engineer up in Michigan, and I sat on a bunch
20 of closed-loop systems. There are safety concerns, there's
21 accumulation of gases within the pits. Now, I've heard of
22 a static electricity-problem with fines hitting the sides
23 of tanks. I have not noticed that. The tanks I'm familiar
24 with are long enough that it never...

25 I also see that -- and we have problems with pits

1 also. A pit up in Farmington just recently, they had a
2 fire and explosion because of gas accumulation in that, and
3 that was a pit which I don't know if the direct result or
4 indirect result or the -- caused a death.

5 So we have seen safety problems with pits as we
6 do with tanks.

7 Q. So it's a dangerous business, whether you're
8 using pits or whether you're using tanks?

9 A. That it is.

10 Q. Can either be used safely if proper precautions
11 are taken?

12 A. If they're operated, managed and maintained
13 properly, they can both be used safely.

14 MS. MacQUESTEN: I don't have any more questions
15 on direct examination.

16 CHAIRMAN FESMIRE: Commissioner Bailey?

17 EXAMINATION

18 BY COMMISSIONER BAILEY:

19 Q. You said in Colorado closed-loop systems are
20 common?

21 A. That's what I -- I've talked to a drilling con-
22 -- or I talked to someone who talked to a drilling
23 contractor, and they said that they use closed-loop
24 drilling systems all the time in Colorado, and this is a
25 drilling contractor up there.

1 Q. I keep tabs on the lease sales for trust lands in
2 Colorado, compared to New Mexico and the major producing
3 states west of the Mississippi, and I have noticed
4 consistently that the dollar value for oil and gas leases
5 of Colorado trust lands is significantly lower than any
6 other state. Do you think that plays a factor?

7 A. I wouldn't have any idea. I don't know what is a
8 factor in lease sales.

9 Q. It's always been intriguing to me that Colorado
10 land values would be a dollar -- or \$12 per acre for their
11 lease sales, where we would be over \$100, close to \$200.
12 So there is significant differences in the value for the
13 trust between Colorado trust lands and New Mexico. If
14 that's a factor, it might be an interesting study.

15 Are you familiar with the cementing practices in
16 the Carlsbad karst areas?

17 A. No, I am not.

18 Q. So you can't compare how these requirements would
19 compare to injection wells in the Carlsbad karst areas?

20 A. No, I really can't. I know they're more
21 stringent for -- now, these are for Class II wells only,
22 not for production wells, and they are significantly more
23 stringent than the existing Class II construction
24 requirements.

25 Now, there may be special requirements placed on

1 it by the UIC program in a karst area, but I don't know
2 what those requirements are.

3 Q. Could you please clarify for everybody the
4 differences between Class I and Class II wells?

5 A. A Class II well accepts only wastes that are
6 exempt from RCRA Subtitle C under the oil and gas exemption
7 regulations. Class I wastes are industrial nonhazardous
8 wastes. Those are the wells that we regulate.

9 Chemical composition, virtually they're the same.
10 It's just -- the only difference in the class is because
11 one is exempt from RCRA regulation and one is not.

12 Q. Okay, but you would be having the injection wells
13 in these two counties equivalent to the protection for
14 RCRA-regulated --

15 A. Nonhazard- --

16 Q. -- materials?

17 A. Nonhazardous waste, that's correct.

18 COMMISSIONER BAILEY: That's all I have.

19 CHAIRMAN FESMIRE: Commissioner Chavez?

20 EXAMINATION

21 BY COMMISSIONER CHAVEZ:

22 Q. Mr. Anderson, under C.(3) and (4) you mention
23 fresh water and specifically freshwater aquifers. Do you
24 refer in those to the OCD definitions of fresh water as
25 fresh water to be protected?

1 A. That's correct, and anything under 10,000 parts
2 per million total dissolved solids.

3 Q. There's also a condition under the OCD definition
4 referring to no present or reasonably foreseeable
5 beneficial use.

6 A. That's correct.

7 Q. How would that portion of the definition apply to
8 the waters in this particular area, the fresh waters you're
9 referring to in this particular area?

10 A. I don't believe that we know enough of the
11 waters in the area to determine -- to say that they are not
12 present in a quantity that could used for beneficial use.
13 I think that's what our study later on this year is going
14 to be about, to determine what the freshwater aquifers
15 area.

16 We know there is fresh water, we know there was a
17 freshwater flow at 1155 feet from the one well, and if it
18 -- You know, it's flowing to the surface, so we know
19 there's adequate volume involved and we know it's
20 protectible based on the analysis.

21 Q. Is there a methodology that -- Let me ask it this
22 way: Who is to make a determination whether there is no
23 present or reasonably foreseeable use? Is that the OCD
24 that does that?

25 A. That -- well, it, and -- I may be wrong, the UIC

1 Director may correct me on this. If there is a freshwater
2 aquifer that we want to exempt and say there is no
3 beneficial use, I believe not only does the OCD have to say
4 it, but EPA also has to say it.

5 Q. But that issue of exempted aquifer applies only
6 for injection into that aquifer, doesn't it?

7 A. That I don't know.

8 Q. Okay. But let's go back just -- Have you ever
9 made a determination, has OCD ever made a determination
10 that a fresh water has not present or reasonably
11 foreseeable beneficial use?

12 A. Yes.

13 Q. And how was that done?

14 A. That was done based on the yield of a well from
15 that area that it was -- recovery rate -- I believe it was
16 one gallon in a week and a half or something like that.
17 There wasn't a volume there that had a beneficial use. It
18 was unrecoverable.

19 Q. Okay. The requirement that you have for two
20 cemented strings across these freshwater aquifers, that's a
21 requirement for Class I wells --

22 A. That's correct.

23 Q. -- already?

24 Existing Class II wells in other areas only
25 require one string of cemented casing; is that correct?

1 A. That's correct.

2 Q. In most districts, are you aware how the
3 districts set up certain cementing requirements specific to
4 the geologic and hydrologic conditions within those
5 districts?

6 A. I know they do it, yes.

7 Q. Okay. Do you know what would be the requirement
8 -- I think this is all in the Artesia District Office,
9 isn't it, the area under this --

10 A. The Chihuahuan Desert?

11 Q. Yes.

12 A. Yes.

13 Q. Are you aware what the requirements already are
14 from the Artesia District for cementing well in this area?

15 A. No, I do not. I don't believe the District
16 Office sets up the cementing program for the Class II
17 wells. Is that not set up by the UIC program, by the --
18 out of Santa Fe? And a that's what this cementing is for,
19 is for injection, not for production.

20 Q. Okay, so a well that was permitted initially as a
21 disposal well falls under different requirements than the
22 general district requirements would be; is that what you
23 understand?

24 A. That's what I understand, and that has to be --
25 yes, there's an application, an injection application that

1 comes to Santa Fe, and the engineering staff determines
2 what the cement will be in that well.

3 Q. Under (4).(a) you have the requirement that it
4 shall continuous adequate cement from casing shoe to
5 surface. How would an operator of the OCD determine that
6 the cement was adequate?

7 A. That's what the requirement for the bond log is
8 for, to determine the quantity and quality of cement and
9 make sure there's no microannuluses, and that in
10 conjunction with the cementer's logs, to determine the
11 strength of the cement, the mixture, water mixtures and
12 additives.

13 Q. So under your proposal, then, that would be part
14 of the evidence presented at the hearing, to approve of
15 wells permitted this way?

16 A. No, but -- Well, yeah, if it was an existing
17 well, it would be the proposal to submit that after it's
18 done. I wouldn't suggest that someone go do it before they
19 get the permit to do it. You know, that is the proposal
20 that they commit to doing that. And then, you know, to
21 make sure there's good cement.

22 Q. Okay. By using the expression "existing wells",
23 does that just refer to any well that's drilled for any
24 other purpose except for injection?

25 A. That -- Well, there have been no wells drilled in

1 that -- in this area for injection purposes. So it's a
2 well that has been previously drilled, and it was for a
3 purpose other than injection.

4 Q. Okay, so it could actually be a new well that may
5 have been drilled for the purposes of exploring for oil or
6 gas, and it turns out to be dry, and then the operator
7 wants to make commercial use of that well or some
8 beneficial use and convert it to injection. That would
9 fall under "existing well"?

10 A. That's correct.

11 COMMISSIONER CHAVEZ: That's all I have.

12 EXAMINATION

13 BY CHAIRMAN FESMIRE:

14 Q. Mr. Anderson, I hate to beat a dead horse on this
15 issue, but the difference between C.(4).(a) and C.(4).(b),
16 which we're just discussing, there's a difference in the
17 cementing program required. Would you explain to us the
18 rationale for that difference, please?

19 Q. The -- I don't know if I would call it a
20 rationale. The idea behind it was that those wells that
21 are drilled specifically for the purpose of injection can
22 have -- it goes to permit, it goes to hearing before it's
23 drilled, and those requirements were placed on it
24 beforehand, and it's for the purpose of injection.

25 The ones that were drilled for a purpose of

1 finding gas and end up with a dry hole, and rather than
2 waste that wellbore and the cost of drilling that wellbore,
3 if it is economically feasible and technically feasible to
4 protect the underground sources of drinking water and
5 convert it, then that's the reason there are different
6 requirements for the two, because the original well for oil
7 and gas will not have as stringent a requirements for
8 casing as what an injection well will.

9 Q. So that's the reason you have to circulate
10 another sheath of cement?

11 A. That's correct.

12 CHAIRMAN FESMIRE: I have no further questions.

13 Mr. Carr, do you have any questions for this
14 witness?

15 MR. CARR: Just a few.

16 CROSS-EXAMINATION

17 BY MR. CARR:

18 Q. You tried to play lawyer, Mr. Anderson. I want
19 to ask you a question about that.

20 A. Jailhouse.

21 Q. You go where you go.

22 Mr. Anderson, isn't it true that the requirement
23 to regulate waste to protect public health and safety, that
24 requirement in itself -- doesn't that create -- isn't that
25 a need? Isn't that what you were saying?

1 A. Isn't that what?

2 Q. A need in and of itself? There is a requirement
3 imposed by statute on the agency to protect public health
4 and safety. Doesn't that in and of itself, in essence,
5 create a need for you to act to do something?

6 A. Personally, I believe it does, yes.

7 Q. And in the case of the Oil Conservation Division
8 there are Rules that have been established and adopted by
9 this Division that attempt to meet that need; isn't that
10 fair to say?

11 A. There have been, yes.

12 Q. And the evidence that was presented by Mr. Olson
13 from groundwater contamination cases, in fact, shows that
14 these Rules have been effective in meeting that need.
15 Don't you think that's also what that data shows?

16 A. I don't believe I'd characterize that as that. I
17 don't know that they've been effective. If we have
18 contamination cases, then the Rules, to me, have not been
19 totally effective, no.

20 Q. Is it that the Rules are not effective, or that
21 they're not complied with?

22 A. It could be both.

23 Q. Is it that the Rules are not effective or you are
24 not enforcing them?

25 A. Could be a little bit of both.

1 Q. If, in fact, the Rules, if enforced, were meeting
2 the need, is it possible that additional Rules might be --
3 other legal terms -- arbitrary, capricious, unreasonable,
4 cause waste and take you into other areas where you should
5 not go?

6 A. Boy, that's a big chunk.

7 Q. And you don't have to answer that --

8 A. I don't have any answer to that.

9 Q. -- because it may go out of your expertise.

10 A. Yes.

11 Q. You've stated you weren't a safety engineer.

12 A. That's correct.

13 Q. You have been to sites where operators have lost
14 control of the wells they are drilling?

15 A. Yes.

16 Q. One of the main resources available to an
17 operator to control a well when they're going through some
18 zones that may not be exactly what they've anticipated or
19 in an area they don't fully know, one of the tools they
20 have is a volume of water to try to keep that well in
21 control, to keep it from blowing out. You understand that?

22 A. Uh-huh, yes.

23 Q. Do you also understand that when you're working
24 with a closed-loop system, the volume of water available to
25 you may be 10 or 20 times less than what you can have if

1 you have a pit?

2 A. Depending on prior planning, that's possible.

3 Q. And when you're prior planning, how do you plan
4 for a blowout in an area you don't know?

5 A. I have -- Let's see, I have visited, been
6 involved in probably six or seven blowouts. One of them
7 was on a rig that had steel mud tanks, one. And all the
8 rest of them were those that had pits, so --

9 Q. Do you know how many --

10 A. -- there wasn't adequate -- there was not
11 adequate fluids available with the pit.

12 Q. Might it be better to estimate how many you might
13 have been to if you had had steel tanks everywhere?

14 A. But what I'm saying is, out of eight, seven of
15 them were with pits.

16 Q. And I'm just saying that if you had steel tanks
17 everywhere, maybe you'd have been to eight?

18 A. Maybe. Maybe --

19 Q. And I would also ask you, if we're worried about
20 the impact on the environment, you've seen the impact of
21 what happens when somebody loses a well?

22 A. Yes, I have.

23 Q. And your data, as good as you've got, shows two
24 incidents where you've had known groundwater contamination
25 from these temporary drilling pits?

1 A. That's correct.

2 MR. CARR: Thank you.

3 CHAIRMAN FESMIRE: Ms. Belin?

4 MS. BELIN: Just a couple of questions.

5 CROSS-EXAMINATION

6 BY MS. BELIN:

7 Q. Mr. Anderson, when you were talking about cement
8 bond logs, did I understand you to say that they're not
9 always accurate?

10 A. No, the cement bond logs are an interpretive log
11 by the logging engineer. What I said in accuracy, it's the
12 -- If you're going through two strings of casing into a
13 second string of cement, that is not always accurate.

14 Q. So that you can't always determine through the
15 bond logs whether two casings present -- whether the cement
16 is adequate?

17 A. On the outside -- If you look at the diagram,
18 what I was saying is, if you run a cement bond log down
19 this string of casing, the injection string, you'll be able
20 to determine this cement --

21 Q. Uh-huh.

22 A. -- but this one you may or may not be able to
23 determine.

24 Q. So there may be incidents where the outer cement
25 is not intact or functional and you don't know about that,

1 you can't determine that?

2 A. That's possible. That was the reason for
3 requiring a liner or another string of casing cemented to
4 the surface.

5 Q. Have you ever observed incidents where the outer
6 cement failed and there was a problem as a result?

7 A. I have observed wells where there was fluid flow,
8 freshwater flow, outside the surface casing to the surface,
9 which would indicate to me that the cement failed, yes.

10 Q. Uh-huh, which gets to another question I have,
11 is, are you aware of any -- or maybe you just answered this
12 -- any times whether -- even with the double cement lining,
13 where still produced water has escaped?

14 A. The only place that -- in New Mexico would
15 require the two strings of casing over all freshwater zones
16 are Class I wells, and we have not had a failure in those
17 yet.

18 Q. Have you been told about or read about instances
19 where there are failures where there's double casing?

20 A. Not that I can recall, no.

21 Q. Are you aware of the geology in the Otero Mesa
22 area, of it being highly fractured and permeable?

23 A. Yes, I have indications from the last eight wells
24 drilled there, that are post-ONGARD wells, that somewhere
25 below the surface is a porous, permeable zone. Where that

1 zone is, I don't know.

2 Q. Does high fracturing or high permeability
3 increase the possibility that even with double cement
4 casing, the produced water could somehow find its way into
5 an aquifer?

6 A. That would depend on the confining zones between
7 the injection zone and the lowermost source of drinking
8 water. And you know, I'm not that familiar with the
9 geology in that area to know what those confining zones
10 are. Could it happen? I'm sure it could. Could it not
11 happen? Probably not.

12 Q. And then you had a discussion about an exemption
13 of freshwater aquifers that I'm not sure I quite followed.
14 Were you saying that OCD can make a determination to exempt
15 a given freshwater aquifer from these provisions if it
16 finds no present or foreseeable beneficial use of the
17 water?

18 A. I believe that the Division through hearing could
19 do that, yes. I could just about guarantee there would be
20 a great deal of input from the State Engineer into that
21 decision.

22 Q. And you're saying that it did happen in one other
23 instance?

24 A. There was one instance that there was a perched
25 aquifer that had a recovery rate -- and it didn't extend

1 very far, maybe half an acre in area -- recovery rate of
2 about a gallon in a week and a half when it was drilled
3 into for a monitor well.

4 Q. But there are some procedures in place that would
5 require a public hearing before such a determination was
6 made?

7 A. At this time there are no formal procedures, I
8 don't believe. I know we went through some pretty formal
9 notice and stuff like that before we made that
10 determination.

11 Q. Okay, thanks.

12 A. That was part of an actual permit that went to
13 hearing anyway.

14 Q. The State Engineer permit?

15 A. No --

16 Q. Oh, the permit here.

17 A. -- the disposal permit from the OCD.

18 MS. BELIN: Mr. Swanson, do you have any
19 questions of this witness?

20 MR. SWANSON: No, your Honor.

21 CHAIRMAN FESMIRE: Mr. Simpson?

22 MR. SIMPSON: I would like to ask a couple
23 questions, please.

24 CHAIRMAN FESMIRE: Objection? Go ahead, Mr.
25 Simpson?

1 MR. SIMPSON: Thank you.

2 EXAMINATION

3 BY MR. SIMPSON:

4 Q. Is there any requirements in your regulations
5 where it -- any regulating device that limits the injection
6 pressure or controls the injection pressure, in the
7 regulations?

8 A. Not in this regulation, but there is in the
9 Underground Injection Control Regulations, yes.

10 Q. One of the things I saw in your database is
11 frequent injection pressures over the recommended limits,
12 so even though it's monitored and required, there seems to
13 be a prevalence of injection pressures exceeding the
14 allowable limits. So how do you regulate that, or how do
15 you control that situation?

16 A. I don't know what your definition of prevalence
17 is. I don't know how many incidents there have been, but
18 those are identified and monitored through -- and sent
19 SNCs, significant noncompliance letters, if there is an
20 overpressure. And there have been some that have gone to
21 hearing because of that.

22 Q. So if I understand you correctly, there are
23 devices in there that limits the injection pressure?

24 A. There are requirements to limit the injection
25 pressure. Now, you mean automatic devices?

1 Q. Automatic mechanical devices that keeps it from
2 exceeding the maximum allowable injection pressure.

3 A. I don't know that they require mechanical
4 devices. There are injection pressure limits placed on
5 wells --

6 Q. Right, but isn't that --

7 A. -- and if they're on overpressure, then they're
8 given a noncompliance.

9 Q. And isn't that a practical thing, that you can
10 put a pressure-limitation device that keeps it from
11 exceeding that pressure?

12 A. I believe it could be done, yes.

13 MR. SIMPSON: Okay, I would ask you to look at
14 your database, because there's quite a few exceedences, and
15 there seems to be no devices on those facilities in order
16 to protect -- keeping the injection fluid from going out of
17 zone and fracturing the formation, especially since we have
18 very porous or fractured zones.

19 That's all the questions I have.

20 CHAIRMAN FESMIRE: Thank you, Mr. Simpson.

21 Any redirect?

22 MS. MacQUESTEN: No, thank you.

23 CHAIRMAN FESMIRE: Who's your next witness?

24 MS. BADA: Andy Core.

25 CHAIRMAN FESMIRE: Ann -- ?

1 MS. BADA: Andy.

2 CHAIRMAN FESMIRE: Oh, how long will she take?

3 MS. BADA: Oh, let me think, 20 minutes, half an
4 hour.

5 CHAIRMAN FESMIRE: Andy. I thought you said Ann.
6 How long?

7 MS. BADA: Twenty minutes to half an hour.

8 CHAIRMAN FESMIRE: Twenty minutes? Okay, why
9 don't we take about a 10-minute break and come back, and
10 come back and we'll hear from Mr. Core today? So he
11 doesn't have to dirty another white shirt.

12 (Thereupon, a recess was taken at 4:53 p.m.)

13 (The following proceedings had at 5:03 p.m.)

14 CHAIRMAN FESMIRE: Okay, let's go ahead and be
15 seated. Ms. MacQuesten, you were going to call Mr. Core?

16 MS. MacQUESTEN: Actually, Ms. Bada is going to
17 call Mr. Core.

18 CHAIRMAN FESMIRE: Ah, tag-team on this, huh?

19 MS. MacQUESTEN: Yes.

20 ANDREW B. CORE,
21 the witness herein, after having been first duly sworn upon
22 his oath, was examined and testified as follows:

23 DIRECT EXAMINATION

24 BY MS. BADA:

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

1 A. My name is Andrew B. Core.

2 Q. And where are you employed?

3 A. I work for the Office of the State Engineer, in
4 the Hydrology Bureau and the Administrative Litigation
5 Unit.

6 Q. And how long have you been employed with the
7 State Engineer?

8 A. I've been there 14 years.

9 Q. And what are your job responsibilities?

10 A. I manage the assignment of administrative cases
11 to Hydrology Bureau staff for the administrative litigation
12 unit, I do water resource investigations and data
13 collection, I prepare groundwater models and calibrate them
14 and use them in hearings and appear as an expert witness in
15 those hearings before the State Engineer and the District
16 Court.

17 Q. And where were you employed prior to joining the
18 State Engineer's Office?

19 A. Well, I've done a little bit of everything.
20 Immediately prior to being at the State Engineer Office, I
21 spent a couple years working as an economist for the City
22 of Albuquerque and the State Highway Department. Prior to
23 that I spent about 11 years being an exploration geologist
24 for three different mining companies. And I guess prior to
25 that I was in the Army.

1 Q. And what are your educational qualifications?

2 A. I have a bachelor of science in geology and a
3 master of arts in natural resource economics with a
4 specialty in water resources, both the University of New
5 Mexico.

6 MS. BADA: I'd like to offer Mr. Core as an
7 expert in hydrology.

8 CHAIRMAN FESMIRE: Are there any objections?

9 COMMISSIONER BAILEY: No objection.

10 COMMISSIONER CHAVEZ: No.

11 CHAIRMAN FESMIRE: He'll be so admitted.

12 Q. (By Ms. Bada) Are you familiar with the
13 groundwater resources in Otero and Sierra Counties?

14 A. I am to the extent that anybody can be, I guess.
15 I was staring at that all during the day, thinking I've
16 lived in states that are smaller than that. But yes, I do
17 have a fair understanding of the wide range of groundwater
18 basins that exist within the outline of those two counties.

19 Q. And what are the major groundwater basins that
20 are located in those counties?

21 A. The State Engineer takes control of groundwater
22 basins by formally declaring them. The ones that appear to
23 be within this particular area are the Salt Basin down in
24 the southeast, the Tularosa Basin kind of in the center --
25 although it doesn't get quite the north end of the Tularosa

1 Basin; part of that's up in Lincoln County -- the Lower Rio
2 Grande which is a stream-connected basin, the Middle Rio
3 Grande, the Las Animas Creek and the Hot Springs Basin.
4 And actually, if you look at that one funky little corner
5 there, there's just a little bit of the Nutt-Hockett Basin
6 in there.

7 Q. How well known are the water resources in those
8 basins?

9 A. The level of knowledge of the water resources in
10 those basins is all over the board. The Salt Basin was
11 only declared a few years ago, primarily because there were
12 some folks down there that had a really great idea that
13 they were going to appropriate water in the Salt Basin and
14 sell it to El Paso, and the State Engineer took some
15 exception to that.

16 The Tularosa Basin is fairly well known on the
17 east side of the Basin. It is a large graben structure
18 that is faulted down strongly to the west and as a result,
19 way out in the deep spots under White Sands, the water is
20 not only very salty but it is very deep. Not many people
21 utilize it for anything. But Tularosa Basin's water on the
22 east boundary, where there is input from the Sacramento
23 mountains is pretty well know, and we do have an
24 administrative model for it.

25 The Lower Rio Grande, of course, is -- and the

1 Middle Rio Grande, those two basins are probably known
2 better than any other two places on the face of the planet.
3 We have been preparing for years for the State of Texas to
4 sue us on the deliveries under the Rio Grande Compact, and
5 as a result there are existing groundwater models that
6 cover those two basins, and they have studied to death and
7 are still being studied to death.

8 Nutt-Hockett, there's not a real lot to know.
9 It's just a little alluvial basin stuck out there in the --
10 with a volcanic floor.

11 The basins over on the west side of Sierra
12 County, Hot Springs and Las Animas, are two of the oldest
13 declared basins in the state and are primarily small
14 alluvial bodies sitting on top of the volcanics and are
15 partially stream-connected in the little creeks that come
16 off the mountains that come down to the Rio Grande.
17 They're not always flowing, but they do sometimes.

18 So I would say that in general, what you could
19 characterize the knowledge of the hydrology in this area is
20 that the Rio Grande is well known, the rest of it is hit or
21 miss.

22 Q. What is the range of depths to groundwater around
23 each of those basins?

24 A. Well, over in the area where the Salt Basin is,
25 most of the actual production wells are fairly deep,

1 anywhere from 700 to 1200 feet deep. There is a spot on
2 the far west edge -- and I'll show you that in a little
3 while -- that the water is as little as a hundred feet
4 down, maybe even less.

5 Tularosa Basin, basically going right from the
6 mountain front. Typically at the mountain front the water
7 is 50 to 100 feet deep. It can get thousands of feet deep
8 out in the middle.

9 Middle Rio Grande and Lower Rio Grande are
10 stream-connected, which means that at the stream the water
11 table is at the river level. And the typical arrangement
12 in there is for the water table to slowly sink toward the
13 sides. The Rio Grande Basin is another deep graben trough
14 that has very, very thick alluvial material in it. I know
15 that people have drilled oil and gas tests in the Rio
16 Grande Basins, as much as 5600, 5700 feet of alluvium
17 before you even get to bedrock out there. So it's a very
18 deep system.

19 Typically in these small mountain basins, the
20 water is very shallow.

21 Q. What is the vertical extent of the fresh water in
22 the aquifers?

23 A. In the Rio Grande the vertical extent goes many
24 thousands of feet, although the quality deteriorates after
25 you get more than about 1500 feet down. The mountain

1 basins probably only have 50 or 100 feet of usable water in
2 them.

3 Tularosa, we're seeing wells now go in that are
4 900 to 1100 feet deep, that are producing some fresh water.
5 So we're not real sure what to think about that. The old
6 USGS ideas of that Basin kind of had us with a wedge of
7 water from maybe 100 feet down to maybe 600 feet down, that
8 was fresh floating on salt. But that doesn't seem to be
9 holding up.

10 So again, the answer is all over the board.

11 Q. Can you describe the quality of the water in
12 those basins?

13 A. To some extent I can. The Salt Basin is not well
14 know. Every time somebody goes out there and drills a new
15 hole, we know twice as much as we used to.

16 The well that Willie and Roger talked about,
17 where they're seeing 1150-foot fresh water is, as far as I
18 know, a brand-new finding.

19 The area that is at the far southeast end of the
20 Basin -- let's see if I can use this little gadget --
21 there's a bunch of playas right in there, and that group of
22 playas extends for several more miles into Texas, and the
23 water associated with those can range as high as 100,000
24 parts per million TDS.

25 On the other hand, if you're way up near where

1 the Sacramento River comes in from the mountains, up in
2 here, you're looking at maybe 500 parts per million. A lot
3 of this area that is right along the edge of the mountains
4 in the Tularosa, less than 1000. Get out here and you
5 could walk on it.

6 The water that's in the Rio Grande is typically
7 pretty good. The vast majority of the water that is
8 actually utilized there is on the order of 500 to maybe
9 3000 TDS, depends on where you are.

10 I don't know much about Nutt-Hockett. I don't
11 think anybody does. And these little basins coming off the
12 mountain front like this, off of that volcanic pile, carry
13 a lot of metals and not the world's greatest drinking
14 water.

15 That Hot Springs Basin -- you know, Truth or
16 Consequences was originally called Hot Springs, and Hot
17 Springs Basin was originally a health spa where you went to
18 drink iron water and arsenic water and things to make your
19 heart go thump. And you know, it's not exactly wonderful
20 stuff.

21 Q. Are any of the basins connected to surface-water
22 systems?

23 A. The two, Middle and Lower Rio Grande, of course,
24 are in direct connection with the Rio Grande River and gain
25 the vast majority of their water input to the aquifer from

1 the River.

2 The rest of them are fed somewhat by rivers.
3 There are small streams that come in around Tularosa,
4 Sacramento, and then over by Alamogordo there's that
5 Grapevine Canyon area that drains, and those are not really
6 perennial streams. You get flood flows, again, that feed
7 those aquifers from those high mountain areas.

8 Q. Do you have any information on the hydraulic
9 conductivity of any of the formations?

10 A. Yeah, we do have a pretty good look at the Rio
11 Grande stuff, of course. Those are mostly alluvial sands
12 and silts. The conductivity is relatively high, although
13 not super. The valley fill in the Tularosa is a little bit
14 less because although that is also an alluvial fan series
15 coming off the mountains, the primary source rocks in the
16 mountains are carbonates, and it tends to get kind of
17 clogged up.

18 Salt Basin, I don't think we know anything about
19 it for real, except that it's primarily fracture flow in
20 limestones. The surface area around -- well, at least the
21 west half of that is all Yeso formation, which is red beds
22 and limestones. There's not as many red beds down there as
23 there are in some other parts of the state.

24 But Salt Basin is a very transitional group of
25 limestones coming out of the deep Delaware Basin over south

1 and east of Carlsbad and then kind of making several
2 interfingered moves into the Hueco Basin or the Hueco
3 limestone area. So primarily it's a fractured carbonate
4 system that if we didn't have the two big fracture sets,
5 the one that comes out of the Sacramento and comes down
6 here like this, and then the Otero Mesa set that came
7 across here, you probably wouldn't get a lot of flow
8 through there.

9 Q. Which basins underlie the Otero Mesa itself?

10 A. Well, where's my map?

11 Q. It's right there. Can you pull it up, slide 27?

12 A. That's Exhibit 6, I believe. This red line here
13 is the boundary between the Salt Basin and the Tularosa
14 Basin.

15 The real reason that we put this up was that we
16 developed this map from the water atlas that the State
17 Engineer put out about a year and a half ago, and it has on
18 it depth-to-groundwater contours. And we developed that by
19 taking the topographic contours and subtracting out the
20 contours on top of the water zones as we knew them. The
21 control in this area is not wonderful. I mean, those two
22 points right there are our best control by a long shot.

23 Then, you know, you can see that in part of this
24 area, which coincides with some of the Otero grasslands,
25 the water is very shallow. It also turns out that right

1 through here is where the Otero Mesa fault zone goes. And
2 we're a little bit concerned about that, because that could
3 provide an easy channel for any contamination to work its
4 way quickly into the eastern side of the map, down in the
5 Salt Basin.

6 Q. Are there any pending water-rights applications
7 in the Salt Basin?

8 A. There are pending water rights in the Salt Basin,
9 yes. The Interstate Stream Commission has a pair of big
10 wellfields that they have suggested in that area. I think
11 one of the later witnesses will talk about that a little
12 bit, because ISC hired John Shoemaker and Associates to run
13 a feasibility study about taking water from the Salt Basin
14 over the Guadalupe to meet compact requirements to the
15 State of Texas on the Pecos. It's not feasible, by the
16 way.

17 But the rest of the areas have a lot of
18 applications. The Lower Rio Grande is working diligently
19 right now, the Lower Rio Grande team, to finish up an
20 adjudication of those water rights, and they're being
21 swamped with supplemental well applications, because
22 everybody's realizing that if we make our full delivery to
23 Texas we probably won't make our full delivery to our
24 farmers. So there's a little bit of panic going on.

25 I have a very steady group of cases come through

1 from the Tularosa Basin, where we're always seeing them
2 down there. Protesting each other's water-right
3 application seems to be Tularosa Basin's idea of fun. We
4 very rarely hear much from the mountain basins, but the
5 Middle Rio Grande and Tularosa are very busy.

6 Oh, and I forgot to tell you about old Last
7 Chance. There's several of you must know Greg Dugger.
8 He's down there, he lives just north of Dell City, Texas,
9 and he's one of the guys that has a couple of big
10 wellfields in the Salt Basin, or proposed wellfields down
11 there, and he's really doing his best to outfox the ISC so
12 that he can sell the water to El Paso, instead of them
13 taking it to the Pecos.

14 So yeah, there's a lot going on, always fun.

15 Q. What issues arise with the Rio Grande Compact if
16 the surface water in those basins is contaminated?

17 A. State Engineer is empowered to stop impairment of
18 a water well or a surface stream anytime that it can be
19 demonstrated that a new use has degraded the quantity or
20 quality of the water. And that's a real big thing when
21 you're talking about interstate stream compacts.

22 We saw how that worked down on the Pecos. We're
23 presently under an enforcement order of the United States
24 Supreme Court, and we have to deliver water to them. The
25 Rio Grande is probably just months away from another big

1 lawsuit of that same kind, and we really cannot afford in
2 any way, shape or form to provide any more ammunition for
3 Texas.

4 MS. BADA: I have no further direct questions.

5 CHAIRMAN FESMIRE: Commissioner Bailey?

6 EXAMINATION

7 BY COMMISSIONER BAILEY:

8 Q. The water well fields that you talked about north
9 of Dell City where all the applications are being made --

10 A. Yes, ma'am.

11 Q. -- those waters that would be extracted from that
12 area would be sold to Texas, right?

13 A. That's a --

14 Q. On a private basis to El Paso, to benefit Texas?

15 A. That's the scheme of Mr. Dugger and his Last
16 Chance water company, yes.

17 Q. Okay. New Mexico would not even see taxes or
18 reap any benefit at all from that --

19 A. That's correct.

20 Q. -- development, would it?

21 A. That's correct.

22 Q. So the economic loss to New Mexico could be
23 significant?

24 A. It could in fact.

25 Q. That's a major point, in my view. I'm just, you

1 know, taken aback here.

2 A. Yes.

3 Q. Comparing Exhibit 6 with Exhibit 7, right behind
4 you --

5 A. Okay, this is 6. Now this guy is 5, I believe,
6 isn't it?

7 Q. Okay, 5 and 6, I'm sorry.

8 A. Okay.

9 Q. On Exhibit 5 there appears to be a high just to
10 the west of the Salt Basin.

11 A. Well, that's actually the edge of the Otero Mesa
12 as it drops down into the Tularosa Basin.

13 Q. Okay.

14 A. See, this area right in here is just about where
15 that map Number 6 covers.

16 Q. Okay. Which explains why the depth to water on
17 Exhibit 6 goes from 850 to -- down to 300 --

18 A. I think so.

19 Q. -- would have that kind of a --

20 A. I think so.

21 Q. -- depth to water?

22 A. This gradient goes quickly into the bottom of the
23 valley. You saw some of the pictures earlier that -- the
24 gentleman who brought the biological testimony in. And
25 this area down through here is a broad valley, and this

1 kind of dips into it. And really, the water just kind of
2 follows the topographic contour in there.

3 But as you come over to this side, you can
4 actually see in the hill shade that's underneath this map,
5 that the edge of the Mesa drops off rather steeply for a
6 little bit, and then you're into the Tularosa Basin where
7 the water slowly sinks to the deep center to the west. So
8 this is really a divide.

9 Q. Called the Otero Breaks? Is that --

10 A. I don't know if that's really the Otero Breaks or
11 not. I always thought they were something farther east,
12 but I couldn't swear to that.

13 COMMISSIONER BAILEY: Thank you.

14 THE WITNESS: Yes, ma'am.

15 CHAIRMAN FESMIRE: Commissioner Chavez?

16 EXAMINATION

17 BY COMMISSIONER CHAVEZ:

18 Q. Mr. Core, given your understanding of this area,
19 how sensitive is the groundwater that -- first of all, this
20 is the first groundwater or the major groundwater that
21 you're indicating on your Exhibit 6. Is it the only
22 groundwater? What are we looking at here?

23 A. Typically, this is the first groundwater. And
24 there may be several zones underneath when talking about
25 Exhibit 6, because this area, again, is mostly limestones,

1 mostly fracture porosity, and the topography controls a lot
2 of flow. So you know, it's actually right out here, a
3 little bit east of this, that the gentleman talked about
4 hitting deep water in four different zones, and really all
5 that is is the chance interception of four different
6 fractures that were open at the time.

7 Q. Okay. So on the east side here of this Exhibit
8 6, when you've got a depth here, you're referring to
9 perhaps the same aquifer that on the west side of the map
10 is at a shallower depth?

11 A. Probably not, probably not. This is very
12 generalized in that regard. This is probably mostly the
13 valley fill of the Tularosa Basin right here.

14 Q. So the water you're talking about in the Tularosa
15 Basin there on the west side is alluvial water?

16 A. I think so, probably mostly contained in
17 carbonate valley fill that has washed off of this Otero
18 Mesa area as it has been eroded back.

19 Q. Okay. And then on the east side of this map
20 we're looking at more of an aquifer that would be a -- what
21 would you describe it there?

22 A. This is more of a real bedrock aquifer. You've
23 got the limestones going for quite a ways over here until
24 you get all the way over to the Guadalupe Mountains.

25 Q. Okay. Then when we look at that, those two

1 different kinds of aquifers, at least for the first one,
2 first encounter with groundwater --

3 A. Uh-huh.

4 Q. -- say that, then -- what is the sensitivity of
5 each of these to contamination from surface discharges of
6 fluids?

7 A. The carbonate aquifers over on this east side,
8 because they're primarily fracture flow, would respond to a
9 contamination incident by moving that material deeper into
10 the valley, much faster than would occur if you were over
11 here in this alluvial material. This would be more of a
12 slow, steady plume development if you had some kind of
13 spillage.

14 Q. But you would expect surface -- say liquids
15 discharged on the surface to start migrating downward to
16 these aquifers in both of these areas?

17 A. In both places, yes, and actually in all of the
18 places that are shown on Exhibit 5, the big map. You know,
19 all of those areas are places that could be polluted.

20 Q. Okay. How much --

21 A. I'm sorry, it's just a question of timing.

22 Q. Okay. Outside of the Rio Grande system, how much
23 groundwater is currently being used within the area of this
24 Application? Well, I mean, describe the use, I guess is
25 what I'm asking you, of the groundwater outside of the Rio

1 Grande.

2 A. I think -- This area could be said to have quite
3 intense use right around the Tularosa-Alamogordo area.
4 That's a historic settlement zone of the Tularosa Basin.
5 When you get out, of course, on the military ranges, they
6 only have domestic wells to maintain their facilities.
7 Nothing big going on there.

8 Salt Basin, at the present time there are mostly
9 some small water systems right in this area above Dell City
10 with the scattered ranchers using domestic wells out in
11 this area.

12 In the Lower Rio Grande, there are tens of
13 thousands of wells. This is a highly productive
14 agricultural zone for the State, and people have been using
15 wells in that area for a long time.

16 The Middle Rio Grande up in here, this particular
17 portion of it is probably not as heavily used as farther
18 north into the Albuquerque area, but there are a lot of
19 wells in here still.

20 Elephant Butte, unfortunately, is a little bit
21 down at the moment but, you know, there are -- all these
22 people that have these houses and cabins and other assorted
23 things around the Butte are subsisting on wells. And the
24 mountain basins up in here, probably over at Nutt-Hockett,
25 are almost all domestic wells.

1 Q. When you say almost all, is there quite a bit of
2 use -- You mentioned about the mud springs area where the
3 water quality is not that good --

4 A. It's not that wonderful, but you know, these
5 folks are still drilling little domestic wells for ranching
6 and stock domestic use.

7 Q. As part of study or understanding of this area,
8 what is the potential future use of this water within the
9 area of this Application and the different areas that you
10 have? Now you did mention one, I guess, in the Tularosa
11 Basin where somebody wants to start -- with the potential
12 for marketing water. What about the rest of the area
13 that's part of the Application?

14 A. Actually, there are some interesting things going
15 on up in here. The west side of the Tularosa Basin, right
16 along the area where it starts to get over about 1000 parts
17 per million TDS, up to maybe 6000, is highly prospective
18 for a saline treatment plant that the City of Alamogordo is
19 in the process of trying to put in. Saline water of that
20 kind, up to about 6000 TDS, is suddenly becoming very
21 desirable, and there are large areas of the Tularosa Basin
22 that would fit that description.

23 We think -- Although our data here isn't just
24 terribly good, we think that a good chunk of the northern
25 end of the Salt Basin is probably prospective for that.

1 Like I say, people are talking about schemes that would
2 take this as far away as the Pecos River or the -- even the
3 Rio Grande.

4 So there is abundant activity in the area, and
5 it's increasing with the continuance of the drought.

6 Q. In your opinion, then, would -- the groundwater
7 and the area that's the subject of the Application has
8 significant reasonable foreseeable future use?

9 A. I think so. I think we have very great uses
10 potentially in this area. And you know, basically the
11 reason that we want to come over and make comment about it
12 was that, although we do not track the contamination of
13 these pits the way the OCD does, we are concerned about
14 making sure that those water resources stay available to
15 the people of New Mexico.

16 Q. Okay, and we've been talking about the first
17 encounter of groundwater in your Exhibit 6 -- and it's
18 generally what I think people look at --

19 A. Sure.

20 Q. Are there deeper water resources out there also
21 that --

22 A. We're finding more and more. That's the good
23 news. It's widespread, that's the bad news. Tularosa,
24 like I said, is starting to see some exploration out west
25 of the City of Alamogordo. Sandia National Labs is putting

1 in a saline research facility there. They drilled some
2 deep wells and hit some fairly good water. So as this kind
3 of exploration goes on, we're seeing more and more.

4 Q. You said fairly deep wells have found water.
5 What's deep to you?

6 A. Oh, well, nothing compared to oil-well guys. But
7 you know, 1000 to 2000 feet.

8 COMMISSIONER CHAVEZ: That's all I have. Thank
9 you.

10 THE WITNESS: You're welcome.

11 CHAIRMAN FESMIRE: I have no questions.

12 Mr. Carr.

13 COMMISSIONER BAILEY: I have one more.

14 CHAIRMAN FESMIRE: Go ahead.

15 FURTHER EXAMINATION

16 BY COMMISSIONER BAILEY:

17 Q. We talked about quite a few water wells being
18 drilled, to be drilled, potential future use. Can you tell
19 me the environmental differences between the impacts of
20 drilling those water wells and the impacts of drilling oil
21 and gas wells?

22 A. Well, it's a matter of scale. I mean, the
23 typical water well drillers out there with the -- 1500 and
24 the mud pit that's 10 by 6. The same kind of problems
25 could arise, and one of the things that we have talked

1 about internally, although we haven't made any action on
2 this, is how to respond to the BLM's criticism that we
3 haven't yet designated any of the Otero Mesa area as
4 critical. And we're still thinking about that.

5 Typically, critical management areas for the
6 State Engineer are places that are showing very large rates
7 of drawdown in the water table, or the aquifer thickness is
8 very, very thin. We haven't yet addressed how you deal
9 with a place where the primary problem might be quick
10 contamination of the aquifer, but believe me, we're talking
11 about it.

12 Q. Do you have reclamation requirements or any of
13 the other road-closure requirements or any comparable
14 environmental protection rules that the OCD has for oil and
15 gas wells?

16 A. I don't know of any. I don't know that we're
17 really empowered to do that at this point.

18 COMMISSIONER BAILEY: That's all I have.

19 CHAIRMAN FESMIRE: I have no questions.

20 Mr. Carr?

21 MR. CARR: (Shakes head)

22 CHAIRMAN FESMIRE: Ms. Belin? Okay, it looks
23 like that witness is --

24 THE WITNESS: We bored them into silence.

25 MS. BADA: Thanks, Andy.

1 CHAIRMAN FESMIRE: At this time we're going to
2 temporarily adjourn this hearing. We're going to reconvene
3 tomorrow morning at 8:30 in this room. We're going to
4 leave the fans running overnight, I think, try to air it
5 out.

6 So we'll see you all at 8:30 in the morning.

7 (Evening recess taken at 5:42 p.m.)

8 * * *

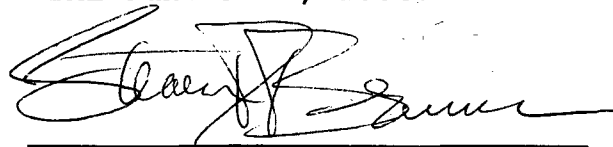
CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL June 25th, 2004.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006

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

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

PROPOSED AMENDMENT TO 19.15.1 NMAC)
ADOPTING A NEW SECTION TO BE CODIFIED AS)
19.15.1.21 NMAC. THIS SECTION APPLIES)
TO THE CHIHUAHUAN DESERT AREAS OF OTERO)
AND SIERRA COUNTIES, NEW MEXICO,)
PROHIBITS THE USE OF PITS AND IMPOSES)
ADDITIONAL LOCATION, CONSTRUCTION,)
OPERATION AND TESTING REQUIREMENTS ON)
INJECTION WELLS AND RELATED FACILITIES)
USED TO DISPOSE OF PRODUCED WATER)

CASE NO. 13,269

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING

BEFORE: MARK E. FESMIRE, CHAIRMAN
JAMI BAILEY, COMMISSIONER
FRANK T. CHAVEZ, COMMISSIONER

2004 JUN 28 AM 10 29

VOLUME II: June 18th, 2004

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Commission, MARK E. FESMIRE, Chairman, on Thursday and Friday, June 17th and 18th, 2004, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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A P P E A R A N C E S

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* * *

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BAIRD SWANSON
New Mexico Environment Department

OSCAR SIMPSON
President, New Mexico Wildlife Federation

DAN RANDOLPH
San Juan Citizens Alliance

* * *

1 WHEREUPON, the following proceedings were had at
2 8:30 a.m.:

3 CHAIRMAN FESMIRE: Good morning, let's go ahead
4 and take a seat, and we're going to call to order New
5 Mexico Oil Conservation Commission hearing on Cause Number
6 13,269. This is a continuation of the hearing that was
7 begun yesterday, Thursday, June 17th. Today is Friday,
8 June 18th. For the record, it's 8:30 in the morning. All
9 Commissioners are present, as are attorneys MacQuesten,
10 Bada, Carr and Belin.

11 At this time I'm going to ask Ms. MacQuesten to
12 continue with her next witness, please.

13 MS. MacQUESTEN: Thank you, Mr. Chairman. Ms.
14 Bada will be presenting the next witness.

15 MS. BADA: Rachel Jankowitz.

16 RACHEL JANKOWITZ,
17 the witness herein, after having been first duly sworn upon
18 her oath, was examined and testified as follows:

19 DIRECT EXAMINATION

20 BY MS. BADA:

21 Q. Good morning, would you please state your name
22 for the record?

23 A. Rachel Jankowitz.

24 Q. And where are you employed?

25 A. New Mexico Department of Game and Fish,

1 Conservation Services Division.

2 Q. How long have you been employed there?

3 A. Since April, 2003.

4 Q. And what are your job responsibilities with the
5 Department of Game and Fish?

6 A. Well, my job title is habitat specialist. I
7 consult with the Energy, Minerals and Natural Resources
8 Department, Mining and Minerals Division, regarding mine
9 permits under the New Mexico Mining Act; I write response
10 letters to requests for our Department's comment on other
11 minerals-related development projects, including oil and
12 gas; and I represent the Department concerning the ongoing
13 hazardous materials cleanup at the old Terrero mine site in
14 Pecos, which is deeded property of the Game and Fish
15 Commission.

16 Q. Where were you employed prior to joining the Game
17 and Fish Department?

18 A. Prior to joining Game and Fish, I was self-
19 employed consultant. The bulk of my work was writing
20 environmental assessments for oil and gas developments in
21 San Juan Basin.

22 Q. And what are your educational qualifications?

23 A. A bachelor of arts degree in biology and a master
24 of science in wildlife management.

25 MS. BADA: At this time I'd like to offer Ms.

1 Jankowitz as an expert in wildlife management.

2 CHAIRMAN FESMIRE: Any objection from the
3 Commission?

4 COMMISSIONER BAILEY: (Shakes head)

5 COMMISSIONER CHAVEZ: No objection.

6 CHAIRMAN FESMIRE: She's acceptable to the
7 Commission.

8 Q. (By Ms. Bada) First thing I'd like to ask you
9 about is the habitat in the Chihuahuan Desert in Sierra and
10 Otero Counties. What makes the Chihuahuan Desert in those
11 counties important for wildlife?

12 A. The Chihuahuan Desert has one of the world's
13 highest rates of plant diversity, both within the plant
14 communities and on a scale across the landscape. The World
15 Wildlife Fund has ranked the region globally outstanding
16 for species richness in the categories of reptiles, birds,
17 mammals and cacti. There's also a high degree of endemism,
18 which means species whose distributions are limited to a
19 small geographic area.

20 The high diversity of plants is a function of the
21 geographic location, soil and topographic diversity and the
22 history of evolution and response to climate change in that
23 area. And the reason I'm repeating a lot here of what you
24 heard from Bob Sivinski yesterday is because high plant
25 diversity translates largely to high diversity of wildlife

1 habitat.

2 The Chihuahuan Desert environment has been
3 degraded by historic overgrazing and other factors,
4 including loss of the fire regime and excessive diversion
5 of surface water. The grassland component is shrinking in
6 comparison with the area dominated by shrubs. Portion of
7 the Chihuahuan Desert in Sierra and Otero Counties is in
8 relatively intact and functional condition.

9 This area provides a corridor for the
10 connectivity of mobile wildlife between Mexico, trans-Pecos
11 Texas and more northern areas of New Mexico.

12 There's also a variety of freshwater habitats,
13 and these would be springs, cienegas, intermittent streams
14 with high degrees of complexity and endemism, some of which
15 provide home for rare fish and invertebrates. Although the
16 wetlands and watercourses will presumably be protected from
17 surface development, they are potentially vulnerable to
18 changes in water quality and subsurface hydrology.

19 Q. How does the Chihuahuan Desert habitat in these
20 two counties compare to surrounding counties?

21 A. Sierra and Otero Counties have the largest block
22 of intact Chihuahuan Desert grassland. The word "pristine"
23 was raised here yesterday morning, and the area is not
24 pristine, obviously. There's things going on there like
25 the existing gas well, ranching and other surface

1 activities.

2 What we mean by a large block of intact grassland
3 is that the level of impacts in that area is relatively
4 low, leaving the function and a good ecological functioning
5 system, condition.

6 So Chihuahuan Desert natural areas in the boot
7 heel area of New Mexico are part of a different ecological
8 subregion. They have distinct and different conservation
9 concerns.

10 The Chihuahuan Desert areas in Doña Ana County
11 and in the eastern New Mexico counties have relatively
12 heavy impacts from agriculture, urbanization and oil and
13 gas development.

14 With the exceptions of Big Bend and Guadalupe
15 National Parks, most all of the Chihuahuan Desert in Texas
16 is in private ownership. That's not to say it's not being
17 protected, but that is to say that its protected condition
18 could change tomorrow. And much of the Chihuahuan Desert
19 in Texas is also impacted by urbanization and pollution.

20 The northern subregion of the Chihuahuan Desert,
21 which is the region we're talking about, is also subject to
22 extensive urbanization and heavy grazing pressure in the
23 nation of Mexico.

24 Q. Other than threatened and endangered species,
25 what are the key wildlife species in this area?

1 A. Well, the BLM in consultation with our department
2 has designated important mule deer and pronghorn management
3 areas at the Caballo Mountains Deer Area, the Sacramento
4 Escarpment Deer Habitat Area, the Otero Mesa Habitat Area,
5 Nutt Antelope area and the Tularosa and Basin and White
6 Sands Antelope Areas.

7 Based on historic reports, the Otero Mesa
8 pronghorn herd appears to be one of the few herds in New
9 Mexico that survived intensive commercial market hunting in
10 the past and is truly native, not reintroduced.

11 Also important is that grassland birds, as a
12 group of species, have been on the decline across this
13 country. The decline is due to many factors, including
14 habitat fragmentation, pesticide use, and loss of winter
15 habitat to the south.

16 Chihuahuan Desert in Sierra and Otero Counties
17 with its strong grassland component and large blocks of
18 relatively unfragmented habitat is an important habitat
19 that may help prevent the need for federal listing of
20 members of this group of birds.

21 Q. Does the Chihuahuan Desert in these two counties
22 provide areas suitable for desert bighorn sheep
23 reintroduction?

24 A. The desert bighorn sheep is a state-listed
25 endangered species for which the Game and Fish Department

1 operates an active reintroduction and translocation
2 program. Within the area we're talking about today,
3 historic range, which is currently unoccupied by the sheep,
4 occurs in the Caballo and Guadalupe Mountains. The
5 Sacramento Range and escarpment has also been identified as
6 potentially suitable, although there's no evidence of
7 historic populations there.

8 Q. Does it contain any potential habitat or habitat
9 for any threatened or endangered species?

10 A. Yes, the BLM draft EIS for the fluid minerals
11 leasing in Sierra and Otero Counties identified 10
12 federally listed threatened and endangered species and 45
13 other special-status species, and those would be federal
14 candidate and proposed species, State-listed species and
15 BLM species of concern. And I think that those numbers
16 include those half dozen plant listed species that Bob
17 mentioned yesterday, the various listed status.

18 And I'd like to just talk about a couple of
19 animals on those lists.

20 The Aplomado falcon is a state and federally
21 listed endangered species. It reaches the northernmost
22 limit of its total distribution in the southwestern US.
23 This falcon was largely extirpated from the US by the
24 1930s. The last nesting documented in New Mexico until
25 recently was in 1952. Sightings have become more frequent

1 in New Mexico since the 1980s, and last year we believe we
2 had a nesting pair.

3 The Aplomado falcon requires large blocks of
4 grassland with standing yuccas, similar to the slide that
5 we saw yesterday. The Chihuahuan grasslands in Sierra and
6 Otero Counties are prime habitat for the return of this
7 falcon to New Mexico, either through reintroduction or
8 natural recolonization from old Mexico.

9 And another species that's -- for which that area
10 is important is the black-tailed prairie dog, and this is a
11 state-listed species of concern, is its status at the
12 moment. It's a candidate for federal listing. New Mexico
13 Department of Game and Fish has responsibility under a
14 formal multi-state conservation agreement to protect
15 existing colonies and increase statewide distribution to
16 meet multi-state conservation goals, to preclude the need
17 for federal listing.

18 Black-tailed prairie dogs occur on the BLM
19 portion of Otero Mesa in 22 or 23 colonies averaging
20 approximately five acres each. These colonies are
21 important for future conservation efforts because they are
22 some of the last extant populations within the Chihuahuan
23 Desert within the US. They are likely to be uniquely
24 adapted to their very xeric environment and represent most
25 of the few surviving source populations for recovery

1 elsewhere within the arid southern portion of their known
2 historic range.

3 Q. I want to ask you now about whether you've had an
4 opportunity to review the proposed Rules that are the
5 subject of this hearing.

6 A. Yes.

7 Q. And does the Department of Game and Fish support
8 those Rules?

9 A. Yes, we do.

10 Q. Why?

11 A. Above-ground tanks are more protective of
12 wildlife and wildlife habitat than in-ground pits. Pits
13 containing liquid in arid environments are a wildlife
14 attractant. They pose direct hazards of lethal or
15 sublethal toxicity. Oily substances on the exterior of
16 birds and mammals can also reduce the insulation provided
17 by fur and feathers, leading to risk of basically death by
18 exposure or contracting illness by exposure to cold.
19 Predators, scavengers and decomposers consuming
20 contaminated carcasses are potentially placed at risk.

21 Pits also pose a greater possibility than tanks
22 for indirect impact through contamination of surface water,
23 groundwater and soils. Based on what I heard yesterday, I
24 would think that tank pads are -- probably pose a greater
25 ease of reclamation of the vegetation community than does a

1 massively disturbed pit.

2 And we generally support closer regulation of
3 produced-water injection wells due to potential impact on
4 the groundwater, although we're not going to get into
5 commenting on specifics of the injection well rule.

6 Q. Are you familiar with the Oil Conservation
7 Commission's current rules on pits, Rule 50?

8 A. Yes.

9 Q. And what concerns does the Game and Fish
10 Department have about the current rules with regard to
11 wildlife and habitat?

12 A. The existing fencing and netting requirements in
13 Rule 50 are not sufficient to protect wildlife in this
14 important habitat area. My answer to this question is kind
15 of a nested series of ifs, because we don't know which way
16 the Commission will decide to go on this.

17 If pits are going to be allowed, we would prefer
18 that the Oil Conservation Division use its authority under
19 the existing Rule to impose additional fencing requirements
20 for protection of wildlife. A wildlife-exclusion fence
21 would be a minimum seven-foot-high chain-link or woven or
22 welded wire mesh, secured to the ground around the
23 perimeter, with the finer-gauge material wrapped around the
24 base to exclude small mammals, reptiles and amphibians.

25 If the post-and-wire-strand livestock-type fence

1 is allowed, the Department would like to have the
2 opportunity to recommend a design that will exclude
3 antelope while minimizing potential injury to mule deer
4 jumping over. And a post-and-wire fence should also be
5 wrapped with finer gauge material around the base.

6 All pits should be netted, including drilling and
7 workover pits, which are accepted in the existing Rule.
8 That Rule was promulgated primarily for the purpose of
9 complying with the Migratory Bird Treaty Act. The
10 Department, however, is equally concerned about the 10
11 species of bat that are listed as species of concern in
12 Sierra and Otero Counties. Drowned or poisoned bats are
13 often overlooked due to their small size, dark color and
14 nocturnal habits.

15 Netting also needs to be extended through the
16 ground around the perimeter and maintained in functional
17 condition.

18 Steep-sided pits present a risk of entrapment to
19 wildlife. When you line them with a smooth-surface
20 material, you enhance that risk of entrapment -- in other
21 words, the difficulty of getting out of the pit. And we
22 would like to see the inclusion of ramps or ladders for the
23 escape of trapped wildlife, and Game and Fish does have
24 design specifications which would be adaptable to that
25 purpose.

1 Q. If tanks are used, what measures need to be in
2 place to protect wildlife?

3 A. Okay, the existing Rule requires that tanks
4 larger than 16 feet diameter be either covered or netted.
5 Game and Fish Department believes that tanks less than 16
6 feet should be similarly protected.

7 To contain contamination following a spill or
8 leak, above-ground tanks should be surrounded by an
9 impermeable berm with capacity greater than that of the
10 tank or tank battery.

11 And at whatever density of roads will exist on
12 the oilfield, the effects of habitat fragmentation can be
13 reduced by lighter traffic volume.

14 To this end, if produced water can't be used
15 onsite for beneficial use, we support piping the water to
16 central collector locations, rather than transport by water
17 truck from individual wellsites. And that pipe should
18 preferably be placed along access roads to minimize the
19 disturbance footprint, and second choice would be placement
20 along existing product pipeline rights of way.

21 MS. BADA: Thanks, I have no further direct
22 questions.

23 CHAIRMAN FESMIRE: Commissioner Bailey?

24 COMMISSIONER BAILEY: I have a few.

25 EXAMINATION

1 BY COMMISSIONER BAILEY:

2 Q. You talked about these large impacts that are
3 going on right now, the drought that affects the wildlife,
4 the overgrazing that's already destroyed so much of their
5 range, urbanization was a factor that you talked about.
6 Compared to these large, major factors, what impact have
7 the hundred or so oil and gas wells that have already been
8 drilled -- Can you give me a relative importance there, to
9 try to get some perspective?

10 A. Yeah, I think -- You know, the point I was trying
11 to make there was that the level of disturbance currently
12 in the area that we're talking about is lesser than that of
13 similar grassland environments in the surrounding area due
14 to those factors you just mentioned. That's not to say
15 there has been no impact from those existing hundred or so
16 oil and gas wells.

17 And I think I need to give the same answer that
18 Bob Sivinski gave yesterday, which is that the impact of
19 these things is going to be a cumulative impact which is
20 incremental with each development project, and also to keep
21 in mind that in terms of wildlife habitat, the roads
22 involved with the infrastructure are likely to have equal
23 or greater impact than the actual wellpads themselves.

24 Q. And that also applies to only five percent of the
25 area being developed? That's a very low percentage.

1 A. Right, you're talking about the five-percent
2 proposal from the BLM and their --

3 Q. Yes.

4 A. Yeah, yes. Yeah. The answer is that that
5 depends on some factors which I don't know the answer to,
6 and I'm not sure that anybody does, which is where exactly
7 those five percent are and how they would be spaced and how
8 they would be connected by roads.

9 Each road and each wellpad has a zone of impact
10 around it, and it really depends on a whole lot of things
11 that I believe are not specified at this point. And they
12 probably aren't known by the oil and gas industry until
13 they do their exploration.

14 Q. We heard testimony that beneficial use of
15 produced water was being encouraged. If there is the
16 possibility of beneficial use of produced water in this
17 area, would that not help the populations if these tanks
18 were not fenced in accordance with the way you've
19 recommended?

20 A. I don't think that the materials which are placed
21 directly into the tanks, pits, that there's any way to be
22 certain that those materials don't contain toxics.

23 And water that is -- either comes out of the
24 ground clean and is separated from hazardous materials or
25 is -- can be treated to a clean and safe condition, we'd

1 very much support use of that water for beneficial uses.
2 And I would add that the two beneficial uses we would most
3 like to see is on site right at the wellsite, irrigation
4 for re-establishment of native grasses and drinking
5 facilities for wildlife.

6 Q. Then my last question, concerning the antelope
7 herds, is there hunting allowed?

8 A. I believe so, yeah.

9 Q. So those herds are being hunted and killed as we
10 speak?

11 A. Yeah, hunting requires a license from our
12 department, and we have a process every two years, I
13 believe, by which we determine levels of exploitation that
14 the herds can sustain.

15 COMMISSIONER BAILEY: Those are all the questions
16 I have. Thank you.

17 CHAIRMAN FESMIRE: Commissioner Chavez?

18 EXAMINATION

19 BY COMMISSIONER CHAVEZ:

20 Q. Ms. Jankowitz, one of your qualifications was
21 that you had done assessments about oil and gas development
22 in the San Juan Basin. Did I understand that correctly?

23 A. Yes, sir, environmental assessments under the
24 NEPA process.

25 Q. Was that done for a government agency or --

1 A. Most -- the bulk of the work that I did
2 personally was on the Jicarilla Apache Reservation, and the
3 work was contracted to the Bureau of Indian Affairs.

4 Q. Okay. Is any of that observation helpful to you
5 in reviewing the proposed Rule that the OCD has come up
6 with?

7 A. Absolutely. Yeah, I think as a lot of the
8 testimony brought up yesterday, what you see on paper and
9 what you see in the field are not necessarily the same
10 thing. And just being out there and observing has been
11 tremendously helpful.

12 COMMISSIONER CHAVEZ: Thank you.

13 CHAIRMAN FESMIRE: Mr. Carr, do you have any
14 cross-examination of this witness?

15 MR. CARR: No, Mr. Chairman, I do not.

16 CHAIRMAN FESMIRE: Ms. Belin?

17 MS. BELIN: I do not.

18 CHAIRMAN FESMIRE: Any redirect?

19 MS. BADA: No, thank you.

20 CHAIRMAN FESMIRE: Call your next witness,
21 please.

22 MS. MacQUESTEN: Thank you. The OCD calls Chris
23 Williams.

24 Good morning.

25 MR. WILLIAMS: Good morning.

1 CHRIS WILLIAMS,
2 the witness herein, after having been first duly sworn upon
3 his oath, was examined and testified as follows:

4 DIRECT EXAMINATION

5 BY MS. MacQUESTEN:

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

7 A. Chris Williams.

8 Q. And where are you employed?

9 A. In Hobbs, New Mexico. I'm a District Supervisor
10 for the Oil Conservation Division.

11 Q. Which counties are included in your district?

12 A. Lea, Roosevelt, Curry and part of Chaves.

13 Q. What are your duties as District Supervisor?

14 A. Compliance, enforcement and inspection.

15 Q. Would you please outline your education and
16 relevant work experience?

17 A. I have a bachelor's degree in petroleum land
18 management, I have 28 years in the field, I have
19 approximately 1000 hours of engineering training through
20 Shell Oil Company.

21 Q. Has any of your field experience included working
22 with closed-loop systems?

23 A. Yes, it has. In the past I've worked for Hunt
24 Oil Company Offshore, in the South Marsh Island area.

25 Q. Can you tell us what your experience was there?

1 A. We used closed-loop systems on offshore rigs
2 because you can't dispose of anything. And closed-loop
3 systems were primarily comprised of, you know, the shale
4 shaker, which is normal on a drilling rig, but it had to go
5 through cyclone de-sanders. What you're trying to do is
6 knock as much mud off of the solids as you can. Go through
7 the de-sanders, and then you go through centrifuges, which
8 knock out the smaller particles. It's a particle reduction
9 so that you can circulate the mud back to the tanks and re-
10 use it, as much as you can.

11 Q. Does the use of these centrifuge to knock out the
12 solids have an impact -- Well, let me back up.

13 One of the safety issues that was discussed
14 yesterday, as I understand it, was the solids hitting the
15 sides of the tanks and having the potential to cause
16 sparks. What is your experience with that?

17 A. It's rare. When you talk about confined spaces,
18 which is what I think they're referring to, all offshore
19 tanks are confined. All of them are vented; they have to
20 be vented away from the drilling rig floors. Some of them
21 actually are -- because there's gases -- there's another
22 piece to the mud system that is called a gas knockout
23 which, as the fluids come back through, it knocks out as
24 much of the gas as possible before it goes into the shale
25 shaker and all this other stuff. It's like a separator.

1 Q. So there's equipment to handle two of the issues
2 we heard about yesterday, the solids going through the
3 system and the gas going through the system?

4 A. Uh-huh, but it requires venting in those closed-
5 loop systems.

6 Q. Now, are closed-loop systems on land set up the
7 same way as closed-loop systems are used offshore?

8 A. My experience on land has been really limited and
9 I know very little about that. Only thing I know is from
10 what I've been told by a couple of operators that are
11 presently using closed-loop systems in Lea County, and
12 those are open-top tanks, which kind of helps the venting
13 part of it.

14 Like I said, on offshore situations everything
15 has to be closed down. Also on offshore, you have double
16 and triple redundancy.

17 Q. What does that mean?

18 A. Well, a failure of a piece of equipment offshore
19 is tremendously expensive, and you have to have a boat
20 bring you everything and you have to reinstall it. It just
21 takes time, it shuts everything down. It's a pretty -- the
22 mud systems and closed-loop systems offshore are real
23 expensive, but primarily the way you cut cost on it is
24 because you're drilling six to eight laterals off of that
25 one location.

1 Q. You say there are operators using closed-loop
2 systems now in your district?

3 A. Yes.

4 Q. Have there been any safety issues?

5 A. No.

6 Q. Have operators expressed -- other operators
7 expressed interest in starting to use closed-loop systems?

8 A. Yes.

9 Q. Were there any comments about closed-loop systems
10 yesterday that you want to comment on?

11 A. Each system that you use, if you do not take the
12 proper safety precautions with it, can be dangerous. Open
13 pits can be dangerous. People fall in open pits and they
14 can't get out of them. They do catch fire.

15 Same thing with a closed-loop system. All of the
16 systems have inherent safety risks. Everything in the
17 oilfield, basically -- this we were trained -- everything
18 out there will kill you, so you have to be extremely
19 careful, and you have to plan for these events.

20 Q. Can either system be operated safely if those
21 events are planned for?

22 A. Sure. One of the questions I think that came up
23 yesterday was volume. The reason they use large pits is
24 because if you have a lost-circulation problem, it requires
25 you to have more trucking companies moving back and forth

1 to the location, either bringing water, bringing mud,
2 bringing whatever they need to do to get control of the
3 well.

4 Closed-loop systems can be designed to handle
5 those situations. I'm not saying it's cheap, but I'm just
6 saying it's -- it can be designed that way.

7 Q. What do they have to do?

8 A. The one thing you have to do is probably expand y
9 our locations, because you're going to have to set more
10 tanks.

11 Q. Have more fluids on site?

12 A. Yeah, have more fluids on site to reduce the --
13 you know, the trucking costs and the truck traffic. That's
14 about it.

15 MS. MacQUESTEN: Thank you, I have no further
16 direct.

17 CHAIRMAN FESMIRE: Commissioner Bailey?

18 COMMISSIONER BAILEY: A couple of questions.

19 EXAMINATION

20 BY COMMISSIONER BAILEY:

21 Q. One of the submittals prehearing to the
22 Commission included an example of Case History One,
23 Drilling Operations from Pollution, Prevention, Best
24 Management Practices. There's a disclaimer on the page.
25 It says, Note, optimum use is for onshore, normal pressure,

1 relatively shallow drilling operations.

2 A. Okay.

3 Q. Does that describe your operations in your
4 district?

5 A. No. The two wells that are being drilled in my
6 district now are 7800 feet, and one of them is a little bit
7 deeper than that.

8 Q. Okay, so that really is not part of the best
9 management practices?

10 A. Well, I think that part of the thing that is not
11 mentioned in a lot of stuff, it is depth-dependent on the
12 cost side. The deeper you go, the less impact it has on
13 your program. That's another word for AFE, total costs,
14 total costs for the well.

15 I did a rough one, and I don't stand by this
16 until I have a chance to look at the tickets. One of the
17 operators drilling in my district I've known for a long
18 time, and he's willing to turn over all his tickets to show
19 me what the cost actually was for a closed-loop system.
20 He's drilling a well that's 7800 feet. And then I can make
21 a comparison with that, with what he has on his tickets
22 from what his pits cost him.

23 But right now, roughly, in his situation, just
24 based on what he and I talked about, it's going to run him
25 about \$57,000 for a closed-loop system. And because of

1 where he is, the groundwater is extremely shallow, is the
2 reason he went to a closed-loop system, plus he's near
3 houses. He thinks the closed-loop is actually about \$3000
4 cheaper than digging the pit, because he has to haul the
5 liner off, and that disposal cost is \$16 a cubic foot. And
6 you're talking about a pit that would have been 125 by 125.

7 Q. But he would still have to haul off the wastes
8 from --

9 A. That's correct.

10 Q. -- the tanks?

11 A. That's correct.

12 Q. And there's a very close facility --

13 A. Yes, there is.

14 Q. -- for disposal of that?

15 A. That's right.

16 Q. So his trucking costs for disposal of the wastes
17 are minimal?

18 A. Yeah, in that -- Compared to Otero Mesa, yes.

19 Q. Okay, so that would be another economic factor,
20 not only --

21 A. Right, right.

22 Q. -- the cost of the --

23 A. When you're comparing the systems you have to
24 compare where you're at, what your closest disposal
25 facility is going to be, especially under the present Rule.

1 Q. What is the availability of equipment for use in
2 Otero and Sierra Counties?

3 A. The closest one that I know of is in Odessa, it's
4 Nide Oil Tools, and they handle closed-loop systems.

5 Q. So there's a very limited supply?

6 A. Correct, right now.

7 Q. Very distant from the location.

8 You said that for lost-circulation zones you need
9 more fluid on location?

10 A. Right, or you have to have it hauled to the
11 location.

12 Q. We know that there are lost-circulation zones in
13 Otero County from the previous wells.

14 A. Okay.

15 Q. So we can assume that the number of tanks, the
16 number of trucks hauling water, the amount of mud, all of
17 this would have to be increased as a result?

18 A. More than likely.

19 Q. So the balance between the increased truck
20 traffic, the increased disposal costs, surface disturbance,
21 may be offset?

22 A. It's possible.

23 Q. So any environmental contributions by use of the
24 closed-loop system may be completely offset by the amount
25 of water needed, disposal, truck traffic, dust and those

1 types of impacts?

2 A. Yeah, you're talking about the cost, right.

3 Q. And the environmental impacts, the dust, the air,
4 the use of water, the -- got to put the waste somewhere.

5 A. Right.

6 COMMISSIONER BAILEY: Thank you, that's all I
7 have.

8 CHAIRMAN FESMIRE: Commissioner Chavez?

9 EXAMINATION

10 BY COMMISSIONER CHAVEZ:

11 Q. Mr. Williams, even though the areas of this
12 Application is not within your district, are you aware
13 whether the wells that would be drilled there would be
14 wildcat wells or development wells?

15 A. Based on what I've discussed with people, I would
16 say they would be wildcat.

17 Q. In drilling a wildcat well, is the planning for
18 the mud system often changed due to encountering new --

19 A. Yes.

20 Q. When that happens, do the additives need to be
21 changed, the types of fluids, the consistency of fluid
22 sometime have to be changed also?

23 A. Yes.

24 Q. And therefore the material that would go into the
25 mud system might vary from what the operator originally

1 planned?

2 A. Yes.

3 COMMISSIONER CHAVEZ: Thank you, that's all I
4 have.

5 EXAMINATION

6 BY CHAIRMAN FESMIRE:

7 Q. Mr. Williams, to build a little bit on the
8 questions that Commissioner Bailey was asking, this
9 operator that you're acquainted with that's drilling the
10 7800-foot well with the closed-loop system, you touched on
11 it a little bit but could you elaborate on exactly why
12 they're using that system now?

13 A. He came by -- Well, he came to discuss it with me
14 because he's close to several houses down there, plus the
15 groundwater depth there is very shallow. It's -- Lea
16 County is kind of an odd -- we're in the Ogallala, but it
17 does change in depth, all throughout the county. In that
18 particular area, his groundwater depth was about 20 feet or
19 30 feet, and he was concerned about that.

20 And digging a pit -- He was real concerned about
21 digging a pit, lining it and the whole works.

22 And then based on the new Rules, he said it
23 looked to him they would be more cost-effective to use the
24 closed-loop system, because he said he didn't want the
25 environmental liability after he was finished. And he said

1 if this can save him money in the long run, this is what he
2 wanted to do.

3 CHAIRMAN FESMIRE: I have no further questions.

4 Mr. Carr, do you have any cross-examination of
5 this witness?

6 MR. CARR: Mr. Chairman, I do. I'd like to, if I
7 could, just follow up on certain questions asked by
8 Commissioner Bailey.

9 CROSS-EXAMINATION

10 BY MR. CARR:

11 Q. Wouldn't you agree with me, Mr. Williams, that
12 the goal of any regulatory scheme is to have a system that
13 works, that protects the environment, that is safe for
14 those who are actually out in the field?

15 A. Yes.

16 Q. And if we are concerned just about potential
17 environmental impact, what might happen in the future, a
18 simple answer would be to just say no pits; isn't that one
19 possible consideration?

20 A. That's -- Yeah, that's one possible.

21 Q. If you do that, aren't you forcing operators to
22 adjust the way they develop these properties, if you won't
23 allow the pits?

24 A. Yes.

25 Q. And one of those is that they would move to a

1 closed-loop system; isn't that correct?

2 A. Possibly, yeah.

3 Q. Now, you've had some experience offshore and in
4 Lea County, either directly or indirectly, with closed-loop
5 systems. The conditions in each of those circumstances are
6 very different, are they not?

7 A. (Nods)

8 Q. Isn't it fair to say that just banning pits
9 across the board and forcing the use of a closed-loop
10 system might not be the best choice in all circumstances?

11 A. It might not be in all circumstances.

12 Q. Wouldn't it be appropriate to allow some
13 flexibility so someone like this operator who came in to
14 see you, to propose a closed-loop system because he's close
15 to a house or close to a water aquifer -- and that's
16 appropriate in that case, wouldn't you agree?

17 A. Uh-huh, very much so.

18 Q. If you're drilling in a very remote area,
19 hundreds or thousands of feet above fresh water, that might
20 not be economically an appropriate choice; isn't that fair
21 to say?

22 A. It might not be economic.

23 Q. It might also be possible to safely drill the
24 well in terms of environmental concerns by using the pit or
25 some other alternative?

1 A. Yes.

2 Q. And isn't it appropriate that if you're going to
3 effectively regulate an industry, that you use your
4 engineering expertise and evaluate these well by well?

5 A. That's what we try to do now.

6 Q. And you're trying to do that with pits now; isn't
7 that right?

8 A. Correct.

9 MR. CARR: That's all I have, thank you.

10 CHAIRMAN FESMIRE: Ms. Belin, do you have any
11 questions of this witness?

12 MS. BELIN: I just have one question.

13 CROSS-EXAMINATION

14 BY MS. BELIN:

15 Q. I wanted to get back to the discussion you had
16 with Commissioner Bailey about offsetting costs, and I
17 think it was about offsetting environmental costs between
18 closed-loop systems and pit systems. When you were talking
19 about that, were you trying to weigh all the environmental
20 costs, the potential contamination costs, in the Chihuahuan
21 Desert area and Otero Mesa? Were you expressing --

22 A. No.

23 Q. -- an opinion about that?

24 A. No. What I'm looking at is the economics and the
25 technical feasibility. I'm not an environmental person, I

1 don't really know how to quantify those costs.

2 MS. BELIN: Okay, thank you.

3 CHAIRMAN FESMIRE: Any cross-examination, Ms.

4 MacQuesten -- redirect examination, Ms. MacQuesten?

5 MS. MacQUESTEN: I just had a brief follow-up on
6 the cost issue.

7 REDIRECT EXAMINATION

8 BY MS. MacQUESTEN:

9 Q. Mr. Williams, you were asked about the
10 transportation costs, and you acknowledged that the
11 transportation costs to a disposal facility in Lea County
12 are going to be smaller than the transportation costs --

13 A. Right.

14 Q. -- involved in Otero Mesa --

15 A. Right.

16 Q. -- because there are no disposal sites currently
17 close by?

18 A. The two wells that I know of -- I actually talked
19 to the trucking company that worked on these wells for
20 Heyco, and I asked them how much they charged to bring
21 fluids and make it out there, and it's a round trip of
22 about six, seven hours. They charge by the hour, and it's
23 \$65 an hour.

24 And I had asked them how -- you know, when they
25 were drilling those wells that they had to make several

1 trips, and they did go back and forth to get fluids. But
2 partially it was because of, according to the truck
3 driver -- I'd known him for a long time. He said it was
4 because of lost circulation, and they had to go and get
5 more -- you know, get more mud and more fluid, more
6 everything. And that was using a pit, yeah.

7 Q. If you're comparing using a pit to using a
8 closed-loop system, how do the transportation costs compare
9 if the operator of the pit is required to remove the
10 contents of the liner? Isn't that operator going to have
11 substantial transportation and disposal costs, just as the
12 operator of a closed-loop system will have?

13 A. Yes.

14 Q. So although transportation is a variable, it's
15 going to affect both systems --

16 A. Yes.

17 Q. -- unless the Commission decides to allow burial
18 of waste on site?

19 A. Yes.

20 MS. MacQUESTEN: Thank you.

21 CHAIRMAN FESMIRE: Dan?

22 MR. RANDOLPH: Is it possible to ask a question?
23 One quick question?

24 CHAIRMAN FESMIRE: State your name for the record
25 and who you represent, real quickly.

1 MR. RANDOLPH: My name is Dan Randolph, and I'm
2 with the San Juan Citizens Alliance.

3 EXAMINATION

4 BY MR. RANDOLPH:

5 Q. So Mr. Williams, it sounds like you've been
6 associated with this industry for quite a while during your
7 career?

8 A. Yeah.

9 Q. During that period have you seen the industry
10 change its practices due to different regulatory changes?

11 A. Yes.

12 Q. Has industry been able to meet those challenges
13 cost-effectively and, in your opinion, move with the
14 regulatory changes that you've seen?

15 A. For the most part.

16 Q. Do you think that for the most part those changes
17 have been beneficial to not only -- do you think those
18 changes have been overall beneficial to the industry in the
19 long term?

20 A. I think they've been beneficial to both, both
21 public and the industry, in many ways. Economically they
22 may not be beneficial, but I think -- I think the worst
23 part about it is -- it's primarily just for public-
24 relations purposes. Those changes have done a lot for the
25 industry, some of them.

1 Q. Thank you.

2 A. But economically, no, not necessarily.

3 MR. RANDOLPH: Thank you.

4 CHAIRMAN FESMIRE: Dr. Neeper?

5 EXAMINATION

6 BY DR. NEEPER:

7 Q. I'm Don Neeper, New Mexico Citizens for Clean Air
8 and Water.

9 Mr. Williams, we have heard it possibly suggested
10 that there is some problem, or there could be some problem,
11 with having adequate fluid volume with closed-loop systems.
12 As I understand it, it is necessary to have a certain
13 amount of mud or fluid available in order to maintain
14 pressure on the well. If you hit a region where you lose
15 fluid, you've got to pour more fluid in there to maintain
16 control.

17 A. Uh-huh.

18 Q. Is there any reason why you would need more fluid
19 when you have a closed-loop system than when you have a pit
20 system?

21 A. No.

22 Q. So in fact, operating closed-loop systems does
23 not change your fluid requirements, the amount of fluid
24 that you would have to truck to the wellsite; is that
25 correct?

1 A. Yes. It's like I said, if it's designed right
2 you know how much fluid you approximately have, how much
3 fluid you're going to need for well control and how much
4 fluid you're going to need for lost-circulation zones.

5 Q. We have heard some questions of the explosive
6 dangers that -- you mentioned that offshore you used closed
7 containers, onshore you had open containers because you
8 don't have to worry, I presume, about salt spray and the
9 like --

10 A. Right.

11 Q. -- getting into it.

12 Do you know what form of system is widely used in
13 Alaska?

14 A. No, I never worked there.

15 Q. And finally, if we look at the relative costs, as
16 best we can make them out, would it be fair to say that
17 pits allow burial of wastes, whereas in closed-loop systems
18 you have your wastes already contained and that the biggest
19 difference in cost, possibly, would be in the disposal, so
20 that if you did not onsite disposal of your wastes, in
21 either case you would have to truck them and the cost might
22 be similar?

23 A. Correct.

24 Q. So the difference, really, with closed-loop
25 systems is their economic loss, if it were, or their

1 economic cost is really based on the ability to bury one's
2 wastes or dispose of them on site?

3 A. Yeah, that's the way you have to look at it.

4 Q. It's part of, then, a general environmental
5 situation, if you can externalize your costs to the
6 environment, it's less dollar cost; would that be right?

7 A. That's what I've always heard.

8 DR. NEEPER: Thank you.

9 CHAIRMAN FESMIRE: Any more for this witness?

10 MS. MacQUESTEN: Not from this witness.

11 CHAIRMAN FESMIRE: Is that your final witness
12 now?

13 MS. MacQUESTEN: No, we have one more. We would
14 like to call Will Jones, but we ask if we could have a
15 brief recess to set up our PowerPoint presentation.

16 CHAIRMAN FESMIRE: Sure. Let's take a 10-minute
17 recess. We'll reconvene at 9:27.

18 (Thereupon, a recess was taken at 9:17 a.m.)

19 (The following proceedings had at 9:27 a.m.)

20 CHAIRMAN FESMIRE: Okay, let's go back on the
21 record.

22 Ms. MacQuesten, you indicated you had your next
23 witness?

24 MS. MacQUESTEN: Yes, the OCD calls Will Jones.

25 CHAIRMAN FESMIRE: Mr. Jones, have you been

1 previously sworn?

2 MR. JONES: No. No, sir.

3 CHAIRMAN FESMIRE: Why don't you stand, raise
4 your right hand, please?

5 MR. JONES: All right.

6 (Thereupon, the witness was sworn.)

7 WILLIAM V. JONES,

8 the witness herein, after having been first duly sworn upon
9 his oath, was examined and testified as follows:

10 DIRECT EXAMINATION

11 BY MS. MacQUESTEN:

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

13 A. William V. Jones.

14 Q. And where are you employed?

15 A. I'm employed with the State of New Mexico,
16 Energy, Minerals and Natural Resources Department, Oil
17 Conservation Division, in the Santa Fe Office.

18 Q. And what is your title there?

19 A. My title is engineer, in the Engineering Bureau.

20 Q. What are your duties in the Engineering Bureau?

21 A. I have three main duties in the Engineering
22 Bureau. I am a -- I do administrative applications, which
23 are exceptions to our Rules, process those. And the second
24 one is a Hearing Examiner. And the third duty I have is --
25 in no particular order -- is the UIC Program Manager.

1 Q. All right. Could you outline briefly your
2 education and relevant work experience?

3 A. Okay, I have two engineering degrees from New
4 Mexico State University, 1979. One of them is in
5 geological engineering and one of them is in civil
6 engineering.

7 And after graduating I worked in the oil patch in
8 southeastern New Mexico as production engineer, reservoir
9 engineer, reserves engineer, for 10 years. And at that
10 time I took a test to become a petroleum -- to get my --
11 help me out here.

12 Q. Are you registered?

13 A. Yeah, registration in petroleum engineering. And
14 then I worked 10 years in the Rocky Mountains, pretty much
15 all over the United States, in an exploration group, all
16 the way, pretty much, from Pennsylvania to Washington
17 State.

18 Q. How long have you been with the OCD?

19 A. I've been with the OCD only a short time, about
20 two and a half years.

21 Q. You testified that one of your duties is the UIC
22 Program Manager. Can you tell us what UIC means? What
23 does it stand for?

24 A. UIC stands for underground injection control.
25 The UIC program is an EPA program. It is a subset that's

1 derived from the Safe Drinking Water Act, which was passed
2 by Congress and signed into law in 1974. In 1980 the EPA
3 actually came up with the UIC program.

4 At the same time, the State of New Mexico
5 tightened their Rules on the UIC program and also adopted
6 the EPA definitions of the UIC program. And in 1982 the
7 State of New Mexico obtained primacy from the EPA for
8 administering the UIC program for Class II wells; in 1983
9 they obtained primacy for all the other classes of wells.

10 Underground injection control means the control
11 of any injection of oilfield wastewater underground. So
12 basically everything I'm talking to you here today is only
13 about injection from the wellhead down, into the ground.

14 Q. Does the UIC program include wells used for
15 injection of produced water?

16 A. The UIC program includes saltwater disposal
17 wells, which is injection -- underground injection of wells
18 of water into deep, deep wells, and it also includes --
19 Class II wells include acid gas wells, injection of acid
20 gas wells. It also includes injection for recovery of
21 additional oil through enhanced recovery projects also.

22 And what we're talking about here today is solely
23 saltwater disposal wells, and there's about 600 saltwater
24 disposal wells in the State of New Mexico right now.

25 MS. MacQUESTEN: Before we go further, I would

1 offer Mr. Jones as an expert in petroleum engineering.

2 CHAIRMAN FESMIRE: Any objection from the
3 Commission?

4 COMMISSIONER BAILEY: No.

5 COMMISSIONER CHAVEZ: No.

6 CHAIRMAN FESMIRE: He's so accepted.

7 Q. (By Ms. MacQuesten) Mr. Jones, I'm going to be
8 asking you about some of the provisions regarding injection
9 wells that haven't been addressed by other witnesses yet.
10 Before I do that, has the EPA been provided with a copy of
11 the OCD's proposed Rule regarding injection wells?

12 A. Yes, we've provided the EPA with a copy of the
13 proposed Rules as they stood about a month ago or two
14 months -- a month and a half or two months ago. And I
15 talked with the EPA two days ago about their reaction to
16 those proposed Rules, and they said unofficially -- we
17 haven't gotten the latter back from the EPA yet, but they
18 said that this is not considered a major change to our UIC
19 program, so -- and they really agree with what we're doing.

20 Q. Has New Mexico initiated any UIC special projects
21 regarding Otero Mesa?

22 A. Okay, under the Safe Drinking Water Act, there's
23 a section that enables tribes that have primacy or states
24 that have primacy under the UIC program to obtain a grant
25 from the federal government to help defray the costs of

1 administering the program. Every year we apply for this
2 grant, and sometimes we apply for special projects in
3 addition to the base grant, and we don't always get these
4 projects approved, but this year we applied for a study of
5 the Otero Mesa-Chihuahuan-Sierra County area to determine
6 the quality and extent of the aquifers, freshwater
7 aquifers.

8 Q. Now, that application has been filed but not yet
9 approved?

10 A. We filed that application, and it hasn't been
11 approved yet.

12 Q. I'd like to go through some of the provisions of
13 the proposed Rule regarding wells used for injection of
14 produced water. We've already addressed the provisions
15 that deal with the surface. Mr. Olson testified to those
16 yesterday, and the provisions regarding cementing were
17 testified to by Roger Anderson. We're going to be
18 addressing the remaining provisions with Mr. Jones.

19 The first of those provisions is the requirement
20 that all injection wells for produced water in this area go
21 through the notice and hearing process before permitting.
22 Now, currently our Rules require permits for all injection
23 wells; is that right?

24 A. Yes.

25 Q. And currently they may be approved through an

1 administrative process or after hearing?

2 A. Yes, currently any application we get for
3 underground injection of oilfield wastes can be set to
4 hearing. If it's an abnormal permit or it's outside the
5 scope of what we normally do administratively, the Division
6 -- the Director of the OCD as to direct that that go to
7 hearing.

8 Q. Okay. But a -- quote, unquote -- normal case may
9 be processed administratively without a hearing?

10 A. Yes.

11 Q. Why does the proposed Rule seek to have notice
12 and hearing in all injection-well cases in this area?

13 A. There's several reasons why we added this to the
14 proposal here today, is -- the main reason is because of
15 the definition and the quantification of where the aquifers
16 are out here, and we thought these applications would be
17 beyond the scope of any administrative applications
18 inherently, and they should be set to hearing so the public
19 can come in and comment if need be. Our current rules
20 require notice of the owner of the surface of the land,
21 plus the offset operators of record within a half mile.
22 And we thought this would be...

23 There's other reasons also. There's --
24 Determination of the freshwater, including the calculation
25 of any kind of area of review, has a lot of factors in that

1 area-of-review calculation that we're proposing here today,
2 and those factors are not always easy to come up with.

3 And it's just an area that should go to hearing.
4 We have no injection wells out there, no permits out there
5 yet. We don't even know when there's going to be any
6 permits or any fresh water or any oilfield waste water
7 produced out there. But someday, hopefully there will.

8 Q. You yourself serve as a Hearing Examiner for the
9 OCD, do you not?

10 A. Yes, I'm one of three appointed Hearing
11 Examiners. Okay, and are you saying that the requirements
12 set out in the proposed Rule are such that, as a Hearing
13 Examiner, to get the information you need to decide whether
14 a permit is granted, you would prefer to do it through a
15 hearing process?

16 A. Yes, I would -- Even if this Rule is not adopted
17 here today, any application that comes for Otero Mesa area,
18 if it comes to me I'm going to try to convince the Director
19 to set it for hearing.

20 Q. Is it the practice of the OCD as reflected in its
21 Rules that if an issue generates significant public
22 interest, it is ordinarily referred for hearing?

23 A. That's also our practice.

24 Q. Is the area of Otero and Sierra Counties, is that
25 considered a wildcat area for drilling?

1 A. It's definitely considered a wildcat area. The
2 two wells that we've seen so far there, the only -- they're
3 capable of producing gas, but it was a bailout zone, it was
4 only 2200 feet or so, and that zone was only completed for
5 about -- I'd say around 20 feet thick at 2200 feet, and
6 it's gas, it's not going to be enough to hook any kind of
7 pipeline, so -- It's definitely wildcat area.

8 Q. So in a wildcat area, you may not have as much
9 information as you would have in a fully-developed area?

10 A. That's right.

11 Q. And can the hearing process assist in providing
12 that sort of information?

13 A. It will definitely assist in that.

14 Q. Let's look at the next provision regarding
15 injection wells, and this has to do with the radius of the
16 area of review. The proposed Rule is asking for a radius
17 of area of review of one-half mile, or one and one-third
18 times the zone of endangering influence, whichever is
19 greater. Could you define for us what is meant by the area
20 of review?

21 A. Okay, the area of review is set up -- Let's go
22 ahead and look at that slide. We've got one slide on the
23 area of review. That's it. It's actually not egg-shaped,
24 it's supposed to be round. But the area of review is
25 defined by the EPA to protect any freshwater aquifers in

1 the vicinity -- in a radial vicinity of the injection well,
2 so...

3 New Mexico is one of several states in Region 6
4 of the EPA. I have to step back a minute and talk about
5 this, because -- Our Region 6 headquarters is in Dallas,
6 and we've got Louisiana, Texas, Oklahoma and New Mexico.
7 All of the other states have basically a quarter-mile area
8 of review. New Mexico has adopted a half-a-mile area area
9 of review.

10 We have one-tenth the amount of injection wells,
11 overall injection wells, that the State of Texas has, and
12 the EPA always gives us really good marks on our
13 underground injection control program. We have a really
14 good record of -- since 1980, after these new rules were
15 adopted, or these new practices were adopted in New Mexico,
16 we have a really good record of protecting contamination of
17 fresh water or movement out of zone in the injection wells.

18 And so we have a half-mile area of review that we
19 -- It's not in our Rules; it's one of our practices that we
20 have. Our Rules are set up to protect the fresh water.
21 And if you read the Rules that we use in this State,
22 they're very good rules. But we've had the same people
23 processing our applications for the last 15 or 20 years in
24 this state, and there's been a remarkable record of
25 consistency of applying the practices, for instance, of the

1 half-mile area of review in New Mexico.

2 The EPA encourages all the states to use a
3 calculated area of review or a quarter mile, whichever is
4 greater. All of the states pretty much resist doing this
5 because this area-of-review calculation is -- it has a lot
6 of hydrologic properties or hydrologic terms in it, and
7 you have to translate it into oilfield terms, and we do
8 have that area-of-review calculation translated into
9 oilfield terms for a confined reservoir, which means
10 vertically confined, you've got a caprock on top of the
11 reservoir, and it's basically a solution -- a point source
12 radial solution to the general diffusivity equation which
13 governs any flow through porous media.

14 Q. Mr. Jones, can I stop you right there and ask you
15 a little background question? What are you looking at in
16 the area of review? What are you reviewing that area for?

17 A. We're looking at the area of review -- After the
18 area of review is defined, we look within that area of
19 review for any conduits from the formation that we're
20 injecting into, up into any other formations in New Mexico
21 and, as far as the EPA is concerned, and we're concerned
22 also, up into any freshwater aquifers.

23 Q. What kind of conduits do you look for?

24 A. We look for any abandoned wellbores that were not
25 plugged correctly, we look for faults that are non-sealing

1 faults, we look for any ways that it can move up, the
2 water, the injected waste water, can move up.

3 Q. Are faults -- What do you know about faults in
4 the area of Sierra and Otero Counties?

5 A. We don't know a lot. And we also don't know a
6 lot about the depths, the maximum depths to the fresh
7 water. And that is the reason we're proposing to throw in
8 this EPA-encouraged area-of-review calculation.

9 Q. Now, have you received training on the EPA
10 calculation?

11 A. I've received some training on it. I also have a
12 lot of the literature on it, and we will post it on our
13 website if this is -- If this is approved, we'll post
14 several different versions of it on our website. The EPA.

15 Q. Let me back you up. When did you receive your
16 training?

17 A. I received training last year, we went to Dallas
18 to have an AOR summit and talk about whether we were going
19 to use this equation or not in the states.

20 Q. Okay. How long was this training and who
21 sponsored it?

22 A. It was an EPA-sponsored training, about a week-
23 long training.

24 Q. Okay, and did it include how to use this
25 calculation and apply it in the oilfield?

1 A. We talked -- All the states talked about how they
2 use the calculation. Most of the states do use the
3 calculation on occasion, when it is needed. And the EPA,
4 when they apply an area of review to a well on -- for
5 instance, in Indian lands that do not have primacy, they
6 use the calculated area of review also.

7 Q. I was interrupting you, because you were about to
8 tell us more about this calculation.

9 A. The calculation can be translated into oilfield
10 terms. It's generally a hydrologic calculation, but the
11 terms in the equation are not real familiar to petroleum
12 engineers as they apply normal pressure-transient methods,
13 but we have all the translations into that. And it's
14 basically a radial-flow, point-source solution to the
15 general flow equation that we use in the oil patch all the
16 time.

17 Q. What is the benefit of using this calculation to
18 determine an area of review?

19 A. In this area the benefit is that -- the key
20 ingredients in this equation is the depth -- actually the
21 piezometric height of the fresh water, which basically
22 boils down to the bottom depth of the freshwater zone, and
23 the head of the -- in the formation, or the pressure in the
24 formation that you're injecting into.

25 It boils down to if your formation pressure will

1 overcome -- will -- if your well will stand the fluid level
2 to the surface, and that surface water level is above the
3 level that the water table will stand the fluid level to,
4 then the assumption is that you're going to have an
5 invasion into your fresh water, if you have a conduit in
6 that area of review.

7 So this area is important to -- for that to be
8 looked at. And the factors that go into the equation --
9 it's important that anybody applying for an injection well
10 out here should look closely at those factors. And the
11 Division, when they approve an injection permit out here,
12 will have to know those factors, because we're not going to
13 permit any injection well out here unless we know where the
14 fresh water is.

15 Q. Is it likely from what we know of Otero and
16 Sierra Counties that we will encounter freshwater
17 formations close to injection zones?

18 A. It's possible. We receive applications all the
19 time for water injection at differing depths. Normally
20 it's 2000 feet or deeper, and the best injection wells are
21 almost the deeper injection wells. But once in a while an
22 operator will find a permeable, porous zone of 2000 feet or
23 so, and they want to inject in that. So their job is to
24 get rid of their waste water so they can produce their oil
25 and gas wells and -- But our job, according to Congress and

1 the EPA, is to protect the fresh water.

2 Q. Does this calculation serve any purpose where the
3 freshwater formations and the injection zone are located
4 close together?

5 A. Yes, this equation, or this -- looking at the
6 factors in this equation will help us determine whether the
7 area of review should be wider or we should actually not
8 grant this application at all.

9 Q. What information do you need to perform the
10 calculation?

11 A. There's a lot of factors in it. The main
12 factors, two factors, are the pressure -- the location of
13 the fresh water, the pressure in the fresh water, which is
14 -- I would say normally pressured, but I guess one of these
15 wells out here, they received a -- they had a flow, which
16 would actually work in their favor as far as invading,
17 but -- And so the pressure in the formation you're
18 injecting into, the pressure in the freshwater zone and the
19 location in the freshwater zone.

20 Another factor is, you have to estimate the rate
21 and the time that you're going to be injecting. And of
22 course there's always permeability and what they call
23 transmissibility and storativity for -- Willie would be
24 more familiar with those terms.

25 Q. Will the operators in this area have the needed

1 information to perform the calculation?

2 A. They may not, unless they go through some
3 determinations.

4 Q. What are they going to have to do?

5 A. The primary thing they're going to have to do is
6 tell us where the fresh water is. That burden will be on
7 the operator trying to -- wanting to use this injection
8 well to come up with that information.

9 Q. Does this calculation include any assumptions?

10 A. There are assumptions in this calculation.
11 Darcy's law, of course, which is not always extremely valid
12 for clay-type reservoirs, but for the permeabilities we'll
13 be talking about and the -- I mean for the volume of the --
14 or the magnitude of the permeabilities we're talking about,
15 and the porosities, Darcy's law will be just fine.

16 There's some various other assumptions in it.

17 Q. Are the assumptions valid for the area of Sierra
18 and Otero Counties?

19 A. Homogeneous reservoir is another assumption, and
20 that will be more valid the better the injection zone is.
21 But if it's kind of a poor injection zone, it's going to
22 have a heterogeneous-type nature and it may not be too
23 valid.

24 So this equation may or may not come up with the
25 numbers that are going to be extremely valid. We've heard

1 instances of people calculating miles and miles of this
2 equation, so I think it's important for the operator to go
3 through this equation and tell us the factors that they are
4 assuming for the equation, but then we have to look at the
5 output of the equation and take it with a grain of salt.

6 That's why in our proposed Rule we have a minimum
7 of a half mile --

8 Q. But you also mentioned --

9 A. --in all cases.

10 Q. -- you also mentioned that the calculation may
11 result in a very large --

12 A. Extremely large sometimes.

13 Q. Larger than needed?

14 A. Larger than will be practical or even needed.

15 Q. Do you have any recommendations for how we should
16 handle that situation?

17 A. I think the Commission, when they look at any of
18 these points we have in this proposed Rule change, should
19 look -- when they decide the wording of it, and in
20 particular this one, when they decide the wording of it,
21 they should consider putting a maximum limit on the area of
22 review, as far as radial area of review. And I would
23 estimate one mile as a maximum.

24 Q. So that will leave us with a radius of area of
25 review of a minimum of a half a mile and a maximum -- are

1 you saying a maximum of a mile or a maximum of a mile plus
2 one third? Because the Rule talks about the EPA
3 calculation plus one-third.

4 A. It could be a mile plus one-third.

5 Q. One-third. Why does the Rule add that, that it's
6 not just the calculation but adds on a third again?

7 A. Well, that's because of the -- all of the
8 assumptions in the calculation are not -- are a bit
9 difficult to come up with. There is some variability in
10 those, and so there's going to be some -- This is a factor
11 of safety applied to this area as an extra-sensitive area
12 in the state.

13 Q. You mentioned earlier that to perform this
14 calculation correctly you'd have to know where the fresh
15 water is. How can you do this calculation before you have
16 even drilled a well?

17 A. How can you find the fresh water before you drill
18 the well?

19 Q. Right.

20 A. Okay, as far as determining underground sources
21 of drinking water, the EPA's guidelines are that there's
22 basically two methods. There's the direct method of
23 perforating and measuring, or there is an indirect method,
24 and the indirect methods could be a range of ways of
25 determining the fresh water. Correlation between a real

1 close well is a very good way to do it, if you have one.

2 The EPA says in their guidance document, which I
3 think you have a copy of it here, that geophysical logging,
4 which they mean electric logging, is the most common way of
5 looking for freshwater sands.

6 Q. Okay. Mr. Jones, do you have a copy of this
7 memo?

8 A. No, I don't.

9 Q. Can you tell us where this memo come from?

10 A. Okay, this memo comes from --

11 CHAIRMAN FESMIRE: Before you start quoting from
12 that, do you want to make that an exhibit?

13 MS. MacQUESTEN: I would like to, I was leading
14 up to that, and I have additional copies for the
15 Commission.

16 CHAIRMAN FESMIRE: Please. And this is proposed
17 Exhibit 30, Steve?

18 COURT REPORTER: 30, correct.

19 Q. (By Ms. MacQuesten) Who put out this memo?

20 A. This memo was put out by US Environmental
21 Protection Agency in Washington, D.C. The Director of the
22 Office of Groundwater and Drinking Water put this memo out
23 in 1993, I believe.

24 Q. And does this memo cover how the EPA suggests a
25 USDW be determined and the methods of testing to determine

1 fresh water?

2 A. Yes, it does.

3 Q. Is this memo something that you use in your
4 position as UIC program manager for New Mexico?

5 A. We -- When anybody wants to perforate and inject
6 into a formation that we don't know what the total
7 dissolved solids of the water in that formation is, we have
8 them swab back a sample and analyze it.

9 Q. And is that one of the recommendations in this
10 memo?

11 A. This memo -- Yes, that would be a direct
12 determination. But what I was just talking about there was
13 determining if we are injecting into a potential USDW. I
14 guess I should show the definition of a USDW here.

15 Okay, a USDW as the EPA defines it is an aquifer
16 or portion of an aquifer which supplies any public water
17 system or contains a quantity of water sufficient to supply
18 a public water system. And in their guidance document here
19 they say, capable of giving up, as a conservative flow, one
20 gallon per minute. And as you can read further, it
21 currently supplies drinking water for human consumption,
22 contains fewer than 10,000 milligrams per liter TDS and is
23 not an exempted aquifer.

24 But that is the definition of an underground
25 source of drinking water.

1 As far as the exemptions go on these aquifers,
2 the EPA says an exempted aquifer is defined as one that
3 does not serve as a drinking water source, cannot now and
4 will not in the future serve as a drinking water source
5 because of several things, it is mineral-, hydrocarbon or
6 geothermal-energy-bearing, it is situated at a depth or
7 location which makes recovery technically or economically
8 impractical, and the next slide is, so contaminated it
9 cannot be treated it cannot be treated economically for
10 human consumption, it is located above Class III mining
11 area subject to subsidence or collapse. And then the TDS
12 content has to be from above 3000 milligrams per liter, and
13 it is not expected to supply a public water system.

14 And as far as New Mexico goes, as far as
15 exempting any aquifers, if someone applies for an
16 exemption, we set it to hearing, they come in and make
17 their case for that, and then the EPA also has to approve
18 that.

19 Q. So how do you test to determine whether you have
20 a freshwater aquifer to be protected?

21 A. Well, there's direct methods, there's indirect
22 methods. Direct methods is -- in a wildcat area where you
23 don't know anything about it, one scenario would be -- in a
24 wildcat area, drilling engineers typically start out with a
25 bit size above what they think they might need, because of

1 potential -- they might have to stop and set casing at one
2 point. That would be just another reason for starting out
3 with one bit size too big, or actually even two bit sizes
4 bigger than they need, and they would drill down and do
5 whatever they need to do to test for fresh water, and then
6 they would case that water off.

7 The EPA says the water tables have to be cased
8 off 50 feet -- the casing has to be 50 feet below the level
9 of the lowest USDW.

10 Q. Now, that's a direct method. Are there indirect
11 methods?

12 A. Indirect methods -- I should talk a little bit
13 about logging here.

14 Logging is basically a -- as most of you know, an
15 interpretive -- interpretation of responses that you induce
16 or directly measure from tools or radioactive sources that
17 are put into oil wells or any other kind of wells, and so
18 it's an interpretive thing.

19 Logging is -- With the advent of the computers
20 nowadays, you can put in different assumptions, run your
21 interpretation, see what that looks like. You can change
22 your assumptions just immediately and run it again. And
23 it's not the old grind-it-out-by-hand type that we used to
24 have.

25 In addition, the technology has improved. And in

1 the last few years, I found out, there is even more direct
2 measurement or more measurements through electric logging,
3 through pipe, than there used to be. I don't recommend
4 that.

5 But what we would have as a scenario is that the
6 operator would drill down and they would drill with a low-
7 water-loss mud, with the correct chemicals in it that would
8 provide the best logging response to identify fresh water.
9 And then they would log the well with a complete suite of
10 logs, including induction, resistivity logs, and the
11 typical porosity and any of the other logs on a complete
12 open-hole logging suite.

13 And with the combination of the low water loss --
14 I think the operators out here -- they know they're going
15 to have to really put something into their -- once they
16 start drilling with freshwater mud, they're going to have
17 to limit their water loss out here, because they look at
18 the previous records and they try to learn from that. So
19 they're going to have that anyway.

20 And that would be one way that logging can be
21 used. We do have a precedent for this in New Mexico, the
22 -- I found out, and Commissioner Chavez probably knows all
23 about this, but the BLM on the Jicarilla Reservation or the
24 eastern side of the San Juan Basin, there is periodic
25 freshwaters down to the K-T boundary, basically the

1 Kirtland formation.

2 Okay, the BLM has required, in instances,
3 operators to drill with the correct mud properties and
4 water-loss additives in order to log and determine where
5 these fresh waters are. So that has been done.

6 The difference between the eastern San Juan and
7 the Otero Mesa, as far as that goes, at least now, is, in
8 the eastern San Juan we know, once it hits the Fruitland
9 formation or the Kirtland formation, from there down your
10 total dissolved solids, milligrams per liter, is pretty
11 much not fresh from there on down. Out here we don't know
12 that.

13 Q. Okay. So I heard you to say that the BLM in the
14 San Juan area is requiring some operators to log for -- to
15 determine the extent of fresh water when they're drilling?

16 A. They have required that in the past. The other
17 alternative they would give the operators is to set
18 basically an intermediate pipe below any possible fresh
19 water and circulate cement.

20 Q. We've jumped a little bit ahead of ourselves in
21 that we're now talking about -- when we're talking about
22 logging, we're talking about a different provision of the
23 proposed Rule, which would require operators to log or test
24 to demonstrate the vertical extent of any freshwater
25 aquifers prior to using a new or existing well.

1 And so far, the methods that you've been
2 describing sounded to me as though -- some things that you
3 would do in the course of drilling a new well. Is there
4 any way to determine the extent of freshwater aquifers if
5 you're looking at an existing well that you want to convert
6 to an injection well?

7 A. One way is to look at any of the drilling
8 records, especially if they drilled with air, because then
9 they would have hit some water, and sometimes they make a
10 note that it is fresh water. Even if they did hit water
11 and they didn't make a note that it was fresh water, that
12 would be a point that they would need to test.

13 It might boil down to them perforating and
14 swabbing back some samples from that zone, and then at that
15 point they'd compromise their casing integrity. And it may
16 or may not hold up to a mechanical integrity test in the
17 future, so what they might have to do from there is to set
18 a smaller-diameter casing inside of that, cement that to
19 the surface.

20 Q. So perforate and test the existing casing, but
21 then put a new casing down the center?

22 A. If the original one was big enough.

23 Q. Okay, to ensure the integrity?

24 A. Yes, that's one way to do it.

25 Q. Is it useful to use -- Right now, we don't know a

1 lot about this area from the existing development; is that
2 right?

3 A. Right.

4 Q. A lot of the wells that were drilled are old, the
5 records aren't that clear, we don't know what was going on.

6 As it is developed and as more information is
7 gained, will operators be able to use that information to
8 demonstrate the extent of freshwater aquifers by looking at
9 well files from other wells --

10 A. Yes.

11 Q. -- would that be one method?

12 A. Yes, these methods, these proposed specific rules
13 for Otero Mesa are designed to get us off on the right foot
14 here and make sure that the costs -- basically the costs
15 for determining these freshwater USDWs is done right off
16 the bat. And then as more wells area drilled, the
17 operators will be able to tell where they're going to set
18 their intermediate pipe, basically.

19 And if -- But no matter what, each application
20 will come to hearing and we will look at it to see if it is
21 close enough to use this correlation, and we will work with
22 our district geologist in Artesia to also determine that.

23 Q. Now, to get back to one of my previous questions,
24 I was asking what happens if you're drilling a new well and
25 you're being asked to perform this calculation that depends

1 on knowing where the freshwater aquifers are? What happens
2 when you go to hearing and you're proposing a well? You
3 haven't drilled it yet, so you don't have these logs and so
4 forth. How do you make your case for being able to get a
5 permit for an injection well?

6 A. Well, they come to hearing and they show us all
7 the records in the area, if there is any -- and you're
8 saying in this case there is none -- they show us any
9 geological projections of the formations that are there.
10 And they basically -- all else fails, they need to start
11 out their hole a size or two sizes bigger than they would
12 in a normal case and drill down and run full sweeps of logs
13 on their intermediate casing and submit the results, and
14 may or may not have to go through a perforating test
15 procedure before they drill on out.

16 Q. Do they start by assuming the maximum area of
17 review that you're recommending the Commission adopt, or
18 did they make assumptions and then supplement as more
19 information was added? What are you suggesting?

20 A. They would prudently start out looking in an area
21 of review as big as possible. And most operators do that.
22 When they apply to us for injection permits, they will find
23 a place that has hardly any wells around it and try to
24 apply for that. Most operators do that, and they would do
25 that here also, I'm sure.

1 Q. Could we go to slide 32? I think that's the
2 right one. We've been talking about additional
3 requirements for the collection of data and for the
4 performance of tests and additional filing requirements
5 also in some of these injection well permits, and I'd like
6 you to talk about what authority the OCD has to request
7 that.

8 A. The authority is statutory authority. As you can
9 see on this slide here, from 70-2-12, Section (A),
10 authority to collect data, to examine books and records,
11 provide for the keeping of records and the making of
12 reports and the checking of the accuracy of the reports and
13 records.

14 Q. Could we go to slide 33? Is this additional
15 authority?

16 A. Yes, this is additional authority, to require
17 reports showing the locations of all oil and gas wells and
18 for the filing of logs and drilling records and reports.

19 In this area, we would probably have the
20 operators turn in their mud logs and all cement bond logs
21 and any other reports that would help us determine where
22 the USDWs are.

23 Q. Let's turn to another provision in the proposed
24 Rule, and that is that operators record injection pressures
25 and volumes daily.

1 A. Okay, that is, I think, a major -- I think that
2 has been needed, especially in this area, and it will be
3 needed in this area. With the advent of the databases and
4 the information age, this once-a-month number is really
5 kind of out of date.

6 Q. Is once a month a requirement in the current
7 Rules?

8 A. The current Rule requires the operators to write
9 down their injection pressure and volume once a month and
10 send it to the OCD.

11 Q. What does injection pressure and volume tell us?

12 A. Injection pressure and volume tells you whether
13 the well is injecting at too high a pressure or it tells
14 you if the well is -- still has capacity to take fluid or
15 not. It tells not only the OCD, it tells the operator that
16 also.

17 The daily pressures and rates are used in a real
18 common calculation called the Hall plot, which is used --
19 it's been used for many, many years by injection well
20 operators to tell whether their well is starting to change
21 in its injectivity or not. And the basic definition of the
22 Hall plot is daily rates and pressures. That's what goes
23 into that Hall plot. You can tell more from that.

24 Now, the requirement that we proposed here to
25 include this would require the operators to set up a remote

1 transmitting unit -- as I envision it, it would require
2 that because of Otero Mesa being such a remote area that
3 most of the wellsite visits by the operators will not be by
4 someone working for the operator except in a contract
5 capacity, so... Contract pumpers have a lot of other
6 things going a lot of times too, and I think -- it would
7 require the operators to spend, I estimate, \$10,000,
8 \$15,000 more per well to set this system up.

9 But we don't say anything about this in the
10 proposed Rule. All we say is, they record daily pressures
11 and rates and have them for possibly turning in if we ask
12 for them.

13 I think this also would help in compliance, it
14 would help -- When our inspectors go by and check on a
15 well, they read the pressure on that well, and this helps
16 the reading that our inspectors get. If that falls in line
17 with what's been reported on a statistical basis, that will
18 help us tell whether things are going on okay as far as
19 compliance goes. So I think it's a positive thing for
20 Otero Mesa.

21 We don't want any wells to -- the injection
22 pressure to go above the fracture pressure. Our operators
23 have been pretty good in the state about complying with
24 this Rule. We already have this Rule, and New Mexico is
25 one of the best states in Region 6 as far as limiting the

1 injection pressures on their injection wells. We start out
2 with a gradient of .2 p.s.i. per foot, and the only way
3 operators get permitted for more is to basically show us
4 that this will not either frac the formation or migrate
5 fluid out of the intended injection formation.

6 Q. How does having the pressures recorded daily help
7 our inspectors?

8 A. It would help our inspectors verify whether, when
9 they come by and check on a well, that the number that they
10 see is representative of what's been happening in the past
11 on that well. And it will also tell you whether there have
12 been spikes in the injection pressure of a well. It
13 actually helps the operator by keeping track of their
14 injectivity in a well, and help in their compliance. They
15 don't want to be out of compliance either.

16 Q. Is daily recording of injection pressures a
17 standard operating procedure for Class I wells?

18 A. Class I wells, it is, yes, and we have a few
19 Class I wells in the state that -- Actually, what they
20 recorded there is a chart, pressure chart, and that tells
21 you whether there has been spikes in that injection
22 pressure.

23 Q. Let's turn to the last requirement, and that is a
24 change in the requirement regarding mechanical integrity
25 tests. The current Rule requires injection wells to be

1 tested annually; is that right?

2 A. The last slide, probably. Last one, I think it
3 is. There it is.

4 Q. I'm sorry, Mr. Jones, I misspoke. The current
5 Rule requires every five years a mechanical integrity test;
6 is that right?

7 A. Yes, that's our -- I believe that's a rule. It's
8 definitely a practice.

9 Q. Okay. And the proposed Rule would require it
10 annually instead of every five years?

11 A. That is a rule, by the way. Yes, this proposed
12 Rule on Otero Mesa would require annual testing of --
13 mechanical integrity testing of these Class II wells. Now,
14 we require Class 1 wells in the state to be tested annually
15 also.

16 Q. Sop this is a requirement currently in place for
17 Class I wells?

18 A. Class I wells.

19 Q. What is the mechanical integrity test designed to
20 show?

21 A. Basically, as far as the EPA definition of a
22 mechanical integrity test, the first part of the test is to
23 verify that injected fluid is not migrating up the back
24 side, through microannuluses or through noncemented casing,
25 into areas that you don't want it to be migrating from.

1 Q. Is this similar to what Mr. Anderson testified to
2 yesterday on the cementing issue?

3 A. This is. He was talking about the cement and the
4 different -- and he talked about cement bond logs. And as
5 far as the EPA says, a cement bond log will tell you four
6 things: It will tell you the cement top, it will tell you
7 the bond between the formation and the cement, it will tell
8 you the bond between the cement and the casing, and it will
9 tell you whether there's a major migration back through the
10 cement.

11 It won't tell you whether there's microannuluses,
12 and that's another part of mechanical-integrity testing
13 that can be done on occasion -- noise logs. But the first
14 part of mechanical integrity testing is to look at all the
15 existing data on the well and make sure that the records
16 show that there will be no migration. And the second part
17 is the pressure test on the annulus between the tubing and
18 the casing.

19 The EPA requires -- on a typical Class II
20 injection well, they require three areas of protection.

21 The first area of protection of the fresh water
22 is the surface cement and casing. Your surface pipe has to
23 be circulated, and it has to be 50 feet below the lowest
24 underground source of drinking water.

25 The second level of protection is the production

1 casing itself, or injection casing in this case. On Class
2 II wells they don't require it to be circulated to the
3 surface, but they require that casing to be there.

4 Okay, that's two casings, one cement sheath.

5 And the third level of protection is the annulus
6 between the casing and the injection tubing.

7 Q. Why is the OCD recommending mechanical integrity
8 tests on an annual basis for wells in Otero-Sierra County?

9 A. This is just an extra measure of protection for a
10 highly sensitive area, and it's -- If you think about the
11 scenario, the -- if the well is tested today and all of a
12 sudden something gives on the packer or the tubing or the
13 casing next week, and then you're waiting another five
14 years before you test it again, that's not a good scenario.

15 MS. MacQUESTEN: I have no more questions on
16 direct.

17 CHAIRMAN FESMIRE: Commissioner Bailey?

18 EXAMINATION

19 BY COMMISSIONER BAILEY:

20 Q. Produced water disposal falls under Class I or
21 Class II?

22 A. Class II

23 Q. Classification of waste disposal is determined at
24 the state level or at the federal level?

25 A. At the federal level.

1 Q. Produced water disposal is not RCRA-regulated?

2 A. Right, it's not regulated by the Clean Water Act,
3 it's not regulated by RCRA; it's regulated by the Safe
4 Drinking Water Act, which was passed in 1974.

5 Q. But as a Class II-type waste, it is not subject
6 to the same disposal requirements as the Class I wells?

7 A. That's right, that's correct.

8 Q. Because of that, is this area the only wildcat
9 area in the state that's currently being looked at for --

10 A. No, absolutely not.

11 Q. Is this the only sensitive area in the state
12 that's currently being looked at?

13 A. The sensitivity issue would be -- the only way I
14 would be able to tell that is if someone sends me an
15 application, or the Engineering Bureau, an application for
16 injection, and it is an area of the state that is
17 relatively remote, such as Raton or the southwest part of
18 the state, for instance. If they send one, then I would be
19 able to look at it, or the other engineers that are looking
20 at that.

21 Now, as far as the surface, I'm really not a
22 surface person. That would be the other testimony that was
23 here.

24 Q. So this area is being singled out for additional
25 measures?

1 A. Yes, and as far as what I'm working on, as far as
2 it being singled out, it's because of the -- it hasn't been
3 -- the fresh water hasn't been determined yet, the quality
4 and extent of this fresh water.

5 As far as the surface, that's another reason --
6 there's other reasons why that's been singled out.

7 Q. New Mexico has primacy over the UIC permit?

8 A. Yes.

9 Q. And as such, New Mexico regulations must be as
10 stringent or more stringent than federal regulations --

11 A. Correct.

12 Q. -- for UIC programs?

13 A. Yes.

14 Q. New Mexico rules are already more stringent than
15 federal regulations?

16 A. I believe so.

17 Q. So you are asking us to approve even more,
18 more --

19 A. Yes.

20 Q. -- is that correct?

21 A. Yes, ma'am.

22 Q. Okay. I'm a little confused. The factors that
23 go into approval of injection programs are technical and
24 scientific?

25 A. And preventative.

1 Q. And preventative, but they're all based on
2 science?

3 A. Yes.

4 Q. Okay. What is the source of your information on
5 which you make decisions for approval or rejection?

6 A. We have a long list of requirements for the
7 operators to supply us, and we look at what they supply and
8 then we look at also Division records. Other sources could
9 be maybe -- I don't know what other sources.

10 Q. So you depend on the applicant --

11 A. Yes.

12 Q. -- and your own research into, maybe, State
13 Engineer records --

14 A. Exactly.

15 Q. -- or your own expertise --

16 A. Yes.

17 Q. -- or Division records? So you do that type of
18 research on an administrative level?

19 A. Yes, the saltwater disposal applications are one
20 of the most -- I think, one of the most -- have the most
21 variety in them.

22 We do have on a common -- on a daily basis we
23 will have operators that -- or we will have applications
24 that do not have enough information because the person
25 doing the application may not have a geology degree, and

1 engineering degree, a land degree, and it requires so much
2 more.

3 But this is all regulated -- it all comes down to
4 protecting the drinking water, and it's basically EPA-
5 regulated, so I don't see where we can back off on any of
6 it.

7 Q. But it's all based on technical research,
8 technical information, scientific information?

9 A. Yes, and also we try to go to the correct people
10 for it. The landmen have to decide ownership and who gets
11 noticed; the geologist decides whether there's faults in
12 the area that could be conducive to fluids -- microfluid
13 migration. So we kind of rely on several different
14 professions here to supply information.

15 Q. Then what is the purpose of the public hearing?

16 A. Well --

17 Q. What specifically would you get from a public
18 hearing on a technical basis that you would not have access
19 to?

20 A. Okay, I do have -- When we notice people for a
21 normal administrative application, we're required -- under
22 current rules we're required to notice the owner of the
23 surface of the injection site, whether it's the State Land
24 Office, the BLM or a private owner.

25 And then we -- the operator is required to notice

1 the operator of record within a half mile of any -- If
2 there is no operators of record, then we go down to the
3 next level and all the leasees. If there's no leasees,
4 then we go to the royalty owners.

5 So a half mile is the limit of where we require
6 any kind of notice.

7 The hearing would enable us to get notice from --
8 or other people such as maybe the rancher that's leasing
9 the land to come in and talk, although whether they have a
10 right to stop it or not depends on the legal profession
11 here, and I wouldn't presume to know that.

12 But as far as coming to hearing, there's so many
13 factors involved with saltwater disposal application, and
14 in this area there's even more factors involved. So it's
15 really a situation where we need to talk about it. It
16 doesn't -- We don't need to just have a back-and-forth
17 sending of letters and that kind of thing. In my opinion,
18 it's definitely beyond the scope of administrative.

19 Q. And you have the option now to set it at hearing
20 if --

21 A. Yes.

22 Q. -- if it is in the least unusual for you?

23 A. That's exactly right.

24 Q. Then why make it a requirement?

25 A. It's extra-special -- extraordinary measures for

1 an extra-special area.

2 Q. I have a question about the memo that you gave
3 us.

4 A. Okay.

5 Q. In the last paragraph, or next to the last
6 paragraph, is a sentence, Although the methods specified in
7 40 CFR 136 have validity, they are not required by the UIC
8 regulations. What does that mean?

9 A. That means -- If I said earlier that the EPA
10 actually required this, I should verify -- I should clarify
11 that. They encourage it, encourage that equation.
12 Actually, they don't say exactly that equation. They say
13 that equation or some similar equation. And I think in our
14 case you would have to depend on whether it's confined
15 situation or an unconfined situation, use a different
16 equation for different situations.

17 Q. So there are alternative options for operators?

18 A. The states or whoever has primacy can set a
19 defined area of review, like a quarter mile or a half mile
20 or whatever the states decide that they want to do. And if
21 the EPA says that's okay, well, that's what we do.

22 Q. Yesterday, were you here when Oscar Simpson made
23 some regulations as far as mechanical equipment that would
24 automatically shut down injection?

25 A. Yes, and I'm glad you asked that. All of our

1 permits -- all of our permits -- We have so many things we
2 put into our permits that are not specifically written down
3 in our Rules, that I think the public and the commenters
4 yesterday would be happy to know that we do require that on
5 all of our wells. We require a pressure-limiting device,
6 and in most cases we spell out in the permit that it has to
7 be set to a certain pressure that's permitted -- The
8 pressure limit is an integral part of the permit, and the
9 pressure-limiting device is also an integral part of the
10 permit.

11 Q. So that issue is already taken care of under
12 current Rules -- or current practice?

13 A. Yes, it is, definitely, what he was talking about
14 yesterday. We have enforcement going on constantly. If we
15 find somebody out of compliance, we go -- each district
16 goes through a series of compliance procedures, and
17 basically we bring that operator back into compliance or
18 the well is shut in. And if they won't shut the well in
19 themselves, we get a letter from the Division Director to
20 shut the well in until they bring it back into compliance.

21 COMMISSIONER BAILEY: Those are all the questions
22 I have.

23 CHAIRMAN FESMIRE: Thank you.

24 Commissioner Chavez?

25 COMMISSIONER CHAVEZ: Yes, sir.

EXAMINATION

BY COMMISSIONER CHAVEZ:

Q. Back to that issue of testing for the radius of area of review under that EPA regulation, now is it under that regulation that states use this formula or something equivalent?

A. Yes, in that -- Is that part of our --

MS. MacQUESTEN: Yes, if I may, Mr. Commissioner, the regulation itself is in your notebook as Exhibit Number 16.

COMMISSIONER CHAVEZ: I'm sorry, it's what?

MS. MacQUESTEN: Number 16 in your notebook is the regulation that contains the calculation.

Q. (By Commissioner Chavez) Okay, Mr. Jones, could an operator propose another method of calculating this radius that would be acceptable to the OCD?

A. Definitely. It depends on the Division Directors ultimately. When applications come to hearing, the Examiners write up a draft and the Division Director, if he or she approves of it, well, they sign it.

And as long as it's accomplishing the same thing, there's -- We weren't intending on this -- the wording of this rule -- proposed Rule change to limit them to this exact Theis equation. And we would -- I would urge the Commissioners to look at the evidence that's presented here

1 today and decide the wording of that.

2 Q. Would some wording that would include something
3 to the effect that, or other method acceptable to the
4 Division, meet the intent of what you're trying to
5 accomplish with this Rule change?

6 A. Yes, it would. In my opinion it would,
7 definitely.

8 Q. Okay. Would that allow more flexibility, then,
9 if the EPA should change their regulations and change the
10 formula?

11 A. That's a good point. Yes, it would, definitely.

12 Q. Now, one of the reasons you mentioned, if I
13 understood you correctly, was that for having --
14 appearing -- instead of automatically going through an
15 administrative process was because of the number of
16 unknowns in this area; is that correct?

17 A. Yes, the unknowns specifically -- the geology and
18 the aquifer unknowns.

19 Q. Also, you mentioned about the different type of
20 notice that stakeholders or interested parties receive,
21 depending on whether it's an administrative application or
22 a hearing application. Under that administrative process
23 would, let's say, a rancher who has a grazing lease and a
24 water well be notified of an application for a disposal
25 well within -- if his water well was in this radius?

1 A. The only notice -- I think I understand the
2 question correctly. The only notice I think he would
3 receive is the one-day publication in the newspaper of the
4 county that the well is in.

5 Q. Now, that's for the hearing; is that right?

6 A. No, that's for the administrative rule. If it
7 goes to hearing, they're not required to publish anything
8 in the newspaper. It's published as a part of their
9 regular notice of coming to hearing, 23 days before the
10 hearing date.

11 Q. But overall, would there be more people who have
12 an interest in an application might be affected by this
13 activity notified through the hearing process than through
14 the administrative process?

15 A. I believe they would, yes.

16 Q. The OCD has a process whereby some types of
17 applications that are unopposed are taken under advisement;
18 isn't that correct?

19 A. Yes, sir.

20 Q. So there's a possibility, then, that should a
21 hearing for a disposal well in this area not be opposed, it
22 could follow a similar type of a process where it would be
23 taken under consideration and ease the burden on the
24 operators for presenting cases; is that how you understand
25 that?

1 A. Gail can correct me if I'm wrong on this, but
2 sometimes we have a provision in -- or when someone comes
3 to hearing to present by affidavit. But in almost all
4 cases they have to present a very thorough evidence session
5 by affidavit than presenting expert witnesses at the
6 hearing itself.

7 So it's not -- it doesn't -- I don't -- It saves
8 them a trip to Santa Fe for a witness, but till the
9 witnesses -- the same people have to come up with all that
10 stuff and publish it.

11 Q. But the burden of the hearing process itself
12 could be lessened some if the case is unopposed?

13 A. Yes, yes, it would.

14 MS. MacQUESTEN: If I could comment on that, my
15 understanding is that we have provided in some of our Rules
16 for presentation of evidence by affidavit, and if it's not
17 opposed it's taken under advisement without an evidentiary
18 hearing. That is not contained in this proposed Rule, and
19 the intent was to have an evidentiary hearing at which the
20 Examiners would have an opportunity to ask questions of the
21 individuals who are proposing the injection well and any
22 individuals who are opposing the injection well to get as
23 much information as possible.

24 Q. (By Commissioner Chavez) Commissioner Bailey
25 referred to the difference between some requirements that

1 the OCD has being stricter than the requirements of the UIC
2 program. Does some of that derive because the UIC program
3 does not consider waste and correlative rights in the same
4 way that the statutory requirements for the OCD are put
5 together?

6 A. Exactly, and I'm glad you brought that up because
7 I forgot to mention that. Correlative rights are part of
8 the three main charges of the OCD, and correlative rights
9 are impaired if water -- injected waste water migrates out
10 of the zone that it's intended to be injected into. Not
11 only will it possibly keep migrating if it starts, but if
12 it migrates into, for instance, someone else's producing
13 oil zone, well then, it will impair their correlative
14 rights.

15 So the OCD regulations for UIC, underground
16 injection control, purposes are set up to not only predict
17 but prevent pollution of fresh water from underground
18 injection wells, but to prevent migration of any injected
19 fluids.

20 So I'm glad you brought that up, because that's
21 definitely one of our charges.

22 Q. Also, don't the OCD definitions of ground water
23 and fresh water to be protected differ some from the
24 specific UIC definitions of underground sources of drinking
25 water?

1 A. To tell you the truth, I'm not as familiar with
2 that as I should be, but I think they do in our Rules
3 differ a tiny bit in that respect.

4 Q. You were talking about the issue of reporting
5 daily injection pressures, and you did mention that
6 existing Class I wells require continuous reporting.

7 A. Yes.

8 Q. Now, the way the Rule is stated, actually an
9 operator could take an instantaneous pressure each day and
10 still comply with the Rule the way it's written. Is that
11 what you intended, or would the information from the
12 continuous reporting be more beneficial for your purposes,
13 what you're trying to accomplish with this Rule?

14 A. Yes, the chart data does show any spikes that
15 could happen, for instance, different times in the day.
16 And this is kind of a compromise between doing the charts
17 and going with monthly data, you know, it's going with
18 daily data.

19 A lot of operators have data systems where they
20 can hook this injection well up to that system, and they're
21 continuously reading the pressures -- the injection -- the
22 line pressure, the injection pressure and the rate that's
23 going into the well or out of the well, out of a producing
24 well.

25 So these systems are a wonderful addition to the

1 oilfield. They do cost more, but they enable operators and
2 the pumpers to actually go fix -- go straight to the
3 problem and fix the problem, instead of searching
4 throughout the field for the problem to fix. So they save
5 time and they save potential pollution in case of an
6 injection well.

7 Not all operators do this, but this is such a
8 remote area that a contract pumper might not be by there
9 every day, and the well could -- something could happen at
10 the surface, and this type of system would alert them to
11 that immediately and they could call the pumper and have
12 him go out there and shut the thing in, if it wasn't
13 already shut in, or shut the field in.

14 Q. But the proposed Rule does not require that
15 happen?

16 A. The proposed Rule doesn't require that.

17 Q. Okay, but on the basis of -- My understanding is
18 that there's a question about how big of a burden the Rule
19 might place on the operator --

20 A. Yes.

21 Q. -- to monitor the well. The way the Rule is
22 written -- and you already mentioned how remote it is;
23 that's been very obvious through -- the way the Rule is
24 written, what instantaneous pressure -- the operator would
25 have to have somebody there every day --

1 A. Yes.

2 Q. -- taking pressure. But if you required
3 continuous recording, you could get perhaps better
4 information and it wouldn't require the operator to be
5 there every day. Is this --

6 A. Yes, I think it boils down to the Commission.
7 Commissioners, I would urge you to please look at the
8 intent or the objective of what we're trying to do here,
9 and the specific wording of a few of these proposed special
10 rules for this special area, please modify them as you see
11 the need, as the evidence shows.

12 Q. Okay, your requirement number 9 for annual
13 mechanical integrity tests requires that the operator
14 advise the District Office at least 24 hours prior to
15 testing. That type of notice is not in the testing
16 requirements under the 700-series rule.

17 Would you have -- Are you aware how the tests are
18 scheduled in the districts currently?

19 A. No, I am not.

20 Q. Would there be any problem with a longer notice
21 than 48 hours to allow the District to adjust their
22 schedule?

23 A. Considering it takes two and a half hours from
24 Artesia to get to Otero Mesa, I think that's a good idea.

25 COMMISSIONER CHAVEZ: All right, that's all I

1 have.

2 EXAMINATION

3 BY CHAIRMAN FESMIRE:

4 Q. Mr. Jones, this is actually an issue that
5 Commissioner Chavez brought up yesterday and I'm not clear
6 on yet.

7 Under C.(3), Operators shall log or test to
8 demonstrate the vertical extent of any freshwater aquifers
9 prior to using new or existing wells. Is this going to
10 apply to all wells or just those drilled for injection or
11 just exploratory wells or -- Coming under C, it seems to
12 imply that produced-water injection wells would be the only
13 ones affected, but this information is -- It sounds like
14 you're wanting to require it for exploratory wells that
15 were drilled out there, and I don't interpret this Rule, as
16 written, doing that.

17 A. We were focusing on injection wells here. That's
18 the current focus that we have here. So if I implied that
19 this should be done on all producing wells, well, I did not
20 intend for that.

21 Now, if an operator drills a producing well with
22 the off chance that they know in advance that it's going to
23 be converted to injection, they would be prudent to
24 definitely do some sort of direct or indirect testing to
25 determine where the fresh waters.

1 Q. Okay. So to clarify, this program only applies
2 to injection wells or wells that will be converted to
3 injection wells?

4 A. Yes, sir.

5 Q. Could you give us an idea, just an estimate --
6 and I realize it would be a guesstimate at this point, with
7 the information that we know out there -- how deep are
8 these zones going to be, the injection zones?

9 A. I would -- The very permeable zones that they
10 found the gas -- some bailout gas in -- I say bailout
11 because they were drilling to 6000, 7000 feet, and several
12 wells were dryholes to 6000 or 7000 feet. But these
13 particular wells they bailed out, they drilled them on down
14 and logged them and ended up perforating at 2200 or so
15 feet.

16 So the injection zones -- We hope they're as deep
17 as possible, but regardless of how deep they are we have to
18 know where the fresh waters are.

19 And to tell you the truth, I would -- I noticed
20 that there's a paper written by the Bureau of Mines in
21 Socorro about -- geologic paper about this area, and it
22 talks about the possible hydrodynamic drive of some of the
23 formations where you can have some of those horsts -- or
24 grabens, where some of those graben faults are not very
25 well sealing.

1 And I've personally seen this in Utah where a
2 graben fault, you can have fresh water down at 2200 feet
3 and it would be just as fresh as it would be coming out of
4 the mountains, actually, you know, which is rainwater or
5 whatever invading either a formation that's been outcropped
6 in the mountains or maybe a fault with a conduit system.

7 But to get back to your question, the geology of
8 the area shows that the San Andres zone is pretty much on
9 the surface, and then you've got the Abo and the Yeso, the
10 Hueco -- the Hueco, they call it out there -- and then
11 you've got the Pennsylvanian-age rocks, and then the
12 Devonian. And the Devonian is an excellent disposal zone
13 in some places.

14 They will go for the most permeable zone that is
15 not productive of oil and gas, without fresh water.

16 Q. Okay, at what depth, for instance, would you
17 expect the Devonian out there?

18 A. I would expect, based on just these wells that we
19 looked at, to be 6000, 7000 feet deep. But if you will
20 look at that geology cross-section, there's -- if you get
21 on the downthrown side of some of those faults, they may be
22 drilling a lot deeper than that in some parts of this area.

23 CHAIRMAN FESMIRE: Ms. MacQuesten, I have no
24 further questions of this witness. Are you ready to begin
25 cross-examination?

1 MS. MacQUESTEN: Yes.

2 CHAIRMAN FESMIRE: Mr. Carr?

3 MR. CARR: Thank you, Mr. Chairman.

4 CROSS-EXAMINATION

5 BY MR. CARR:

6 Q. It's very nice to be asking Mr. Jones questions
7 for a change.

8 (Laughter)

9 THE WITNESS: Sounds like you're going to get
10 back at me here.

11 Q. (By Mr. Carr) Mr. Jones, initially I'd like to
12 discuss with you the requirement that -- in Rule C.(B).(1)
13 [sic] that all permits for injection wells be approved only
14 after notice and hearing.

15 And it would seem to me that, if I understood
16 your testimony, your testimony was that we were trying to
17 get off on the right foot in an area where there's little
18 data, an area that is, as you characterized it, extra
19 special. Is that fair?

20 A. Yes.

21 Q. The purpose of this hearing requirement, that
22 really isn't to meet the needs of the Oil Conservation
23 Division, is it? You have that authority now?

24 A. We do have that authority now. We could set
25 things to hearing if it turns out to be more complicated

1 and administratively...

2 Q. So you'll get an application, you have the option
3 of contacting the operator directly and requiring
4 additional data be provided to you?

5 A. Yes, sir.

6 Q. And if it looks like there are unique or
7 important things that need to be discussed because of the
8 characteristics of this area, you can set it for hearing?

9 A. Yes, sir.

10 Q. Aren't we really talking here about not requiring
11 a hearing, but assuring that notice of what is going on is
12 adequate? The agency is covered, but there are other
13 stakeholders. And isn't the important thing that people
14 who may be impacted by this Application have an opportunity
15 to object and be heard?

16 A. Yes, I think so.

17 Q. If we go to -- If we do file an administrative
18 application on a C-108, we know the fine, all leasehold
19 operators and now the one-half-mile area of review and the
20 owner of the surface of the land on which the well is
21 located -- that is, if it's a 40-acre tract, that's who we
22 notify, correct?

23 A. Correct.

24 Q. And isn't the intent by going to hearing to
25 actually give notice by publication to other people who

1 might have an interest so they can come in?

2 A. I'd have to say yes.

3 Q. And I've heard it said that in most cases notice
4 by publication is no notice at all. And so as we start
5 trying to impose the additional burden on every applicant
6 of a hearing and on this Division of a hearing on every
7 application, might it not be wiser to examine whether or
8 not our notice applications are sufficient in this special
9 area?

10 A. That would definitely be one way of ensuring that
11 the public did get notice. As I -- Go ahead, Mr. Carr.

12 Q. That's just a suggestion, and I then would like
13 to move to the provisions in Rule C.(2).(b) concerning the
14 area of review and the recommendation that we move to a
15 zone-of-endangering-influence approach to setting the area
16 of review.

17 You would agree with me, would you not, that
18 whatever rule comes out of this hearing be workable,
19 something the industry can use?

20 A. Absolutely.

21 Q. And what we're proposing -- what we have now is
22 an area of review that is twice the area of review required
23 as a memo by EPA. They require quarter of a mile, we're
24 right now at half a mile?

25 A. Yes.

1 Q. When I -- and I am unfamiliar with this until I
2 saw your Rule, and when I took what I think is the
3 provision that defines what we're talking about from CFR
4 and I go to the text, there's certain things that, as
5 someone who's never worked with it, aren't clear to me, and
6 I'd like to ask how you under- -- what you understand these
7 to mean.

8 When I look at the Rule, it is talking about an
9 area, the radius of which is the lateral distance in which
10 pressures in the injection zone may cause migration of
11 injection or other formation fluids into an underground
12 source of drinking water?

13 A. Yes.

14 Q. Now, if I understand the concept of area of
15 review, before you get into -- If you're injecting at 7000
16 feet and the water zone is at 500 feet, we're talking about
17 a violation of the threshold premise before we get to this
18 calculation. You have water out of the injection interval;
19 isn't that correct?

20 A. Actually, it's talking about if the piezometric
21 head of the zone you're injecting into is higher in this
22 area of review than the -- basically the bottom of the
23 fresh water, then you've got a potential of -- well,
24 actually it's above the piezometric head of the fresh water
25 -- then you've got a potential, if there is a conduit to

1 -- of some invasion going on.

2 Q. At the threshold, if we look at this thing --

3 A. Okay.

4 Q. -- this Division does not permit injection into a
5 zone that is a source of underground drinking water?

6 A. Yes.

7 Q. And what we're doing is, we're looking at
8 injection pressures and volumes in an often deeper zone,
9 and the impact on fresh waters in a shallower zone?

10 A. Yes.

11 Q. And so to do this, we then have to move into a
12 calculation that you said you'd been trained and are able
13 to convert to oilfield terms?

14 A. Yes.

15 Q. When you take this formula and you start working
16 with it, and you talk about the thickness of the injection
17 zone, you're talking about the deeper zone into which
18 you're injecting?

19 A. Yes, sir.

20 Q. When you talk about the volumes, you're talking
21 about the volume injected into the deeper zone?

22 A. Yes, the -- actually the rate that you're
23 injecting.

24 Q. And then you're somehow converting that and
25 assuming that if it got away from you it would impact the

1 shallower zone?

2 A. The pressure that you apply on the surface is
3 added onto the reservoir pressure that exists at any point
4 in time in that injection zone.

5 Q. And if we go out into this special area where
6 there are really very few if any wells, this information
7 isn't going to be available to you, at least initially, is
8 it?

9 A. The most important information is the freshwater
10 depth and the pressure in the zone you're injecting into.
11 That information -- We need the freshwater depth in order
12 to protect the fresh water, and the pressure in the
13 injecting zone is just used to add on to your injection
14 pressure, to see if you could possibly invade your fresh
15 water.

16 Q. You need that information?

17 A. Yes.

18 Q. And I come with the first application, I don't
19 know where the fresh water is.

20 A. Okay.

21 Q. And before I can find that out, under what you've
22 been telling me I need to do is drill a hole with extra
23 large casing and do these various things. How do I get my
24 APD approved if I don't have the zone of endangering
25 influence defined?

1 A. We thought about that. We have a minimum area of
2 review that would still remain a minimum of a half a mile
3 under the wording we have in this proposed Rule. And when
4 we find a problem in the area of review, or a potential
5 problem that needs further work by the operator, even under
6 our current permits, we permit the well for injection with
7 conditions that some of this other work be done before any
8 injection occurs, so they don't have to come back.

9 Q. And so my APD is going to say I'm going to give
10 you information on the freshwater zones, and I'm going to
11 give you information on the pressure in my area of review,
12 we can forget the zone of endangering influence, we don't
13 have enough to really get there, we go to a mile and a
14 third or five times the EPA minimum; isn't that where I
15 start?

16 A. That's -- Actually, you would have to know before
17 you apply for the permit where that fresh water is, because
18 we can't even grant a conditional permit until we know
19 where the fresh water is.

20 Q. And so I'm out here, Will, and I'm trying to come
21 in with my first permit for an application to drill an
22 injection well, and I must know where the fresh water is.
23 I can do that by -- with the direct method, correct? I
24 could -- But that's not available to me, because I can't
25 drill to avail myself of the direct method, correct?

1 A. You can drill a well. You get the well permitted
2 to drill, but there's a different permit to drill than
3 there is to permit to inject.

4 Q. So I come in, I get a permit to drill a well, and
5 then I do come back a second time and seek authorization to
6 convert a well to injection; that's what you're telling me?

7 A. Yes, sir.

8 Q. And when I come in and drill the first well, to
9 ascertain where fresh water zones are, I drill an extra
10 large casing, I allow myself an opportunity to test by
11 perforating that casing, maybe many times if I need to do
12 it, thinking that I ma have to come back and then after the
13 fact run another tube of casing inside the extra-diameter
14 original wellbore; is that right?

15 A. That could possibly be the worst-case scenario.

16 Q. That could possibly be the only way to get the
17 first one in?

18 A. It could possibly be, yes.

19 Q. You were an engineer for Texaco for a number of
20 years.

21 A. Twenty years.

22 Q. Would you have ever gone in to your management
23 and recommended they undertake that, as opposed to just
24 going to a mile and a third?

25 A. No. As far as the area of review goes, the would

1 say --

2 Q. -- go to a mile and a third?

3 A. -- go to a mile and a third.

4 Q. And if I were -- You know, isn't that really
5 where this leads us? I mean, a rule that you're
6 sponsoring, and you say when we get through this process --
7 which doesn't sound easy; maybe it is, but I don't think it
8 does. But if we get to this, you said the results -- I
9 believe I'm quoting -- you said the numbers may not be
10 extremely valid. You said they may result in an area much
11 larger than needed. Aren't we really talking about just
12 enlarging the area of review, in fact?

13 A. Actually, Mr. Carr, we're not totally talking
14 about that, but -- When you think about it that way you
15 could be correct, but we're also talking about determining
16 where the fresh water is so we can have it cased off
17 adequately. And if the fresh water turns out to be at 3000
18 feet and the injection zone the operator is applying for is
19 at 4000 feet, well, there's only 1000 feet difference
20 there, and that's when this area-of-review calculation
21 would kick in and --

22 Q. The validity of the area-of-review calculation is
23 only as good as the assumptions?

24 A. Yes.

25 Q. And you would agree with me that no matter what

1 you're doing here, there are going to be a number of
2 assumptions?

3 A. Yes.

4 Q. And Texaco might have had different assumptions
5 than Yates or the OCD --

6 A. Yes.

7 Q. -- or the San Juan Citizens Alliance, or whoever
8 it's going to --

9 A. Yes.

10 Q. Would you agree with me that these injection
11 wells are typically drilled in areas that -- You try and
12 get away from other wells and other activity?

13 A. Other wells, if they are not cemented properly.

14 Q. And so the very nature of what we're talking
15 about moves us away from more reliable data and makes us
16 more subject and vulnerable to the errors of assumptions?

17 A. Good point.

18 Q. You stated in response to questions from Mr.
19 Chavez that there might be other acceptable methods for the
20 Commission to turn to. Do you have any idea what those
21 might be?

22 A. I was thinking of not the Theis equation as
23 written in this 146.6. I was thinking of the radial-flow
24 equation that's a point-source, radial-flow solution.

25 Q. I mean, you had EPA training on using this. Do

1 you think it's easy after you've had your EPA training?

2 A. No, we resisted using this in New Mexico, and all
3 the other states do also. We do do it on occasion, and in
4 fact it is -- even under our current Rules, the operators
5 have the option of using this equation to come in and make
6 arguments for a variation in the area of review.

7 But it's not an easy equation to use, it's -- but
8 theoretically it is correct.

9 Q. Did you estimate what -- I would like to move now
10 just to this effort to determine the vertical extent of
11 fresh water. In a typical drilling activity, if you're
12 drilling through a water zone you'd use freshwater mud;
13 isn't that fair to say?

14 A. Yes.

15 Q. And normally, procedures employed to drill a
16 well, if you drill through a freshwater zone, you really
17 might not just in the normal course of drilling the well be
18 able to tell?

19 A. Exactly.

20 Q. And likewise, if you're in a deep horizon and
21 drilling with a saltwater mud, just what -- in the normal
22 course of drilling a well, you're probably not going to be
23 able to tell. You may know you have water, but you won't
24 know if it's by definition fresh water?

25 A. Or how fresh it is.

1 Q. And so one option is to go back and test, and
2 that is perforating the casing?

3 A. That's the last resort.

4 Q. You would agree with me that one of the linchpins
5 in an environmentally safe oil or gas well is the
6 maintenance of the integrity of the casing?

7 A. Exactly.

8 Q. That's why we Bradenhead test these wells?

9 A. Yes.

10 Q. So really going back and perforating and testing
11 in that manner is probably not a very good option; would
12 you agree?

13 A. It's not a good option if that's the casing
14 you're going to use for injection casing.

15 Q. And what you really do have to do is drill a
16 larger hole and incur that extra expense?

17 A. If you're going to use that direct method, yes.

18 Q. Did you estimate what that extra expense might
19 be?

20 A. It could be another \$100,000. That's just
21 offhand. It's --

22 Q. Isn't what you're telling me likely to truly
23 discourage underground injection in this area?

24 A. Actually, the first few operators might be a
25 little bit out of pocket here. We're not real -- we don't

1 want to discourage -- in my opinion -- I realize there's
2 other opinions in this room, but I think our underground
3 injection wells are a safe and environmentally friendly way
4 to get rid of oilfield wastes. I prefer that versus
5 trucking or even evaporation ponds or some -- even some of
6 the treatment methods like marshlands or even reverse
7 osmosis sometimes and in this area. Underground injection
8 well that's real close to your wellfield is a good way to
9 go.

10 Q. If what you're proposing really discourages
11 underground injection, did you attempt to estimate the
12 additional traffic on the surface that might be required to
13 service a well?

14 A. Now say that again?

15 Q. I mean, is it possible to truck away the water?

16 A. Oh, yes.

17 Q. Did you estimate, without an injection well, what
18 the impact would be on that surface use?

19 A. I am not a real surface person here, but I can
20 imagine sometimes those truckers lose water along the
21 route.

22 Q. If you're not a surface person, you may be
23 outnumbered in this room.

24 Let me ask you about Rule C.(8). This is the one
25 where operators report all volumes on a daily basis. Just

1 to be sure I understand you, you're not requiring a report
2 filed every day, but the monthly reports break it out day
3 by day. Is that what you're asking for?

4 A. I think our wording is that it just be -- the
5 information be kept. And if the District Office --

6 Q. -- wants it, it be made available to them?

7 A. Yes.

8 Q. And here you're applying -- I guess here, and
9 also with the annual mechanical integrity test, standards
10 for Class I wells to what truly are Class II wells?

11 A. The frequency, definitely.

12 Q. And what is the technical basis for making that
13 determination, that these standards should apply to a Class
14 II well?

15 A. We don't know the corrosion rate of the casing
16 out there in this area, and as far as the incidences of
17 failures on MITs versus the -- how long the casing has been
18 in the ground, even in other parts of the state, that's
19 something the District -- Chris or some of the other
20 District managers keep up with that, but that's --

21 Q. Are you suggesting that the monthly reporting or
22 the mechanical integrity tests that are now run every five
23 years on wells aren't working in other parts of the State?

24 A. No, sir, I'm not saying that.

25 Q. Do you have any particular reason, other than

1 just a general concern, to think they wouldn't work in the
2 area that is the subject of this case?

3 A. I think it's more of a concern. Like you said,
4 it's a -- it's extra special measures for a highly
5 sensitive area.

6 Q. And it's a highly sensitive area, you make that
7 statement -- and I'm not quarreling with that, but when you
8 say that, it's a highly sensitive area in what known
9 respects?

10 A. For me, the extent and quality of the fresh water
11 would be what's sensitive about it, and the potential for
12 that volume of water maybe to be used for something in
13 the -- actually in the near future.

14 Q. And when we look at this area as highly
15 sensitive, we've heard testimony about plants and wildlife
16 and other things. Those really aren't within the OCD
17 jurisdiction, are they?

18 A. The --

19 Q. I can help you. Your jurisdiction is based on
20 protection of fresh water; isn't that right?

21 A. And there was a third thing added to the OCD
22 charge back in the 1980s, protecting the environment from
23 oilfield wastes and oil spills.

24 Q. And so perhaps there you would want to talk to
25 the Fish and Wildlife and the Game Department?

1 A. Yes.

2 Q. In developing the Rules you might also need to
3 talk to the Air Quality Bureau; don't you think that's also
4 fair?

5 A. Well, you're getting beyond my realm here.

6 Q. But you would agree that if you can't inject
7 because of requirements that are so rigorous, you could
8 increase truck traffic?

9 A. Yes, I have to agree with that.

10 MR. CARR: That's all I have. Thank you.

11 CHAIRMAN FESMIRE: Ms. Belin, do you have any
12 questions of this witness?

13 MS. BELIN: No, I have no questions.

14 CHAIRMAN FESMIRE: Dan?

15 MR. RANDOLPH: May I have a few questions?

16 CHAIRMAN FESMIRE: Sure

17 EXAMINATION

18 BY MR. RANDOLPH:

19 Q. My name is Dan Randolph, I'm with the San Juan
20 Citizens Alliance. Thank you.

21 What is the difference between a Class I and a
22 Class II well?

23 A. Well, you're the first one that's asked me that.
24 Since we're on the record here, I'd better -- Class I wells
25 isolate hazardous industrial and municipal waste through

1 deep injection, Class II wells inject oil and gas
2 production wastes.

3 Q. As far as the chemical constituents and the
4 potential threat to drinking water, what is the difference
5 between those two classes of materials?

6 A. Some Class II wells are real similar to the Class
7 I wells. Most Class II wells are oilfield waste disposal,
8 which is basically produced water, maybe some chemicals
9 that are associated with the production or added to the
10 separators or the tanks that go down Class II wells.

11 Class I wells, in New Mexico we have no hazardous
12 Class I wells. We have four nonhazardous Class I wells in
13 New Mexico.

14 Q. And are you at all familiar with what they are
15 injecting on those wells?

16 A. Yes, three of them are injecting one type of
17 effluent, and the other one is a little bit different. And
18 we have another guy that handles the Class I program, and
19 he's not here right now, but they basically come from
20 gasoline plants, the Class I wells. And the Class II wells
21 can come from a different kind of plant, but it's usually
22 just oilfield waste.

23 Q. So as far as the impact to drinking water, what
24 is the difference between what is injected in these two?

25 A. It would depend on exactly what's going down the

1 well and how you limit the pressures and rates of that well
2 and where you're putting it.

3 Q. But by definition between the Class I and Class
4 II, there's not necessarily a difference in threat to
5 drinking water between the Class I and Class II -- of the
6 threat to drinking water -- of the solution itself.

7 A. Of the constituents?

8 Q. The constituents of the solution is --

9 A. In some cases they're real similar.

10 Q. And if I understand correctly, the current
11 proposed Rules are similar or basically the same as under
12 Class I rules?

13 A. Actually, we're trying to avoid that terminology,
14 but we did bring it up here several times that it is --
15 some of the additional proposed requirements for Class II
16 wells, actually produced-water injection wells, which is a
17 subset of Class II wells on the Otero Mesa area, is real
18 similar.

19 Q. Okay, thank you. And then another question is
20 that during your work with Texaco or whoever else you
21 worked for, in your experience is there a benefit to an
22 operator of having certainty in going forward with a
23 proposal -- is there -- is the uncertainty of the
24 administrative process that they're going to have to go
25 through -- does that -- is that a burden on them, having

1 uncertainty?

2 A. Actually, the ability to get rid of your water
3 when you produce oil and gas -- If you go into a new area
4 and you don't have a potential saltwater disposal zone,
5 that will stop you from doing any kind of exploration in
6 that area.

7 Q. Okay, but administratively, getting a permit, is
8 the uncertainty of the administrative process, of the
9 permitting process, a factor, and the increased certainty
10 is something that benefits the operators?

11 A. Yes, definitely.

12 Q. And if I understood your testimony, you were --
13 you said that in your estimation, any application for an
14 underground injection control permit in this area, you
15 would move to go toward -- to hearing, regardless, at this
16 point?

17 A. Yes.

18 Q. So that having this in the Rules increases the
19 certainty, and any operator that's not present here that in
20 the future is looking to operate an underground injection
21 well in this area would have the certainty because they
22 would know of that going forward; is that --

23 A. That's correct, and it would also ensure that if
24 I'm not at OCD in a few years or if they've changed overall
25 their engineers and they're not used to the old practices,

1 then we have something in the Rules they can read and they
2 -- Well, these are going to hearing.

3 Q. Okay. And then just one last question. In your
4 calculation of whether to go to hearing or not, is there a
5 component of that -- Do you bring into that equation of
6 whether to go to hearing or request to go to hearing, the
7 controversy surrounding the project?

8 A. The project? Actually, I've never done that.
9 It's always been -- You can pretty much tell if some
10 application is -- it has so many marginal things about it
11 that it needs to be talked about further, but -- just
12 because I haven't had that opportunity yet. But yes, if it
13 was a -- The Division Director decides whether anything
14 goes to hearing or not, and they may or may not agree with
15 what we say.

16 MR. RANDOLPH: Okay, thank you.

17 CHAIRMAN FESMIRE: Any further redirect?

18 MS. MacQUESTEN: No, and the OCD has no other
19 witnesses.

20 I would move at this time for the admission of
21 Exhibits 1 through 16 -- those are the exhibits in your
22 notebook -- and also the admission of the EPA memo which
23 was discussed in Mr. Jones' testimony. I believe that's
24 been marked as Exhibit 30.

25 CHAIRMAN FESMIRE: That's correct.

1 MS. MacQUESTEN: I also have here and move for
2 admission the well file document requested by Mr. Brooks
3 yesterday.

4 And finally I would ask that the Commission take
5 administrative notice of the comments filed to date in
6 response to the pit guidelines, including the comments
7 filed by the State Land Office in that regard.

8 CHAIRMAN FESMIRE: At this time we will admit
9 into the record of the hearing Exhibits 1 through 16,
10 Exhibit Number 30, and that memo -- that well file would be
11 Exhibit Number 31, and it will be admitted also.

12 Dr. Neeper, did you have something you wanted to
13 ask?

14 Before we go any farther, we have been very, very
15 lenient in letting people examine witnesses who were lay
16 personnel.

17 We're going to have to be very careful because
18 we're getting into the area of practicing law. I don't
19 mind doing this occasionally, but we get to the point where
20 we cross-examine every witness, you're going to have to
21 bring an attorney. Okay?

22 Dr. Neeper, you may proceed. Go ahead and make
23 your --

24 DR. NEEPER: We'll discuss the statute later.
25 This is a technical question.

EXAMINATION

BY DR. NEEPER:

Q. The Class II program, I think, enjoys a high credibility and a high respect, and part of that is, I think, stemming from the way it is managed. At present you do pressure-test the wells every five years. Have you ever had a well fail its pressure test?

A. I --

MR. WILLIAMS: Yes.

THE WITNESS: Yes, yes. You know, packers leak or --

Q. (By Dr. Neeper) And in that do you know how much volume of fluid you lost? In other words, what was lost in the leak before the leak was detected?

A. Before the leak was discovered

Q. Yes.

A. Normally, it wouldn't be more than the volume in the annulus. But if it's coming around the packer, no, sometimes you don't know the volume.

Q. So if a well is leaking, you could lose fluid for an indefinite period of time?

A. You could, potentially, usually at a small -- slow rate, but you could.

Q. Would that be an argument for testing more frequently?

1 A. Yes, sir.

2 DR. NEEPER: Thank you.

3 CHAIRMAN FESMIRE: Are there any further
4 questions of this witness?

5 MS. MacQUESTEN: Not from the OCD.

6 MR. CARR: No, sir.

7 CHAIRMAN FESMIRE: At this time we're going to
8 release the witness. We're also going to break for lunch
9 and return at 12:30, at which time I'm assuming, Mr. Carr,
10 you will be prepared to begin your case-in-chief?

11 MR. CARR: Yes, sir.

12 CHAIRMAN FESMIRE: We're adjourned for lunch.
13 Thank you.

14 (Thereupon, noon recess was taken at 11:30 a.m.)

15 (The following proceedings had at 12:30 p.m.)

16 CHAIRMAN FESMIRE: We're going to go back on the
17 record now in Case Number 13,269, and the one thing that I
18 do have to address before we start with Mr. Carr's case-in-
19 chief is that the Commission will take administrative
20 notice of the documents in its files concerning the Rule 50
21 pit rules that were recently promulgated by the Commission,
22 by the Division, and we will take administrative notice of
23 everything that was in the record of that hearing.

24 MS. MacQUESTEN: Mr. Chairman, does that include
25 the comments made on the Pit Rule guidelines?

1 CHAIRMAN FESMIRE: Yes, ma'am, it does,
2 everything having to do with Rule 50 in the Oil
3 Conservation Commission or Oil Conservation Division
4 records.

5 Is that what you were asking?

6 MS. MacQUESTEN: Well, I was specifically asking
7 the Commission to take notice of the comments on the Pit
8 Rule guidelines. I'm not sure whether they are officially
9 part of the Commission record in Rule 50 or not.

10 CHAIRMAN FESMIRE: In that case it would be very
11 difficult to take administrative notice of the comments on
12 the guidelines.

13 MS. MacQUESTEN: There are public records of
14 comments made on the guidelines relevant to the Pit Rule,
15 so there are public documents in possession of the
16 Division.

17 COMMISSIONER BAILEY: But we're not talking about
18 the guidelines in this hearing.

19 MS. MacQUESTEN: But we are talking about pits,
20 and the comments related to the guidelines were all related
21 to the pros and cons of pits.

22 CHAIRMAN FESMIRE: Why don't you go ahead and
23 have those copied? How many are we talking about?

24 MS. MacQUESTEN: What volume are we talking
25 about? It's a good stack.

1 CHAIRMAN FESMIRE: Why don't you go ahead and
2 have those copied, and we'll make it part of the record in
3 this hearing. That way we won't have to worry about them.

4 MS. MacQUESTEN: Okay, thank you.

5 CHAIRMAN FESMIRE: Okay? So we do not take --
6 For the purposes of this hearing, we will not take
7 administrative notice of the documents that I was just
8 talking about.

9 MS. MacQUESTEN: But you do want copies of the
10 comments?

11 CHAIRMAN FESMIRE: Right.

12 COMMISSIONER CHAVEZ: It will be submitted as
13 exhibits.

14 MS. MacQUESTEN: All right, thank you.

15 CHAIRMAN FESMIRE: Yes, as one exhibit.

16 MS. MacQUESTEN: Thank you.

17 CHAIRMAN FESMIRE: Okay. Let's go off the record
18 for a minute.

19 (Off the record)

20 CHAIRMAN FESMIRE: Let's go back on the record,
21 please.

22 At this point, the Commission has discussed a
23 procedural matter concerning the admissibility of those
24 records, and the Chair would entertain a motion to admit
25 them when they arrive, when they get down here. We'll put

1 them on -- we'll entertain a motion at that time, and
2 copies are made available for the Commissioners, okay?

3 MS. MacQUESTEN: All right.

4 CHAIRMAN FESMIRE: So when they get here, at an
5 appropriate point we'll go ahead and admit them.

6 MS. MacQUESTEN: Okay, thank you.

7 CHAIRMAN FESMIRE: Okay?

8 Mr. Carr, with that would you like to proceed?

9 MR. CARR: Mr. Chairman, as we begin I'd like to
10 state that in one respect the people I represent, three oil
11 and gas producers from Artesia -- in one respect our goals
12 are actually the same as the goals of everyone else who's
13 in this room here today. Nothing is more in our best
14 interest than environmentally sound operations, wells that
15 are drilled and operated under effective, appropriate and
16 understandable Rules, and that's why we're here.

17 And I don't think you need to hear from me
18 anything more about our concern about the process that has
19 brought us here today. You know that we believe that what
20 we have here is not a situation where new rules are
21 required, we have issues concerning compliance and
22 enforcement. We're concerned, and we appreciate the time
23 frame within which the rules have been prepared and also
24 the length of the hearing.

25 I had filed prehearing statements for two

1 witnesses, two operational engineers. One of our
2 witnesses, James Pringle, was going to focus his testimony
3 on the use of double-walled pipe. And because of the
4 change that was made in the Rule yesterday, that no longer
5 is an issue, at least it isn't in the current draft, and I
6 don't intend to call Mr. Pringle.

7 Mr. Pringle was simply going to present a letter
8 from the California Fire Marshall -- and Yates, Mr.
9 Pringle's employer, does operate wells in California --
10 where the use of this pipe had been outlawed in that
11 jurisdiction. And the letter raised their concerns with
12 corrosion; identifying leaks; once there is a leak, trying
13 to get in and repair and maintain the system.

14 And what I would like to do is, I'm simply going
15 to leave the letter with you and ask you to take
16 administrative notice of it. And that would mean that we
17 do not have to call Mr. Pringle to testify. The issues
18 that are set forth in this, we were just simply going to
19 mark the letter.

20 CHAIRMAN FESMIRE: Okay, if there's no objection
21 we'll admit it to the record as a public comment.

22 MR. CARR: That would be fine.

23 But if when you retire to consider this, if this
24 becomes an issue, we would like to have as something you
25 could take administrative notice of if it's --

1 CHAIRMAN FESMIRE: Okay, we'll append it to the
2 record as Exhibit thirty-

3 COURT REPORTER: -- two.

4 CHAIRMAN FESMIRE: Thirty-two?

5 MR. CARR: I am going to call this afternoon an
6 operational engineer from Marbob Energy Corporation, Brian
7 Collins. Mr. Collins is going to review the proposed Rule,
8 he's going to compare it -- not all respects, but certain
9 portions of it, to existing rules. His testimony will be
10 that changes are not needed to current rules, but if you go
11 forward with a rule, certain things should be clarified and
12 corrected.

13 We're going to ask you as you decide whether or
14 not to adopt the rules that are before you, to determine
15 whether or not there's a connection between the concerns
16 that have been expressed here and the proposed Rules.
17 We're going to ask you to use your expertise as engineers
18 and geologists, not to just follow a more-is-better
19 approach, but to -- which we submit is wrong -- but to ask
20 yourselves whether what is proposed is actually going to
21 help improve the environment, or is going to actually
22 hinder oil and gas operations and the environmental
23 integrity of our operations?

24 We are going to ask you simply not to impose
25 unworkable, unnecessary requirements that cannot be

1 understood or effectively implemented from an operational
2 point of view.

3 And with that I will call Brian Collins, and he
4 will need to be sworn.

5 CHAIRMAN FESMIRE: Mr. Collins, would you stand
6 and raise your right and, please.

7 (Thereupon, the witness was sworn.)

8 MR. CARR: Mr. Chairman, are you ready to
9 proceed?

10 CHAIRMAN FESMIRE: Yes, Mr. Carr.

11 BRIAN COLLINS,

12 the witness herein, after having been first duly sworn upon
13 his oath, was examined and testified as follows:

14 DIRECT EXAMINATION

15 BY MR. CARR:

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

18 A. Brian Collins.

19 Q. Mr. Collins, you'll have to speak up. With the
20 fan it's hard to hear you.

21 By whom are you employed?

22 A. Marbob Energy.

23 Q. And what is your position with Marbob Energy?

24 A. I'm the engineer.

25 Q. Have you previously testified before the New

1 Mexico Oil Conservation Commission?

2 A. No.

3 Q. Could you review your educational background for
4 the Commission?

5 A. Yes, I received a bachelor of science in civil
6 engineering from New Mexico State in May of 1980, and my
7 experience has been as a petroleum engineer, and I'm
8 currently a registered -- a professional engineer in the
9 State of New Mexico and the State of Wyoming.

10 Q. For whom have you worked since graduation?

11 A. I've worked for Exxon, Yates Petroleum, and
12 currently with Marbob.

13 Q. As the engineer for Marbob, are you responsible
14 for the engineering aspects and operational aspects of
15 drilling wells in southeastern New Mexico?

16 A. Yes.

17 Q. Have you reviewed the proposed Rules that are the
18 subject of this hearing?

19 A. Yes.

20 Q. Have you prepared testimony that reflects the
21 impacts of these proposals on drilling of oil and gas wells
22 in the southeastern portion of our state?

23 A. Yes, I have.

24 Q. And are you prepared to review your work with the
25 Oil Conservation Commission?

1 A. Yes. Yes, I --

2 MR. CARR: Are Mr. Collins' qualifications
3 acceptable?

4 CHAIRMAN FESMIRE: They're acceptable to the
5 Commission.

6 Q. (By Mr. Carr) Mr. Collins, would you briefly
7 summarize for the Commission what it is that Marbob seeks
8 in this case?

9 A. Basically, our position is that the current rules
10 work as written, and we really don't believe that we need
11 any additional rules. We feel like we're seeing some
12 duplication with the existing rules. The proposed rules,
13 to a certain extent, appear to be unworkable. They're a
14 little bit unclear and in some cases could create potential
15 safety problems.

16 Q. Are you familiar with a requirement of proposed
17 Rule (B) that the Division not issue permits for pits
18 located in the Chihuahuan Desert area?

19 A. Yes, I am.

20 Q. Could you review for the Commission in this
21 regard the type of drilling and drilling fluids that are
22 typically used in drilling wells in southeastern New
23 Mexico, procedures that would be employed in the Chihuahuan
24 Desert area?

25 A. Okay, this is going to be very general but, you

1 know, basically we employ both types of muds, you know,
2 freshwater-based muds and saltwater-based muds, in
3 southeastern New Mexico.

4 When we drill the surface holes we always use
5 freshwater mud, and if we encounter salt sections, we'll
6 use brine water. We also use brinewater muds where they're
7 a lower-cost alternative to weighting materials that you'd
8 use in freshwater mud for drilling where you have a little
9 bit higher pressure than a freshwater gradient, and they're
10 also used in areas, you know, localized areas where we've
11 had problems with reactive shales, using freshwater muds.

12 Q. Do you adjust your program while you're drilling
13 the well?

14 A. Sometimes we do.

15 Q. When you are drilling with freshwater muds, if
16 you disposed of them in a pit or contained them in a pit,
17 in your opinion, is there a potential for contamination of
18 fresh water?

19 A. No, not in my opinion.

20 Q. What about when you're using muds that are
21 saltwater muds?

22 A. I don't believe there's a risk there, because we
23 have to use a liner on those.

24 Q. Under current practices, are you aware of any
25 circumstance where what Marbob has done has resulted in the

1 contamination of fresh water?

2 A. No, I'm not.

3 Q. Do you ever drill with air?

4 A. Occasionally we use air in specific parts of the
5 hole.

6 Q. In drilling with air is there a potential to
7 contaminate -- or a potential for contamination of fresh
8 waters?

9 A. No.

10 Q. You are familiar with the proposal to prohibit
11 pits. What impact, in your judgment, would that have on
12 surface traffic? And you may want to refer to what has
13 been marked as Marbob Exhibit Number 1.

14 A. I believe that use of a closed-loop system is
15 actually going to increase the heavy truck traffic on this
16 exhibit, you know, basically, because you have to haul all
17 your cuttings off during the drilling process.

18 What I've done on this exhibit is just prepared a
19 very simplified estimate to calculate the cuttings volume
20 in a well, and the example well I used is Heyco's Bennett
21 Ranch Unit Number 1 Y. I've looked at the records and saw
22 the approximate depths that they ran casing, and I saw the
23 logs on the deep part of the hole. I had access to the
24 caliper logs. I actually had a real hole volume.

25 And then on the other two strings I calculated

1 the actual hole diameter based on the cement volume pumped
2 less the volume circulated to surface. And basically
3 that's what this shows.

4 I might add that I've ignored -- all I've done is
5 just calculated the volume of cuttings removed, and I've
6 ignored the volume of water that comes out with the
7 cuttings. There is some volume of water and the cuttings
8 are wet when they're put into the bin.

9 And anyway, I'm really not going to go through
10 all the calculations here unless you want me to describe
11 what I've done. But I just mention on the whole washout
12 factor, that was based on the information I just gave you
13 from looking in the files.

14 Now, the bottom line is, on the well they
15 drilled, I estimated that they would have about 214 cubic
16 yards of drill cuttings. A typical haul load is 17 cubic
17 yards, which results in a number of hauls of about 13.

18 And then at the end of the well, assuming a -- in
19 this case, assuming an 800-barrel system, there would be
20 eight hauls of the raw mud left over, off to disposal, for
21 a total of 21 hauls.

22 Q. Could you estimate the length of time that that
23 haul would take?

24 A. Where this well is located, I think the round
25 trip time was probably in that seven-hour range.

1 Q. And this does not take into consideration any
2 truck traffic that might result if you have to remove the
3 water -- truck out the water because you don't have a
4 disposal well available to you; is that true?

5 A. Right, right.

6 Q. Can you estimate the number of trips you might
7 have to make if you're dealing with a situation where
8 you're having to remove produced water?

9 A. You know, that really depends on how much water
10 the well produces. But a typical haul load is
11 approximately 100 barrels. When you accumulated 100
12 barrels or more in your tank, you'd make a haul on that.

13 Q. Do you have any estimate of how many barrels you
14 could produce with one of these wells? Would it be in the
15 hundreds or thousands of barrels?

16 A. I've seen a lot of gas wells that have produced
17 in the thousands of barrels.

18 Q. You are aware of the option of using a closed-
19 loop system as an alternative to a pit, are you not?

20 A. Yes.

21 Q. What sort of operational problems would that
22 pose?

23 A. Well, you know, those -- a closed-loop system is
24 a do-able thing, but I am going to mention some limitations
25 to them, and they're basically issues. And also, you know,

1 economics enter into things, that they are expensive.

2 But in a situation where -- particularly after
3 you've drilled hydrocarbon-bearing formations, and if you
4 lose returns after drilling past that depth, you could get
5 into a serious well-control problem. And with the limited
6 volume of the closed-loop pit system you won't have much
7 time to attempt to restore circulation before you've got a
8 major well-control problem on your hands. And if you don't
9 have any additional fluid, significant amounts of fluid on
10 location, you're going to have a very bad well-control
11 problem, and it's going to last a long time. And the
12 longer they last, the more probability or more risk there
13 is that someone will get hurt or someone will make a
14 mistake or a piece of equipment will fail in well-control
15 situations.

16 Q. Would you refer to Marbob Exhibit Number 2,
17 identify that and review it for the Commissioners?

18 A. Yes, every operator has their own standards on
19 pits, but I just took a typical reserve pit that we might
20 use on a well up to 7500 feet deep, and our steel pit
21 volume in that would be approximately 450 barrels for the
22 type rigs that would be used at this depth range, and the
23 reserve pit would be 150 by 100 feet. The net volume I
24 calculated on that was approximately 12,000 barrels of
25 reserve pit volume if it was essentially full, and I'm

1 assuming seven foot is the height of the fluid when it's
2 full.

3 And basically what I'm trying to illustrate is
4 that having a reserve pit and having that fluid available
5 in the reserve pit is going to give you 27 times the volume
6 that the steel-pit system has. And if you do have a severe
7 lost-circulation scenario the reserve pit's going to give
8 you two days of fluid in which to fight that and attempt to
9 restore circulation and deal with the well-control problem
10 if you have one. And this assumes 150-gallon-a-minute
11 circulating rate. And in the steel pit it's going to give
12 you approximately two hours of fluid volume if it's, you
13 know, a full lost-circulation scenario.

14 Q. If you encounter one of these situations in the
15 area that's under discussion here today, is it reasonable
16 to think you could bring supplemental water to the site
17 within the two hours that you have with available water?

18 A. No.

19 Q. What about when you flow back a fracture
20 treatment on a well? How does a closed-loop system work in
21 that circumstance?

22 A. Okay, I was going to mention one other thing on
23 the closed-loop system. One of my other concerns about
24 that during a well-control operation is, if it's a gas kick
25 for example, your gas is often foamed up, and even with a

1 degasser on your pit, often you can't get it completely
2 degassed, so there's entrained gas in your mud. And it
3 also adds to the volume and makes more potential to
4 overflow your pits. And in some cases when you're
5 circulating up a gas kick, you get a pretty significant
6 increase in volume as the gas kick comes up, and that the
7 possibility on a small steel pit volume to potentially
8 overflow that.

9 And then the other concern I have on there is, if
10 you have a kick where you're circulating oil or condensate
11 to the surface, you know, you have a fire hazard with a
12 reserve pit or a closed-loop system but the difference is,
13 the closed-loop system is adjacent to the rig, and you have
14 more distance away from the rig with the reserve pit if you
15 have a -- you know, a potential for fire.

16 Back to the flowback of frac jobs, I'm not aware
17 of anyone that's flowed a frac job back into an open-top
18 tank. They're typically -- The normal practice is to flow
19 them into the reserve pit, and after you do the frac job
20 you're typically trying to flow them back fairly quickly,
21 because you're trying to recover all the fluids, your frac
22 fluids, give them less time of exposure in the formation,
23 which means less potential for formation damage, and also
24 you flare your gas when you're, you know, flowing back a
25 frac job.

1 And the problem with flowing it into a frac tank
2 is, it is a tank, it does have an open hatch on top, and
3 when you're flowing it in there, one, it's full of gas and
4 the gas is coming out of that hatch, and you cannot flare
5 it in that situation, and there is potential for -- in this
6 case it's not a fire but an explosion, in the case of frac
7 tanks.

8 The other concern is, a lot of the proppant is
9 fairly abrasive, and the sand and some of the other
10 proppants are even more abrasive, and you often flow back a
11 significant amount of proppant and at a high velocity, high
12 enough velocity coming into that frac tank that you could
13 potentially erode out the side of the tank and cause a
14 spill.

15 And the other issue with proppant flowback is, if
16 it's in the tank, whenever it's time to -- you're done with
17 the well and it's time to move the tank, it cannot be moved
18 with the proppant inside of it. You know, there may be
19 enough volume of proppant in there, it weighs too much,
20 basically, so they'd have to clean it out on location which
21 would be difficult to do. And if you did it, it would be
22 easier if you had a reserve pit to circulate the proppant
23 into from that.

24 Q. From a drilling-operation point of view, is a
25 properly operated drilling pit preferable to the closed-

1 loop system?

2 A. Yes.

3 Q. In your opinion, would a properly operated and
4 maintained pit satisfactorily or fully protect fresh water?

5 A. Yes.

6 Q. You were present today when Mr. Jones testified
7 about the zone of endangering influence as a method of
8 determining the area of review for a proposed injection
9 well?

10 A. Yes.

11 Q. Have you worked with this formula before?

12 A. No, I never have.

13 Q. Have you filed Forms C-108 seeking authorization
14 for injection or disposal wells for your company?

15 A. Yes, I have.

16 Q. In that circumstance, you have been working with
17 the Division-established one-half-mile area of review?

18 A. That's correct.

19 Q. When you do that, if you come across a well that
20 doesn't have cement across the injection interval, what do
21 you do?

22 A. I abort the application right there, I don't even
23 bother to send it in.

24 Q. Did you look at the section of the Code of
25 Federal Regulations cited in this Rule, 40 CFR 146.6?

1 A. Yes, I did.

2 Q. And is that what's included in your exhibit
3 material as Marbob Exhibit Number 3?

4 A. That's correct.

5 Q. How suitable is this formula, do you think, to
6 actual oilfield operations?

7 A. Well, the way the formula is written out, it's
8 written more in a format for a groundwater-type
9 hydrologist, and to me it's very confusing and it would be
10 much better if it was put in oilfield terms. And it would
11 also be nice if there was some worked examples of how to
12 apply this formula, because I would suspect most people
13 that do the C-108 applications or Class II applications,
14 most are engineers and they just have never used this
15 formula before.

16 But the way it's written here is, in my mind,
17 very confusing, and at this point I wouldn't be able to
18 make an application with this formula, the way it is now.

19 Q. The input information in the calculation that is
20 set forth in this regulation, would you agree with Mr.
21 Jones that it's going to be very qualitative in terms of
22 the way you determine these input factors?

23 A. Yes, I do.

24 Q. Do you believe that if you were looking at one of
25 these you'd prefer to work with this formula or just a

1 Division-established area of review?

2 A. I'd prefer a set area of review.

3 Q. That would be a more understandable, workable
4 rule from your perspective?

5 A. Yes, and as simple as could be.

6 Q. Mr. Jones this morning testified about logging
7 and testing for the vertical extent of the freshwater
8 aquifer, and he explained how he felt oil companies could
9 do that.

10 Would you recommend to your management the
11 drilling of a larger hole and testing for each of these
12 zones and then coming back and putting a smaller string of
13 casing in the well?

14 A. No.

15 Q. How would you go about complying with the
16 provisions in Rule C.(3)?

17 A. Well, if it was a scenario which involves the
18 uncertainty of possibly having to run contingency casing
19 strings after testing and all that, I think we'd probably
20 -- the only way we could handle this, I think, would be,
21 I'd recommend to my management to drill a water well and
22 try to define the depth of the base of the fresh water
23 using a water-well rig and working through the -- I assume,
24 the State Engineer's Office on that.

25 Q. Do you think that would be economically cheaper

1 than going out and drilling a larger hole and putting
2 casing in it on a secondary run and perforating casing,
3 doing the things that were suggested?

4 A. Yes, I do.

5 Q. Do you have any way of guesstimating for us what
6 a water well might cost in this area? Depending on depth,
7 I know, but by the foot, or total?

8 A. I'd just be making a wild guess at this point.

9 Q. And when you got that number, whatever it might
10 be, would you have to evaluate that and compare it to what
11 the cost of simply trucking out the water might be?

12 A. Yes, and also the incremental cost of the larger
13 hole sizes and more cuttings generated with larger hole
14 sizes, additional casing strings, perforating and testing
15 and all that would have to be stewed into the evaluation.

16 Q. And you'd also have to then take those costs and
17 determine whether or not they made development in the area
18 outright impracticable; isn't that true?

19 A. That's right.

20 Q. Rule C.(4) is the rule concerning casing and
21 cementing, requires all freshwater aquifers be isolated
22 throughout their vertical extent and then has special
23 provisions for the cementing in existing wells and in wells
24 drilled for the purpose of injection. Are you familiar
25 with that rule?

1 A. Yes.

2 Q. Have you reviewed it?

3 A. Yes.

4 Q. Based on your review, are there inconsistencies
5 in what is being proposed?

6 A. In my opinion there is.

7 Q. Have you prepared an exhibit which illustrates
8 that?

9 A. Yes, I have.

10 Q. Would you go to what has been marked Marbob
11 Exhibit Number 4 and review that for the Commission?

12 A. Okay. Basically what I've drawn, it's a very
13 simplified wellbore schematic for a -- in this case I just
14 assumed a two-string design where you have a surface string
15 covering your freshwater aquifer and a long string, and
16 I've shown the injection on there. And they're both
17 identical wellbore construction, with the exception of the
18 cementing program.

19 And the Rules state for an existing well you have
20 to circulate your cement to surface on your long string,
21 and on a well drilled for injection you have to overlap a
22 hundred foot into your next casing string here, so to me
23 that's -- it's just inconsistent.

24 And I might note that, you know, both of these
25 examples, you had two casing strings isolating your aquifer

1 here.

2 Q. In your opinion, is the requirement for a well
3 drilled for injection with the 100-foot overlap in the
4 cement -- is that sufficient to protect fresh water?

5 A. Yes.

6 Q. Would a similar requirement in an existing well
7 likewise protect fresh water?

8 A. Yes.

9 Q. What is Exhibit Number 5?

10 A. Exhibit Number 5, it's basically illustrating the
11 same inconsistency. What I've done there is, I've just
12 drawn an example of a three-string casing program for
13 whatever reason hole conditions dictated that an
14 intermediate casing be set. And really the comments are
15 the same, that the existing well requires that cement be
16 circulated to surface on the long string, and a well
17 drilled for injection needs a hundred foot of overlap, and
18 it's back to the inconsistency argument there on the Rule.

19 Q. In your opinion, does the requirements as set
20 forth on this exhibit for an existing well afford any
21 greater protection to groundwater than what is required for
22 a well drilled for injection?

23 A. No.

24 Q. Let's go to Exhibit Number 6, and I would ask you
25 to, using this exhibit, review for the Commission what you

1 understand to be the current requirements imposed on an
2 operator by this Division to assure that its operations
3 don't contaminate fresh water with an injection well.

4 A. Okay. I guess what I'd like to do is, I'm going
5 to start out with the surface casing, and I'm going to kind
6 of work my way down and back up again to this schematic.
7 This schematic is very similar to some of the others that
8 have been presented. Basically, we drill the surface hole
9 or cross the aquifer with freshwater muds, and then we set
10 casing and we have to circulate cement to surface, and
11 that's in the current Rules, which isolates the aquifer.

12 And then when we run our long string -- this
13 example here I've just shown to illustrate the Rule minimum
14 as far as the cement covered, so we have to place cement on
15 the injection string, at least 500 foot above the injection
16 zone, and so the injection zone is isolated after the
17 cement is placed there.

18 And then we have to run the injection tubing and
19 a packer. The packer isolates the tubing by casing
20 annulus, which is required on the C-108s and the Rules, I
21 believe, to be filled with an inert packer fluid, and also
22 is required to be periodically monitored on that -- Well,
23 actually, it would be monitored all the time on that
24 particular annulus.

25 And then the tubing, our practice has always been

1 to run an internally coated injection tubing so we don't
2 have our injected water contacting the bare steel of the
3 tubing.

4 And in this case too, with this casing set up,
5 you have two strings of casing, you know, set across the
6 aquifer. And you know, we're given a pressure limit that
7 we adhere to and pay attention to on a daily basis. We
8 send our field people out to the well, and they record
9 the -- they look at the annulus and they record the
10 injection rates and injection pressures each day, and then
11 we report per the current Rules.

12 And we also are required to inject below fracture
13 pressure on these. So you know, there's at least seven
14 barriers or things we do to ensure that we don't inject
15 into a freshwater aquifer and that if for some reason we
16 develop a problem, we catch it right away and repair any
17 problems we could potentially have.

18 Q. Mr. Collins, this diagram shows the construction
19 of a typical injection well.

20 A. Yes.

21 Q. You also have indicated that you have a pressure
22 gauge on the annular space?

23 A. On the tubing by casing annulus.

24 Q. If something starts to get away from you in terms
25 of a leak in the well, are you able to detect it from the

1 pressure information you get on that space?

2 A. We should be able to, yes.

3 Q. And do you have someone physically check that
4 every day?

5 A. Yes.

6 Q. Do you believe the current Rules are adequate to
7 protect fresh water if the Rules are properly administered
8 and enforced?

9 A. Yes.

10 Q. Rule C.(5) talks about cement bond logs and
11 requires that a bond log acceptable to the Division be run
12 on each casing string after it is cemented and the logs
13 filed with the Division. What sort of an operational issue
14 will this pose for you?

15 A. Well, first of all, it's not a common practice in
16 the industry to stop and run bond logs on every casing
17 string you run. On our surface casings, we circulate those
18 so we know we've placed cement behind the casing.

19 And you know, some of the operational issues are,
20 in order to -- you have to let your cement cure enough to
21 develop enough compressive strength to get any kind of
22 somewhat reasonable bond log. And probably the shallower
23 the well, the longer it takes for your cement to cure,
24 because it's a function of temperature. And so we could be
25 looking at a minimum of 24, but more likely 48 or 72 hours

1 of waiting on cement time to get, you know, the kind of
2 bond log that the OCD would be looking for, I think, here.

3 Which leads into my other problem with cement
4 bond logs, is that they're extremely interpretive. And in
5 my opinion they're qualitative, that there's nothing
6 quantitative about -- of the cement bond log.

7 Q. Because of that, might you be required to go back
8 in and perforate and try and squeeze cement in zones where,
9 in fact, that's unneeded?

10 A. Yes, and that's one of the scenarios that I would
11 worry about here because of, you know, who defines an
12 adequate cement bond log or adequate cement coverage.

13 But you know, there's a number of factors that
14 can affect bond logs that -- My concern is, you have a bond
15 log and you have sections where it, at least qualitatively,
16 shows very good bond, and you may have another section that
17 shows not as good a bond, but it's not an obvious ringing
18 free pipe, you know, reading, where you're fairly confident
19 there's no cement placed behind it.

20 And it's that in-between character of the log
21 that has me concerned, because I'm afraid that we'd be
22 asked, or potentially asked, to stop and perforate the
23 casing to see, you know, if we have cement behind it. And
24 I guess my experience has been -- my experience and other
25 operators too, I think -- is that the few times I've tried

1 to do this, is that if it's not just absolutely ringing,
2 free pipe, that there's cement behind there and you can't
3 inject into it. You have to, you know, acidize it or
4 something to break it down enough to even establish an
5 injection rate to pump a cement squeeze into it.

6 So you know, what I'm afraid of is that there
7 would be a lot of instances where we do have an adequate
8 cement job, and when it was all said and done, that we've
9 ruined our casing integrity, particularly on something like
10 a surface casing or an intermediate casing across an
11 aquifer, by perforating holes in it. Even if you do
12 cement-squeeze it, it can always leak, you know, in the
13 future.

14 Q. Is it your concern that in trying to do a better
15 job, you may actually create problems so that the situation
16 is worse, not better?

17 A. Yes, I think so, just by the nature of
18 perforating a hole in the casing.

19 Q. Do you believe the current system works to
20 protect fresh water?

21 A. Yes, I do.

22 Q. Do you believe that rules that continue to vest
23 discretion in the expertise of the Oil Conservation
24 Division are preferable to rules that do not?

25 A. I'm sorry --

1 Q. Do you prefer rules that vest certain discretion
2 with the OCD, do you prefer rules that do that, as to rules
3 that give them no discretion and set absolute standards?

4 A. Yes.

5 Q. Can you just simply summarize for the Commission
6 your concerns as a result of your work examining the Rules
7 that are before you?

8 A. Well, there's a couple other things I wanted
9 to --

10 Q. All right.

11 A. -- talk about too, but --

12 Q. Do you want to talk about the double-walled pipe?

13 A. I wanted to mention --

14 Q. All right.

15 A. -- something about that.

16 Q. What is your concern about that. Even if it is
17 removed from the Rule, what would be your concern about
18 that?

19 A. Right, my actual concern is -- I'm glad the
20 double-walled pipe has been removed from the proposed Rule.
21 I guess my concern is that the Rule is very specific, it
22 says you must use plastic-coated steel pipe for your
23 injection lines, and I think that is limiting -- too
24 limiting. There's other types of coatings, there's cement
25 -- internally cement-lined tubing, PVC, different types of

1 plastics, polyethylene, fiberglass, combinations of those
2 things that you can use with steel pipe, which I think
3 we'll need to have the flexibility to use other coatings.

4 Also it's, you know, very common practice on low-
5 pressure water line delivering water to an injection well
6 or disposal site -- they're often run at very low
7 pressures, and we typically use polyethylene for that. So
8 that's material, I think, that ought to be considered,
9 depending on the application. You can get polyethylene
10 that is wrapped with fiberglass and comes on large spools,
11 you know, for higher pressure applications.

12 So there's a whole plethora of other materials
13 that we need to have the flexibility to use for our
14 injection lines.

15 Q. Would you prefer to be able to propose those to
16 the Division and, if they approve them, then be able to go
17 forward with them?

18 A. Yes, I would.

19 Q. Are there concerns about what working pressures
20 may be required?

21 A. I guess really my concern on that is, I'd be
22 interested in knowing what the definition of working
23 pressure is here. You know, is it -- are we talking the
24 pressure limit established by the C-108, you know, for the
25 maximum injection pressure, or does this mean the working

1 pressure, the pipe itself, you know, which wouldn't make
2 sense, or the expected pressure that the line will have
3 when it's in service. You know, it would be helpful to
4 clarify that a little bit.

5 Q. What about mechanical integrity tests? Do you
6 believe that performing the tests annually is necessary?

7 A. No, I don't think it's necessary.

8 Q. And why not?

9 A. You know, we're monitoring the tubing by casing
10 annulus pressure, we're monitoring the injection rates and
11 pressures down the injection tubing, and you know, if
12 you're injecting -- as long as you're injecting at a
13 positive pressure down your tubing, if you have something
14 leak you should see an indication of it on your tubing by
15 casing annulus.

16 Q. And that should avoid a situation where during
17 the periods between mechanical integrity tests, if
18 something starts to happen with a properly monitored well,
19 you should be able to determine something's going wrong?

20 A. Yes.

21 Q. And prevent the escape of any significant
22 water --

23 A. Yes.

24 Q. -- from the casing?

25 A. And the other thing I didn't mention was that you

1 monitor the pressures, and if you have any -- you know,
2 periodically, or if you have any suspicions, you can also,
3 you know, open that valve if there's not any pressure, just
4 to make sure it's not on a vacuum or doesn't flow some
5 fluid out of it, but...

6 Q. Mr. Collins, would you now summarize the
7 conclusions you've reached from your review of current
8 Rules and the new proposal?

9 A. Yes. Can I mention one more thing?

10 Q. Yes, sir, you may.

11 A. I'm sorry, I'm too wordy here, but --

12 Q. This has been a changing --

13 A. Yeah.

14 Q. -- testimony ever since the Rule got changed.

15 A. Yeah. I guess what -- This concerns a
16 possibility that we may be required to install some type of
17 SCADA system or remote data transmission system of some
18 sort. And you know, in the wells we operate now it's our
19 policy to have a pumper go by and look at those wells and
20 record this data every day. And that would be -- If we had
21 an injection or disposal well -- most likely it's going to
22 be a disposal well -- in the Otero Mesa area, we would have
23 someone go out there. And yes, it might be a contract
24 person, but you know, we're not going to hire someone if we
25 don't know them and trust them to tell us the truth on what

1 they're seeing.

2 And the other problem with these SCADA systems
3 is, it sounds -- the concept sounds really good, but
4 they're prone to problems. And in our mind there's no
5 substitute for having a person go out there and look at
6 that well site each day, because there's some things that
7 could potentially happen that you're not going to see off
8 SCADA data, you know. It's just good to go out there and
9 look at your site.

10 Q. If you had somebody going out and looking at the
11 site, would you have a pit like the one Mr. Olson showed us
12 yesterday, with the liner torn? You'd know that
13 immediately, would you not?

14 A. Yes.

15 Q. And you'd be able to immediately remedy that if
16 someone came out there and something happened?

17 A. Yes.

18 Q. Now are you ready to summarize your conclusions?

19 A. Yes, I am. You know, basically, the summary is
20 also the way we led off with this. I guess the current
21 Rules, in my mind, gives us adequate protection on -- you
22 know, our freshwater protection and underground injection
23 control. And you know, the proposed Rules are -- you know,
24 they're a little confusing, and I believe they're
25 unnecessary.

1 Well, that kind of summarizes it. And if some
2 new rules are adopted here, I guess I would implore the
3 Commission to clarify the Rules and, where possible,
4 simplify them. And if we're required to do things like
5 that area-of-review calculation, to give us an example and
6 put it in oilfield terms and -- just help us out, make it a
7 lot easier to apply, for the average layman submitting a
8 saltwater disposal or injection application, and also to
9 set them up to allow some flexibility and discretion,
10 because that's the nature of, you know, real-life
11 operations.

12 Q. Mr. Collins, were Marbob Exhibits 1 through 6
13 prepared by you or compiled under your direction?

14 A. Yes.

15 Q. You were your own draftsman on these?

16 A. Yeah, it shows.

17 MR. CARR: I'd move the admission of Marbob
18 Energy Corporation Exhibits 1 through 6.

19 CHAIRMAN FESMIRE: Is there an objection from the
20 Commission?

21 COMMISSIONER BAILEY: (Shakes head)

22 COMMISSIONER CHAVEZ: No objection.

23 MR. CARR: That concludes my direct examination
24 of Mr. Collins.

25 CHAIRMAN FESMIRE: Your exhibits will be admitted

1 to the record as Exhibits --

2 COURT REPORTER: Mr. Carr has offered them as 1
3 through 6.

4 CHAIRMAN FESMIRE: 1 through 6, okay.

5 Ms. Belin, do you have a cross-examination on
6 this witness?

7 MS. BELIN: A couple of questions.

8 CROSS-EXAMINATION

9 BY MS. BELIN:

10 Q. Mr. Collins, you testified about the use of
11 closed-loop systems. Have you ever used closed-loop
12 systems?

13 A. Yes.

14 Q. And when you were using those systems, did you
15 feel that you were operating in a safe condition?

16 A. No, in this case we didn't.

17 Q. Then why were you using them?

18 A. We were -- It's a similar situation to what was
19 described this morning in previous testimony, is, our
20 proximity to housing and also a pecan orchard, and in this
21 case it was basically an economic decision, the damages
22 charged from the landowners on private land to build a pit
23 on his pecan orchard was going to be prohibitively
24 expensive.

25 Q. So you operated a drilling system that you didn't

1 consider safe at the time?

2 A. We operated a drilling system that we would have
3 preferred not to have operated with.

4 Q. Did you consider it safe at the time?

5 A. When we first went into it, we didn't have any
6 big reservations, but...

7 Q. So did you consider it safe at the time?

8 A. Initially, when the well was done with, we did
9 not consider them safe.

10 Q. And is that the only time you've ever operated a
11 closed-loop system?

12 A. Yes.

13 Q. Did you not consider it safe for the reasons that
14 you talked about in your direct testimony? I'm wondering
15 the reason that in retrospect you did not consider that
16 using that system had been safe.

17 A. Okay, it was a well-control situation that caused
18 us to dislike closed-loop pit systems, because of the
19 limited volume and the foamy mud scenario that I've
20 described.

21 Q. Could you have had more volume available in tanks
22 to deal with that type of situation?

23 A. We actually did -- We were constrained by
24 location size, and we did set tanks, and they were helpful.
25 But it would have been much better if we had had a reserve

1 pit.

2 Q. But you could have had more tank -- if you had
3 had a larger physical location, you could have simply had
4 more tanks present, couldn't you have?

5 A. Yes, we could have.

6 Q. Do you have any statistics demonstrating that
7 closed-loop systems are less safe than pit systems?

8 A. No statistics, just our personal experience.

9 Q. And you testified that you think the current
10 Rules, without the new proposed Rules, are adequate to
11 protect groundwater quality, right?

12 A. Yes.

13 Q. Did you think the Rules were adequate to protect
14 groundwater quality before Rule 50 was adopted?

15 A. Yes, we're required to line our reserve pits
16 prior to that.

17 Q. But before Rule 50 was adopted, did you think the
18 prior Rules were adequate to protect groundwater quality?

19 A. I guess my answer would be yes, I have no reason
20 to think otherwise.

21 Q. Has there ever been any time when you thought the
22 Rules were not adequate to protect groundwater quality?

23 A. No.

24 Q. Did you hear -- Were you here yesterday and hear
25 the testimony of the ranchers about the various

1 contamination incidents that they and others in their area
2 had experienced?

3 A. Yes.

4 Q. And that doesn't lead you to conclude that there
5 is inadequate protection of groundwater quality?

6 A. No. I don't know the circumstances of what their
7 problems were. I saw pictures up there, but I had no
8 background and had no idea -- You know, I know nothing
9 about what their problem was on that.

10 MS. BELIN: Okay, thank you. I have no further
11 questions.

12 CHAIRMAN FESMIRE: Ms. MacQuesten, do you have
13 any cross-examination of this witness?

14 MS. MacQUESTEN: Yes, thank you.

15 CROSS-EXAMINATION

16 BY MS. MacQUESTEN:

17 Q. Mr. Collins, did I understand you correctly to
18 say that Marbob uses both freshwater drilling methods and
19 saltwater and brine --

20 A. Yes.

21 Q. -- drilling methods?

22 And that you use the saltwater drilling methods
23 when you encounter a salt zone, or when you consider it
24 economically advantageous?

25 A. Brine water is more expensive than freshwater.

1 When I say economically advantageous --

2 MR. CARR: Could you speak up a little, please?

3 THE WITNESS: When I say advantageous
4 economically, it's because the density of the brine water
5 allows you to run a higher density mud when you're drilling
6 through formations that have a higher pressure gradient
7 than what you can control with fresh water. It's less
8 expensive than putting a huge amount of viscosifier and
9 adding other weighting materials to freshwater mud.

10 Q. (By Ms. MacQuesten) And the way things are
11 currently, this is a decision that the operator makes in
12 each case?

13 A. Yes, although we, on our drilling permits -- We
14 seldom change our mud system from what we submit on our
15 drilling permits. Yes, that's -- we make that decision and
16 we write that on our drilling permit and submit it to the
17 OCD.

18 Q. But the OCD doesn't have a rule that specifies
19 you have to drill with fresh water or you have to drill --
20 air-drilling system or anything like that? It's on a case-
21 by-case basis, with the operator proposing what it feels is
22 the appropriate method?

23 A. Yes, with possibly some exceptions, depending on
24 the area you're in.

25 Q. And was it your testimony -- you talked about the

1 environmental issues related to increased traffic, and did
2 I understand you correctly that your primary environmental
3 concern with the increased truck traffic that would result
4 from using closed-loop systems was that it would create
5 more dust?

6 A. From an environmental viewpoint, yes, dust. And
7 I think there's a potential safety issue with that volume
8 of, you know, heavy trucks passing a long distance to the
9 nearest waste-disposal site for drilling cuttings.

10 Q. Okay. Would you agree with me that there are
11 environmental concerns also associated with these pits?

12 A. No.

13 Q. Does that answer depend on assuming that there
14 are proper liners, that the liners are not breached, they
15 do not leak, that the pit contents are properly
16 encapsulated or removed and, if encapsulated, they are
17 never disturbed again?

18 A. That's fair to say, that's part of my --

19 Q. So there are a lot of things that have to go
20 right, if you're using a pit, to make sure that there's no
21 environmental harm?

22 A. Yes.

23 Q. And so if we're concerned about -- And the harms
24 that are related to pits, as we've heard in your testimony
25 and yesterday and today, go to the potential that things

1 not go right, for soil contamination, for groundwater
2 contamination, for harm to wildlife, with the soil
3 contamination, harm to plants? If we are weighing the
4 environmental hazards of the two methods, we have all of
5 those things listed, the potential for quite serious harm,
6 versus what you're saying is safety concerns related to
7 traffic and dust; is that right?

8 A. And the possibility of fires and other hazards,
9 if you're involved in a well-control situation.

10 Q. Okay, I'll get to that in a second. I wanted to
11 ask you, you seem so confident that pits are not going to
12 cause a problem, but has Marbob ever investigated old
13 buried drilling pits to determine whether those pipes have
14 caused any contamination?

15 A. Not that I know of.

16 Q. So you're assuming that they haven't?

17 A. That's correct.

18 Q. On the closed-loop systems, you say you have had
19 a limited experience with dealing with closed-loop, but you
20 would agree with me that other companies have used closed-
21 loop systems successfully?

22 A. I'd say they have used them, yes.

23 Q. And some of those companies, I think we heard
24 testimony yesterday that certain areas are required in
25 closed-loop systems, such as the Lovington area, as a

1 municipal requirement?

2 A. I wasn't aware of that. I'd heard that, but that
3 was the first I'd heard of it, yeah.

4 Q. So that some companies may be operating closed-
5 loop because they're required to, but there are other
6 companies who are operating closed-loop because it is their
7 choice?

8 A. I don't know of any company that does it by
9 choice.

10 Q. Really?

11 A. None of the people -- None of the companies that
12 I'm familiar with. It doesn't mean that other people
13 don't, but I personally don't know of any that --

14 Q. Were you here yesterday for the testimony that
15 there are states that absolutely require the use of closed-
16 loop systems?

17 A. That's not a by-choice --

18 Q. Well, what I'm saying is that they're not
19 absolutely required, and yet there are companies that use
20 them?

21 A. I guess I misunderstood the statement you said
22 before that.

23 Q. Okay. I was just trying to ask you whether you'd
24 agree that there are companies who make the decision on
25 their own, without being ordered to by a state or federal

1 or municipal governmental body, make the choice on their
2 own to use a closed-loop system.

3 A. There may be, but I personally don't know of any
4 that would choose to do that.

5 Q. But you chose to do it, at least in that one
6 instance, and that was an economic decision?

7 A. That's right.

8 Q. Despite the safety concerns, it came down to
9 economics, then?

10 A. We're driven by economics in this industry, and
11 all others.

12 Q. I had one more issue I just wanted to clarify.
13 Looking at the proposed Rule, the proposal C.(4), in one of
14 your diagrams of a well that you said would meet the
15 cemented-casing-string requirement under the new Rule, I
16 think it's your Exhibit Number 4, you show a well that was
17 drilled for the purpose of injection and you show only one
18 cemented casing string through the extent of the freshwater
19 aquifer.

20 I was curious about your reading of the
21 requirement, because the first requirement of Section (4)
22 is that all freshwater aquifers be isolated with at least
23 two cemented casing strings, and that would apply both to
24 new wells and existing wells. So I was confused as to your
25 interpretation.

1 A. Well, I don't recall saying that this sketch met
2 the requirements of the proposed Rule. I don't believe I
3 said that. If I did, I was mistaken.

4 No, I know this doesn't meet the two-cemented-
5 strings specification on there. I'm just using this as a
6 simple illustration of a two-string design.

7 Q. Okay.

8 A. The same comments apply to the three-string
9 design does meet this proposed-Rule specification.

10 Q. But you were using this exhibit to compare the
11 requirements of the Rule for an existing well versus the
12 requirements of the Rule for a well drilled for injection,
13 and --

14 A. Simply, all I'm trying to do is just illustrate
15 the inconsistency between the requirement for an existing
16 well, which is to circulate your cement on your long
17 string, versus the -- what's required on the well drilled
18 for injection.

19 In retrospect, I probably shouldn't -- and I
20 thought about that when I made this, but I was just trying
21 to make something simple. I should have just stuck with
22 Exhibit 5. But no, I understand what the Rule is asking us
23 to do here.

24 Q. Would you agree with me that for the well drilled
25 for injection on Exhibit 4 to meet the requirements of the

1 Rule, that inner casing string would have to be cemented --

2 A. Yes, the way the Rule is written right now.

3 Q. Okay.

4 A. Right.

5 MS. MacQUESTEN: Okay, thank you. No other
6 questions.

7 CHAIRMAN FESMIRE: Commissioner Bailey, do you
8 have some questions?

9 EXAMINATION

10 BY COMMISSIONER BAILEY:

11 Q. I would like for you to put things in perspective
12 for me. What is the size of a typical steel pit?

13 A. I don't have exact dimensions. I'll give you an
14 approximate size. It would be on the order of 30 to 40
15 feet long and probably six to eight feet tall and six to
16 eight feet wide. Every rig has a different pit setup.

17 Q. So in the realm of the size of a semi-trailer?

18 A. Yes, that's the way they're hauled into the
19 wellsite.

20 Q. Okay. So if we had a comparable number of steel
21 pits to contain the comparable amount of fluid that you say
22 is in the drilling pit, which is 150 by 100, we'd have to
23 have 27 semi-trucks out there?

24 A. Yes. Well, actually -- yeah, that's -- it could
25 be a little bit less, depending on what size tanks you

1 hailed out there. But yeah, the number would be
2 significant.

3 Q. Okay, I'm just trying to visualize 27 semis
4 parked around a drill rig. It would take a lot of space,
5 wouldn't it?

6 A. Well, when I say semis, they're delivered on a
7 semi-truck, on a flatbed, and they're offloaded and then
8 the truck --

9 Q. Well, I'm visualizing the site.

10 A. It would take a lot of space to set all the tanks
11 in, yes.

12 Q. Is it common practice in southeastern New Mexico,
13 which is where you operate mostly, for operators to drill
14 temporary water wells to enable them to drill their oil and
15 gas wells in the vicinity?

16 A. Yes.

17 Q. And these temporary water wells that are drilled
18 are sometimes for an entire field and sometimes on well-to-
19 well basis?

20 A. That's correct.

21 Q. So the information that's needed for water
22 depths, locations, could be obtained from these adjacent,
23 adjunct water wells that are drilled to enable the drilling
24 of the oil and gas wells?

25 A. Yes, I think so.

1 Q. Okay, that's a topic that has not been brought
2 out before in this hearing, that it is not uncommon to
3 drill water wells in addition to the oil and gas wells?

4 A. That's correct. Yeah, that's probably the most
5 common way to fill the reserve pit, is to use a well
6 instead of hauling in trucks.

7 Q. And if the water supplies are that plentiful in
8 the Salt Basin, then possibly those temporary water wells
9 could then be used by the ranchers or the wildlife people
10 for livestock watering or antelope-herd waters?

11 A. Yes, that's correct.

12 Q. Beneficial use --

13 A. Absolutely.

14 Q. -- is what I'm getting to.

15 A. Yes.

16 COMMISSIONER BAILEY: That's all I have.

17 CHAIRMAN FESMIRE: Commissioner Chavez?

18 EXAMINATION

19 BY COMMISSIONER CHAVEZ:

20 Q. Mr. Collins, in this particular area of the
21 Application, would you consider those to be wildcat well?

22 A. Yes.

23 Q. You stated several times that you seldom ever
24 change your drilling program. Is that because you're
25 drilling mostly development wells?

1 A. Yeah, the majority of wells we drill are
2 development or outpost drilling, fairly close to developed
3 areas.

4 Q. So you have a general idea of what your mud
5 program should be when you're drilling a development well?

6 A. Yes.

7 Q. In a wildcat well, would you expect to encounter
8 differences that you might not encounter -- or find
9 different reasons to change your mud system, that you
10 wouldn't encounter in a development well?

11 A. Yes, that's entirely possible.

12 Q. In that case, would it be necessary, then, to
13 change the mud system, to put in additives that weren't
14 anticipated --

15 A. Yes.

16 Q. -- during the initial permitting?

17 What are some of the additives that might be used
18 on a wildcat well where you encounter some -- give me just
19 a thumbnail sketch of a couple of things you may have to do
20 when you encounter unexpected situations in a wildcat well
21 that require you to change your mud system.

22 A. I guess one, if you're having lost-circulation
23 problems, you're going to add lost-circulation material.
24 So you really haven't chemically changed your mud system.
25 If you're going with fresh water, it would still be fresh

1 water with various lost-circulation materials added to it
2 to help, you know, stop the fluid loss into the lost-
3 circulation zone.

4 And if you -- For instance, if you encountered
5 overpressure out there, in that situation, that's far
6 enough away from any potential brine sources that it might
7 actually be easier to go ahead and go with a weighted
8 freshwater mud if you encountered over pressure, where
9 you'd increase the viscosity and add -- increase your
10 density to offset formation pressures.

11 Now, if you cut a salt section you would have to
12 go to a salt mud at that point, because it will create its
13 own salt mud if you don't add it. And typically, we'd want
14 to react and go ahead and make it -- brine it up, to
15 minimize the chances of washing out that salt section.

16 Q. Might other chemicals be added to change the
17 rheological properties of the mud?

18 A. Possibly, some type of viscosifier to increase
19 the viscosity and increase the carrying capacity of it.
20 And there could be situations where you might run that in
21 -- often some of the viscosifiers are also fluid-loss-
22 control agents where you had -- as you get closer to the
23 bottom, where you think you're through your pay zones, you
24 might reduce your fluid loss, your mud, for logging
25 purposes later on.

1 Q. Okay. Would all of that material be mixed into
2 this 12,000 barrels of pit volume that you described in
3 your Exhibit Number 2?

4 A. No, typically -- It depends on where you're at in
5 the hole. For instance, if you're drilling -- the surface
6 hole is typically drilled out of the reserve pit, and
7 sometimes intermediate holes are. But if you're in your
8 long-string hole, your production hole, you're typically
9 operating with a steel-pit system at that point.

10 Q. Okay. Is the typical reserve pit under Exhibit
11 2, is that kept full during the drilling process, the
12 12,217 barrels that you show the capacity?

13 A. It always has fluid in it, but there's probably
14 certain times where it's not kept full.

15 Q. So during those times you don't need that entire
16 volume, do you?

17 A. Not all the time.

18 Q. Okay, and the fluid that's in the typical reserve
19 pit, that would be basically the way you described it
20 there, your drilling surface mud that you drill the surface
21 hole with and perhaps the intermediate drilling mud?

22 A. That would be fairly typical.

23 Q. Could those volumes also be included in a steel
24 pit for drilling those portions of the hole?

25 A. I'm not sure if I understand.

1 Q. Well, you say you're drilling the long-string
2 portion, the productive portion of your hole, out of the
3 steel pits. Why couldn't you drill your surface hole and
4 your intermediate hole out of steel pit?

5 A. Well, I guess the answer is, it can be done.
6 It's -- Part of the problem in the surface and intermediate
7 holes is -- at least in southeast New Mexico, is, one, you
8 have large hole diameters and, two, you typically have
9 fairly fast rates of penetration when you're drilling, so
10 you're generating a gigantic amount of drill cuttings, and
11 I think that's actually the primary reason for using the
12 reserve pit, as opposed to steel pits, in the scenario
13 you're describing, is, it gives -- you know, you have a
14 residence time between the discharge and the intake on
15 there to drop your solids out.

16 And the other thing is that those muds are often
17 native muds. I mean, it's -- the surface hole is just
18 fresh water, no other additives. Just generate our own mud
19 from the solids that you drill up. And often in the
20 sections where we're drilling through salt it's the same
21 way, it's essentially almost a native, you know, saturated
22 brine water. So that's the primary reasons we go through
23 our reserve pit on those portions of the hole.

24 Now, when we get to the -- further into the
25 wellbore, closer to where we think our potential pay zones

1 are, for logging purposes most people like to change the
2 mud properties a little bit, and also for hole-cleaning
3 reasons because you're so deep, and so there you go through
4 the steel pits to -- it's easier to control your mud
5 properties, going through the steel pits if you're adding
6 fluid-loss additives and viscosifiers and things like that
7 in it.

8 Q. Okay, so if the Commission approved a rule that
9 didn't -- that eliminated the use of pits, would you be
10 able to design a system to accommodate the large production
11 of these drill cuttings during the drilling of the surface
12 hole?

13 A. Yes, I think it's possible that that could be
14 done.

15 Q. Okay, so the purpose of the reserve pit -- would
16 the major purpose, then, be to store water for use in well
17 control?

18 A. Well, I don't know if I'd say there's any major
19 purpose, but it's -- the common practice is what I've
20 described on drilling the surface hole, fresh water with no
21 viscosifiers or anything. And that's just another reason
22 to have the fluid out there, so that if something happens
23 you can be pumping fluid into the well and adding lost-
24 circulation material to it and trying to get that lost-
25 circulation issue resolved.

1 Q. Okay, so what you need is a large amount of water
2 in case you have problems; is that basically it?

3 A. Yes, that kind of summarizes it.

4 Q. Just thinking out loud -- and it's kind of
5 dangerous, but --

6 CHAIRMAN FESMIRE: Especially here.

7 Q. (By Commissioner Chavez) -- could that be
8 accommodated with just a large freshwater reservoir, to
9 accompany a closed-loop system?

10 A. I think the answer is yes, but I think for the
11 lost-circulation issue it would need to be significantly
12 larger than the normal closed-loop-system pit volume on
13 there.

14 Q. But say a freshwater reservoir that was just
15 built just to hold fresh water, nothing else, would that
16 accommodate the needs that you're talking about for safety
17 if you used a closed-loop system?

18 A. I think it would. You're talking about an
19 earthen --

20 Q. Just a large storage of fresh water --

21 A. Uh-huh.

22 Q. -- to which nothing else has been added?

23 A. Uh-huh.

24 Q. Okay. Are you familiar with permitting wells on
25 federal minerals, federal lands, federal APDs?

1 A. I'm not intimately familiar with it, but I'm
2 generally familiar with it.

3 Q. Okay. Is it allowed on a federal permit to
4 dispose of, say, human waste from the drill site into the
5 drilling pit?

6 A. No.

7 Q. Did it used to be allowed?

8 A. I don't know.

9 Q. Does Rule 50 of the OCD prohibit the discharge of
10 human waste, say, from the Port-a-Potty on the site into
11 the drilling pit?

12 A. I'm sure it does.

13 Q. Are you familiar with the practice where at one
14 time other drilling wastes or other wastes from the site,
15 such as drained motor oils and other lubricants, were put
16 into the drilling pit after the well was drilled, before
17 the rig was moved off?

18 A. I suppose it's probably been done in the past.

19 Q. Okay, does the OCD Rule 50, to your knowledge,
20 prohibit that practice?

21 A. I'm sure it does.

22 Q. You had said that while circulating a kick, it's
23 possible to get oil or condensate back into the drilling
24 pit; was that your testimony?

25 A. Yes.

1 Q. So it's possible, then, the hydrocarbons from the
2 well will be introduced into the drilling pit?

3 A. Yes.

4 Q. From the fracturing process, when the flowback is
5 done, could oil, hydrocarbons from the reservoir, also be
6 flowed back into the drilling pit at that time?

7 A. Yes, unless it's being -- unless there's a flare
8 going.

9 Q. You talked about waiting on cement for a bond log
10 and the time that it would take as -- were you
11 characterizing that time as significantly long or --

12 A. Yes, I would, with a drilling rig on the hole in
13 a remote area like Otero Mesa. It would be very expensive
14 on a per-day basis while you're waiting.

15 Q. Are you familiar with the requirement for waiting
16 on cement that's already in the OCD Rules, to wait on
17 cement for purposes of running pressure tests on the casing
18 and drilling out?

19 A. Yes.

20 Q. What's the difference between those times?

21 A. Well, I think it's -- I don't remember the exact
22 time on the Rule, but it's 24 hours or less on waiting on
23 cement time. I think it's 18 hours or something like that,
24 but -- The difference is, to get the good bond log, I think
25 particularly on the shallow casings where you have very low

1 rock temperatures downhole, that you may be looking at a
2 significantly longer waiting time than that, in order to
3 get a valid bond log.

4 Q. If the waiting time to reach a certain
5 progressive strength for the purposes of drilling out or
6 testing the casing were the same as the time required to
7 get a certain compressive strength to run the cement bond
8 log, would you have an issue with that?

9 A. No. Well, timewise, I'd have an issue on it, but
10 -- I still don't think it's necessary, but that's just my
11 opinion. But your base question, though, if it's not going
12 to cause a lot of waiting time, additional waiting time,
13 with an expensive drilling operation, it would be a lot
14 more palatable that way.

15 Q. You're anticipating what the OCD may do, I think,
16 with -- when the OCD receives a cement bond log, as perhaps
17 requiring a -- or was I correct to assume that you
18 anticipated the OCD, when they received a bond log, might
19 require you to do some remedial work that would damage the
20 casing?

21 A. Yes.

22 Q. Would you anticipate that the OCD would only
23 require you to perform that work which is necessary to
24 accomplish the requirements of the Rule to isolate water
25 zones, gas zones, and to prevent flow behind the pipe, or

1 would you think that the remediation work they might
2 require would be more than that?

3 A. That's a long, long question. My concern is,
4 bond logs are not quantitative tools, and so it worries me
5 that we may be asked to perforate things that really don't
6 have a problem, that there's adequate cement coverage, that
7 there's adequate isolation between all the strata behind
8 pipe.

9 That's my only reason on that, and it's open to a
10 lot of interpretation.

11 Q. Is the final interpretation, as far as your
12 compliance with the requirements to provide sealing behind
13 the casing, is that something you'd want to work with, with
14 the OCD District Office, that would ask you to perform that
15 remedial work?

16 A. Oh, absolutely. You'd want to be involved and,
17 you know, work together on that if that were to come.

18 Q. Have you found that the OCD office does work with
19 you when the issues arise, to determine what's necessary
20 for you to do to be in compliance with the requirements of
21 the cementing rules?

22 A. I have -- I still have concerns on that.

23 Q. Do you have -- You raised the issue of perhaps
24 some ambiguity under the requirement for testing a water
25 line to a certain percentage of its working pressure. Do

1 you have some recommendations as to what testing -- or how
2 that could be worded, that you would understand exactly
3 what's required of you as an operator to be in compliance?

4 A. Well, there's probably a lot of ways to skin the
5 cat. One alternative is to word it similarly to some of
6 the language you see on testing your casings, and, you
7 know, to 80 percent of the rated burst pressure or some
8 percentage of the -- you know, of the manufacturer's rated
9 burst pressure, that probably wouldn't be unreasonable.

10 The other option would be to test it to -- you
11 know, to the expected operating pressure, you know, of the
12 line, but...

13 Q. So if the wording was to test to the anticipated
14 working pressure, perhaps a certain percentage, that would
15 be satisfactory and you would understand that?

16 A. Yes, that would be much clearer.

17 Q. You talked about the method that Mr. Jones
18 introduced, or about the EPA method to calculate radius
19 of -- the terminology.

20 A. -- of endangering influence.

21 Q. There you go, radius of endangering influence.
22 Did you hear his testimony where it would be acceptable to
23 him to take -- to change the wording to OCD-approved
24 method?

25 A. I heard that. I think it's still too vague.

1 Q. Would you have a proposed method to calculate the
2 radius of endangering influence that you would submit to
3 Mr. Jones on an application?

4 A. I think the Rule should have a set distance. You
5 know, I don't care if it's a mile and a third or -- you
6 know, skip the half-mile thing and just put one area of
7 review. If he's comfortable with the mile and a third, or
8 whatever he's comfortable with, I think it would actually
9 be easier and simpler just to have a set radius that you
10 have to investigate, no calculations or anything else, I
11 guess.

12 Now, you know, to come back and say you want it
13 be five miles or ten miles, that may be a different story
14 there, but...

15 COMMISSIONER CHAVEZ: Okay, I don't have any more
16 questions.

17 EXAMINATION

18 BY CHAIRMAN FESMIRE:

19 Q. Mr. Collins, to follow up on a couple of things
20 that Mr. Chavez asked, you understand that -- if I
21 understand Mr. Jones' testimony correctly, that mile and a
22 third was a maximum. So you think that the industry would
23 rather accept the maximum and not be allowed to cut in
24 certain cases?

25 A. I cannot speak for the industry. I do our

1 C-108s, and the company I work for in Otero Mesa, I
2 wouldn't have a problem with that.

3 Q. For the mile-and-a-third radius of endangered
4 influence?

5 A. For me personally, yeah.

6 Q. Now, you said that you had one personal
7 experience operating a closed-loop system; is that correct?

8 A. Yes.

9 Q. And that was in the middle of a pecan orchard?

10 A. It was right on the edge of a pecan orchard.

11 Q. On the edge of a pecan orchard. And the
12 geologist made an economic decision to protect this
13 valuable land by using a closed-loop system; is that
14 correct?

15 A. Yes.

16 Q. And in that case the land was valuable because of
17 the pecans?

18 A. Yes.

19 Q. Okay. So you understand that there an awful lot
20 of people who think that the land on Otero Mesa is valuable
21 too?

22 A. Yes, absolutely, I understand.

23 Q. And so they are asking that you use a closed-loop
24 system to protect that valuable land also?

25 A. I understand.

1 Q. And so you all have made that same decision at a
2 different place?

3 A. Well, economically I have trouble believing that
4 a quarter of reserve-pit area land out at Otero Mesa has
5 the same economic value that a farmer's pecan orchard has.

6 Q. However, you understand that there are people in
7 this audience who would disagree with you?

8 A. Absolutely, I understand that.

9 Q. Okay. Now, you made the statement that for the
10 long string, at least, usually you drill out of steel pits;
11 is that correct?

12 A. Yes.

13 Q. And you understand that a closed-loop system is
14 nothing more than a steel pit or series of steel pits for
15 the same purpose, right?

16 A. With a lot of extra solids, control equipment and
17 equipment to deliver to the dumper bin, yeah, and a lot
18 more headaches to keep up the solids when you're drilling a
19 large-diameter hole at a high speed, yeah.

20 Q. In your example you have at 150 gallons per
21 minute with a 450-gallon pit storage; is that correct?

22 A. 450-barrel.

23 Q. -barrel, I'm sorry, I'm switching from water to
24 oil here.

25 How many steel pits is that?

1 A. That would be two pits.

2 Q. Two steel pits?

3 A. Yeah, I'm assuming two, two pits that aren't full
4 all the way to the top, but yeah.

5 Q. And you are -- on Otero Mesa, you are how many
6 hours away from a source of fresh water or brine?

7 A. Well, the answer to fresh water, if you drill a
8 water source well, it's there, its instantly. From brine,
9 we're probably at least three hours away from any source of
10 brine that I'm aware of.

11 Q. So wouldn't it be prudent to have at least three
12 hours of reserve storage on location, in case anything goes
13 wrong?

14 A. Actually, I think you'd probably want to have
15 more than that on location.

16 Q. So how much more?

17 A. You know, it just depends on how bad your --
18 There's going to be a limit somewhere to how much tankage
19 you can put on a location to store additional fluids. I
20 think the answer would -- it would be a case-by-case basis,
21 on where you're at and --

22 Q. You should probably have at least two more pits
23 than the two in your design; is that correct?

24 A. And it's common, most rigs have a -- typically
25 have a 500-barrel or 400-barrel freshwater tank and often

1 will set a second tank where they can put the brine water
2 in too.

3 But yeah, in the scenario you're describing with
4 no reserve-pit storage, it would be probably prudent to
5 have more fluid out there, but...

6 Q. Now, you said you worked for Exxon?

7 A. Yes.

8 Q. And Exxon is a big offshore operator, aren't
9 they?

10 A. Yes.

11 Q. Did you ever get to an offshore rig with Exxon?

12 A. Not with Exxon, I did when I worked summers,
13 going to college, working for a drilling contractor.

14 Q. Do they do frac jobs offshore?

15 A. In some places they do.

16 Q. And they use closed-loop systems offshore; is
17 that correct?

18 A. I assume they do. I'm not familiar with offshore
19 stimulation operations.

20 Q. I'm assuming that they use proppant offshore; is
21 that correct?

22 A. I think they do.

23 Q. And they flow back those frac jobs offshore?

24 A. Yeah, I'm assuming that they do, yes.

25 Q. The point I'm trying to make is that there are

1 ways to handle these abrasive flowbacks, aren't there?

2 A. There probably are.

3 Q. The frac job flowing back the sand, if you were
4 to flow it to a pit, what would that do to the liner?

5 A. Usually there's -- by the time you've gotten to
6 your completion, the part of the pit you flowed in is the
7 part where your drill solids and your first part of the
8 hole were deposited, so you have a layer of drill solids
9 above your pit liner. And also you typically have some
10 water, drilling fluid, you know, left in there so it
11 doesn't contact the -- the pit liner is not at risk there.

12 Q. So there are ways to handle this abrasive
13 flowback, right, in a pit?

14 A. Yes.

15 Q. And couldn't some of that same technology be used
16 in a closed-loop system?

17 A. It probably could.

18 Q. What's the purpose of a cement bond log?

19 A. A lot of people probably have a different answer
20 to that, but I'm not -- I don't hate cement bond logs, I'm
21 not utterly opposed to running a cement bond log. But my
22 experience with cement bond logs is that they're a useful
23 qualitative tool for determining your top of cement, and
24 almost any -- and determining the -- yeah, on your bond log
25 curve you may have varying, quote, qualities of cement

1 below you.

2 But it's been my experience that it's unreliable
3 for telling you whether or not you have a hydraulic seal or
4 complete coverage of your annular space with cement, but it
5 is useful for determining your top of cement, particularly
6 on a well where they did not run a temperature survey when
7 they originally cemented the casing.

8 Q. So from your personal opinion, you're reluctant
9 to use cement bond logs to determine whether or not you've
10 got a cement bond through the cemented section?

11 A. Yes. I'm comfortable using them to determine if
12 there's no cement at all, because -- at least my experience
13 has been, you can see where the free pipe rings and all
14 your collars show up.

15 Q. You don't spend a lot of time with logging
16 salesmen then, huh?

17 A. No.

18 CHAIRMAN FESMIRE: I've got no further questions.
19 Any redirect, Mr. Carr?

20 MR. CARR: Yes, sir.

21 REDIRECT EXAMINATION

22 BY MR. CARR:

23 Q. Mr. Collins, when you're actually out drilling a
24 well, economics impact almost everything you do; isn't that
25 true?

1 A. That's true.

2 Q. Economics, in fact -- economics impose limits on
3 what is viable or possible and what is not; fair to say?

4 A. Yes.

5 Q. And we've had examples here of various problems
6 and things that might be done to handle them in the context
7 of a closed-loop system. It is possible that almost
8 everything that can be advanced could be handled; isn't
9 that right?

10 A. Yes.

11 Q. But the way to handle them, and whether or not it
12 can be done and this resource developed, has got to be
13 measured against the economic environment and the
14 conditions that economics impose on what we're trying to
15 do; isn't that fair to say?

16 A. Yes.

17 Q. When you're looking at an offshore drilling rig,
18 your economics are very, very different from drilling a gas
19 well in southeastern New Mexico; isn't that true?

20 A. That's correct.

21 Q. And these options are going to make certain --
22 the economic restraints are going to make certain options
23 more possible in one scenario than in another; isn't that
24 right?

25 A. Yes.

1 Q. And they'd make them less viable in some
2 scenarios than in other; is that not true?

3 A. Yes.

4 Q. We're here today talking about changes in the
5 Rules that might dictate the use of closed-loop systems in
6 Otero Mesa, and we're looking at that, are we not, before
7 we drill a well in Otero Mesa?

8 A. That's correct.

9 Q. And the Division is being asked to make a choice
10 on whether or not they're going to require that; isn't that
11 true?

12 A. Yes.

13 Q. Now, you drilled it next to a pecan orchard, and
14 you had the option of making a choice on whether or not to
15 employ a closed-loop system to protect that land; isn't
16 that right?

17 A. Yes.

18 Q. And unlike the Commission, who's looking only
19 prospectively, you actually used that system, didn't you?

20 A. Yes.

21 Q. You went out and used it.

22 A. (Nods)

23 Q. Did you experience well-control problems?

24 A. Yes, we had a well-control problem.

25 Q. Would you make that choice again today?

1 A. No, not voluntarily.

2 Q. Ms. MacQuesten said, well, you understand there
3 are concerns about pits, but for them to work things must
4 go right. Do you remember that question?

5 A. Yes.

6 Q. If the Rules of this Division are complied with
7 and enforced, don't you think those things go right?

8 A. Yes.

9 MR. CARR: That's all I have.

10 CHAIRMAN FESMIRE: Mr. Carr, do you have any
11 other witnesses?

12 MR. CARR: That's it.

13 CHAIRMAN FESMIRE: Ms. Belin, do you have a case-
14 in-chief?

15 MS. BELIN: Yes. Mr. Finch has a PowerPoint
16 presentation, so could we have a couple of minutes for --

17 CHAIRMAN FESMIRE: Sure, let's take a 15- --
18 almost 15-minute break. We'll reconvene at 2:40 -- or make
19 that 2:20.

20 (Thereupon, a recess was taken at 2:07 p.m.)

21 (The following proceedings had at 2:22 p.m.)

22 CHAIRMAN FESMIRE: Ms. Belin, are you ready?

23 MS. BELIN: Yes, I am.

24 CHAIRMAN FESMIRE: Okay, let's go back on the
25 record.

1 We had a matter that was pending, and I believe
2 Ms. MacQuesten has a request for the Commission.

3 MS. MacQUESTEN: Yes, Mr. Chairman, each
4 Commissioner should have before him or her a packet of
5 documents. These documents are the comments that were --
6 the public comments that were submitted in response to the
7 pit guidelines, and I would move that these be admitted as
8 an exhibit.

9 CHAIRMAN FESMIRE: Do I hear a motion from the
10 Commission to that effect?

11 COMMISSIONER CHAVEZ: So move.

12 COMMISSIONER BAILEY: Could I have clarification,
13 please before we vote on this?

14 CHAIRMAN FESMIRE: Sure.

15 COMMISSIONER BAILEY: It's my understanding that
16 there are two drafts of the guidelines out there, and that
17 there will be another draft coming out because of public
18 hearings that are ongoing?

19 MS. MacQUESTEN: I believe we have not yet issued
20 a version that is considered the final version, so it's
21 possible that there will be additional changes, yes.

22 COMMISSIONER BAILEY: Okay, so some of these
23 comments may apply to the first version of the guidelines,
24 and some may apply to the second and some to the third?

25 MS. MacQUESTEN: They are all the comments that

1 have been issued to date, and since we have had two
2 versions of the pit guidelines go out, there should be
3 comments to the first and to the second.

4 COMMISSIONER BAILEY: And maybe even to the
5 third, since you're asking for comments for the third
6 draft, right?

7 MS. MacQUESTEN: Possibly. Unfortunately -- Bill
8 may be able to help us on this. Willie, the comments that
9 we have, do they go to -- which versions of the guidelines
10 do they go to?

11 MR. OLSON: I believe this is going to the --

12 MS. MacQUESTEN: Are these all the comments that
13 we've received, to all the versions?

14 MR. OLSON: This goes to the last version, not
15 the one we've just gone out for comment on now. That was
16 the one that came in March, I believe. I don't know the
17 exact date. I believe the deadline was right around the
18 beginning of April for submission of comments. It was on
19 the first draft. These all came in, I think, April 9th, I
20 believe, was the final date for submission, that Friday,
21 April 9th, was the submission date.

22 COMMISSIONER BAILEY: So OCD has already taken
23 into account these comments when they drafted their second
24 draft, right?

25 MR. OLSON: That's correct.

1 CHAIRMAN FESMIRE: Second draft of the pit
2 guidelines.

3 MR. OLSON: The draft that just got issued just
4 recently, the last few weeks.

5 COMMISSIONER BAILEY: Okay, so you've already
6 used these to develop the draft that's out there now and
7 may or may not change again from the third draft?

8 MR. OLSON: That's correct.

9 COMMISSIONER BAILEY: Okay. So what is it you
10 want us to take administrative notice of, if you've already
11 used these for the second guidelines?

12 MS. MacQUESTEN: There are two points I would
13 like to make with these documents.

14 One is that the OCD was questioned about our
15 conduct in proposing to ban pits, and it was suggested that
16 we acted precipitously without sufficient public comment
17 and notice, and I wanted -- we've had some testimony about
18 the fact that we went through the Pit Rule hearing and the
19 comments leading up to that, and I wanted to introduce
20 these to show that it is still an ongoing process and we've
21 received substantial comments from the comment about pits
22 and that we are not acting precipitously in banning pits in
23 this action.

24 It also goes to a second comment that was made,
25 and there was a question about whether we had conferred

1 with other state agencies. The testimony in response to
2 that question was yes. This supplements that testimony by
3 pointing out the written comments that have been received
4 by our sister agencies regarding pits.

5 COMMISSIONER BAILEY: Which also brings up the
6 point, if this has to do with the guidelines, which have to
7 do with the siting, operation and closure of the pits, that
8 our question now is not whether it's siting, operation and
9 closure of the pits, but pits at all.

10 MS. MacQUESTEN: And many of the comments,
11 despite the fact that the Pit Rule had been enacted
12 already, still went to the question of whether pits should
13 be allowed at all, and many of the comments go to closed-
14 loop systems as a recommended alternative.

15 COMMISSIONER BAILEY: Okay, so I will look at
16 these for closed-loop system suggestions and whether or not
17 pits should be allowed, but not for the guidelines.

18 MS. MacQUESTEN: No, and to clarify, I'm not
19 asking the Commission to use it for that purpose.

20 COMMISSIONER BAILEY: Right, because that would be
21 rulemaking, and we're not doing rulemaking for the
22 guidelines at this hearing.

23 CHAIRMAN FESMIRE: Is there a second that they be
24 admitted as an exhibit?

25 COMMISSIONER BAILEY: Under those terms there is

1 a second, yes.

2 CHAIRMAN FESMIRE: All those in favor?

3 COMMISSIONER BAILEY: Aye.

4 COMMISSIONER CHAVEZ: Aye.

5 CHAIRMAN FESMIRE: Opposed?

6 These comments from the pit guidelines, public
7 comments on the pit guidelines, will be admitted as an
8 exhibit --

9 COURT REPORTER: Thirty-three.

10 CHAIRMAN FESMIRE: -- Exhibit 33.

11 MS. MacQUESTEN: And if I may take a copy for the
12 court reporter?

13 CHAIRMAN FESMIRE: You may.

14 Ms. Belin, I guess it's your turn.

15 MS. BELIN: Thank you, Mr. Chair. I'm here on
16 behalf of the Otero Mesa Coalition, which has submitted
17 written comments which are in the record, and a number of
18 representatives of that coalition presented public comments
19 yesterday. And as part of our written submission we also
20 submitted testimony of Steven Finch, who is our technical
21 witness who's here today, and we will be presenting his
22 testimony right now.

23 And we didn't include with our written
24 submission, but I have handed copies up to the Commission
25 and to counsel of Mr. Finch's résumé, which I would like to

1 have as an exhibit in this case, so...

2 STEVEN T. FINCH, Jr.,

3 the witness herein, after having been first duly sworn upon
4 his oath, was examined and testified as follows:

5 DIRECT EXAMINATION

6 BY MS. BELIN:

7 Q. Mr. Finch, would you state your name for the
8 record, please?

9 A. My name is Steven T. Finch, Jr.

10 Q. And what is your employment position?

11 A. I'm vice president and senior hydrogeologist at
12 John Shoemaker and Associates.

13 Q. Can you be sure -- This microphone isn't going to
14 amplify you, so you're just going have to --

15 A. Okay.

16 Q. -- amplify your own voice.

17 What is your educational background?

18 A. I have a bachelor's in science, in geology, from
19 Sul Ross State University in Alpine, Texas, with a minor in
20 chemistry. And I also have a master's in science, or a
21 master of science in geology, from Northern Arizona
22 University in Flagstaff, Arizona.

23 Q. And could you give a brief summary of your
24 employment history?

25 A. Yes, I won't go all the way back, but before I

1 started working with John Shoemaker and Associates I had
2 various jobs related to geology, both in the oil and mining
3 industry, and in 1990 I started working with John Shoemaker
4 and Associates as a staff hydrogeologist. And in 1995 Mr.
5 -- or Dr. Shoemaker made me a principal of the firm, and 14
6 years later I'm now vice president.

7 Q. So for the past 14 years you've been a
8 hydrogeologist with John Shoemaker and Associates?

9 A. Yes.

10 Q. And did you say that -- did you -- Have you
11 worked for an oil or gas company during your career?

12 A. I briefly worked in San Antonio for a petroleum
13 geologist, or petroleum engineer, as essentially an
14 apprentice geologist, go out and watch activities on
15 various well sites and stuff, workovers, frac jobs, et
16 cetera.

17 Q. Could you give a -- just a thumbnail sketch of
18 the kinds of work you do at John Shoemaker?

19 A. You bet. I have really focused on water resource
20 evaluation, both the quantification of groundwater but also
21 the chemical aspects. A lot of my academic training was in
22 geochemistry, so I've kind of jumped the fence a little bit
23 there.

24 A lot of the projects that I've worked on have
25 ranged from things for -- everything, as far as clients,

1 from a person that owns a domestic well, to industry, State
2 of New Mexico and federal government, and all of those have
3 related to wells and groundwater systems and analysis of
4 those systems, whether to develop or protect them.

5 And more specifically, I've kind of gotten into
6 the realm of modeling, which Dr. Shoemaker mentored me on,
7 and I have developed a lot of regional groundwater fluid
8 models within the State of New Mexico for municipalities
9 and for the -- let's see -- State Engineer, thank you.
10 Some of those models were the Tularosa Basin, Jornada,
11 along the Rio Grande, various different models, San Juan
12 Basin.

13 I've also had some experience with evaluating the
14 feasibility of injection wells in the San Juan Basin as a
15 project I did for the Gas Research Institute, which I now
16 believe they've changed their name to something else.

17 Also kind of in parallel with that project was a
18 fracture study looking at the occurrence of migration
19 pathways for methane and water in the San Juan Basin along
20 the Animas River valley.

21 Locally within the area that we're talking about
22 here today, I've had quite a bit of experience of working
23 in the Tularosa Basin and the Salt Basin, in the Tularosa
24 Basin primarily for the City of Alamogordo and village of
25 Cloudcroft. Well, actually they're on the other side of

1 the -- barely outside of the Tularosa Basin.

2 I'm currently working on the Tularosa Basin
3 National Research Desalinization Facility for the
4 Interstate Stream Commission and have done a detailed study
5 of the Salt Basin, which we have used and revised for this
6 particular, submitted -- or the work has been updated for
7 the Coalition.

8 Q. And describe the nature of your study of the Salt
9 Basin and who you did it for.

10 A. Well, it started off with a regional water plan
11 for the Tularosa and Salt Basin. And then during that time
12 -- I believe that was around 1999 -- the State Engineer
13 became interested in what was going on in the Salt Basin.
14 It was essentially an undeclared area. Very little was
15 known about it.

16 And so then a few years later the Interstate
17 Stream Commission hired us to do essentially an evaluation
18 of the water resources in the Basin. Basically we
19 collected all the data that was available to us and looked
20 at what the possibilities were for developing water to meet
21 compact deliveries related to stream-flow obligations.

22 Q. So you prepared a report for the Interstate
23 Stream Commission on that area?

24 A. I did.

25 Q. And then subsequently you were hired to work in

1 connection with the BLM's land plan amendment for the Otero
2 Mesa area?

3 A. That's correct, I was hired by the Coalition to
4 review the BLM Resource Management Plan and to provide
5 comments based on my understanding of the water resources.

6 Q. And most recently the Coalition asked you to look
7 at the proposed rules that are under consideration at this
8 hearing and prepare the testimony you're preparing today?

9 A. They did, and I submitted comments which include
10 the report that I've prepared that describes the details of
11 the Salt Basin, and a summary letter that was attached to
12 that and a map.

13 MS. BELIN: I would Offer Mr. Finch as an expert
14 in hydrogeology.

15 CHAIRMAN FESMIRE: Any objection?

16 COMMISSIONER BAILEY: No.

17 COMMISSIONER CHAVEZ: No.

18 CHAIRMAN FESMIRE: He's acceptable as such to the
19 Commission.

20 Q. (By Ms. Belin) Thank you. The format we would
21 like to use is that Mr. Finch will go ahead and just make a
22 PowerPoint presentation with his comments. I'll probably
23 just have a few questions at the end, rather than a
24 question-answer dialogue, if that's all right.

25 A. Okay, the map shown on the first slide of the

1 PowerPoint presentation is from the report that I submitted
2 as part of the comments, and it's titled Figure 7.

3 And what I wanted to, or how I envisioned
4 structuring this, was briefly describe why there are
5 important water resources in the Salt Basin area and then
6 kind of give you a brief overview of where those resources
7 are, just basically a description of the Basin since that's
8 -- I think it's been lacking in this hearing -- and then
9 provide some of the conclusions that are laid out in my
10 report, and then finally my opinions related to the
11 proposed Rule.

12 This map, which is Figure 7, shows -- the gray
13 area is the outline of the Salt Basin. And there are
14 several features I'd like to point out. One at the bottom
15 is the Texas-New Mexico state line. And then at the top
16 here, the Sacramento River comes in and essentially dead-
17 ends in an area, a very vast linear feature that goes from
18 the northern or northwestern to southeastern portion of the
19 Basin that we call the Otero Break. And I'll discuss this
20 in more detail here in a minute, but it's a significant
21 hydrologic feature.

22 The little dots on the map represent water wells
23 that we know about, and the yellow areas are areas of
24 water-right applications that have been submitted to the
25 State Engineer.

1 There are a few communities that use the aquifer
2 within the Salt Basin for municipal supply, one being
3 Timberon, which is a small community up in the northwestern
4 corner, right along the Sacramento River. The other is
5 Piñon. And most of the other wells and dots in the -- I
6 would say the western and northern parts of the Salt Basin
7 -- are stock and -- primarily stock and domestic wells,
8 until you get down into an area in the eastern -- the
9 southeastern part which is called Crow Flat. Crow Flat is
10 an area where there's significant irrigation and very
11 productive wells.

12 In addition to Crow Flat you have an area right
13 on the edge called the Dell City Irrigation District in
14 Texas, right along the state line, and you'll see a
15 concentration of wells down there. Those are primarily
16 irrigation wells.

17 My next slide is a picture --

18 COMMISSIONER BAILEY: Before you leave that --

19 THE WITNESS: Yes.

20 COMMISSIONER BAILEY: -- what are the little red
21 squares that are horizontal?

22 THE WITNESS: The little red squares. You know,
23 that is an artifact of the land net, and I'm not really
24 sure -- See, those are township/ranges --

25 COMMISSIONER BAILEY: Yeah.

1 THE WITNESS: -- and I'm not really sure what
2 this part of that overlay -- and it has something to do
3 with the land net, the way a survey was done or something,
4 as far as the township/range stuff. I really don't know.
5 It does look odd.

6 Well, the Otero Mesa area to the west of this has
7 nice grasslands and antelope. To the east we have the
8 irrigation and agricultural areas that I was talking about.
9 This is right along the state line looking east. In the
10 background there, you see the Guadalupe Mountains, and many
11 of these wells produce over 2000 gallons per minute. It's
12 very significant.

13 The first thing that I did when I started
14 researching the Salt Basin was, I pulled up everything that
15 I knew, or that I can find, and so I wanted to describe
16 basically some of the major work that's been done on the
17 area that I think has been overlooked by a lot of people.

18 In the 1950s the State Engineer did an assessment
19 on the groundwater conditions in Crow Flat, which is east
20 of Otero Mesa. And then -- or sometime after that, 1995,
21 there's some work done by Mayer, which he did his PhD
22 dissertation, and his advisor, Dr. Sharp -- They're both
23 from the University of Texas at Austin. And they studied
24 the Otero Break and the whole Salt Basin in great detail.
25 Mayer went out and mapped out all the fractures and

1 provided great information on the types of fracturing, the
2 distribution of them, and went to describe structurally how
3 those occur, or why they're there, and also developed a
4 groundwater flow model of the Basin.

5 Shortly -- maybe during the same time or
6 thereafter, the New Mexico Water Resource Research
7 Institute did a nice overview of water resources in the
8 Salt Basin area and their trans-boundary aquifers of the El
9 Paso and Las Cruces report that was one in several series,
10 and then finally of the Tularosa and Salt Basin Regional
11 Water Plan. We provided a lot of detail on the resources
12 in that water plan, more than you see in the other regional
13 water plans of the State.

14 This is my third slide, and it's really a
15 generalized geologic map. It is also Figure 2 of the
16 report that I've submitted as comments.

17 And basically what I wanted to show you are these
18 regions that are divided by these green lines, and all of
19 them except for the one in the Crow Flat area and down in
20 the Salt Lakes, into Texas, by Dell City -- all those are
21 -- there's bedrock at the surface, essentially, and it's
22 primarily of Permian age, with the exception of right in
23 the Otero Mesa area there's a series of hills, the Cornudas
24 Mountains, which are, you know, volcanic intrusions and
25 things like that, that have come up.

1 One thing that I wanted to discuss or mention
2 briefly about the water use from our previous map is that
3 -- just to give you some numbers of what's going on in the
4 Salt Basin, currently there's about 50,000 acre-feet of
5 water rights that have been declared, and there's
6 approximately 15,000 to 20,000 acre-feet of water that's
7 historically been put to beneficial use.

8 Jumping back into the geology here, what I want
9 to do is just show you what we -- some of the cross-
10 sections that we put together, essentially to look at the
11 vertical profiles of the aquifers. Here we have A-A',
12 which is east to west on the north end of the Basin. And
13 then down here is B-B'. Essentially it runs parallel to
14 the state line. And I think this will give a good idea of
15 what the aquifer looks like, and I'll point out some key
16 features there.

17 Now, these cross-sections were developed from
18 geologic mapping of what few -- or little data we had from
19 wells, and also what the expected thickness or the measured
20 thicknesses of those units are, the geologic units are in
21 that area.

22 What you see here is, the blue primarily
23 represents the Permian-age rocks, which are carbonate
24 rocks. And then the red down here is primarily
25 Precambrian. There is a big section of rock missing from

1 the Permian to Precambrian that was eroded off in the
2 northern part of the Basin.

3 If you'll look at the scale on the -- the
4 vertical scale on the map, each one of those numbers
5 represents a thousand feet. And you'll see that the
6 aquifer is approximately 1000 to 2000 feet thick in this
7 region.

8 The black vertical line right here is called
9 Number 1 -- I can't read it, but anyway that's an oil and
10 gas exploration well, so we do have a control point there.
11 These other black lines with the up-and-down arrows on them
12 represent faults. And the faults -- those signify the
13 northern part of what makes the Salt Basin, which is a
14 graben feature. It's where rocks have been faulted and
15 essentially dropped down.

16 Let's see, go to the next one.

17 COMMISSIONER CHAVEZ: Excuse me, you're saying
18 that blue line is the water table?

19 THE WITNESS: That blue line is the water table
20 at that point, and that's the regional water table. Thank
21 you for helping me out there. There are also, in some of
22 these arroyos and channels, there are perched water. So
23 the depth of water, I'll touch on in a minute, is quite
24 variable throughout the Basin. And I'll explain that. I
25 guess the next map would be my opportunity to do that.

1 Back to the geologic map that we had. Depth of
2 water in the northern part up here, based on some of the
3 wells that I've been involved with for the community of
4 Timberon, ranges anywhere from 30 to 200 feet.

5 As you get out into the center of the Basin, the
6 depth of water varies quite a bit, depending on whether
7 it's a localized perched system or a regional system. And
8 the measurements that I've seen range from one to five
9 hundred feet.

10 Around the Cornudas Mountains, the same kind of
11 thing. You'll see a lot more perched water, because it's a
12 significant area of recharge. And I'd like to show my next
13 cross-section, which goes through the Cornudas Mountains
14 and down along the southern part of the Salt Basin.

15 As you can see, the blue line represents the
16 water table on the regional system. Like I said, there
17 will be shallower perched systems above that. A lot of the
18 wells are in the perched system, and there are -- I'd say
19 about half and half in the perched and in the regional
20 system.

21 One thing that you can deem from this cross-
22 section is that there's a lot of faulting that's been
23 mapped, and -- plus with some well control. We know that
24 those formations, there's blocks of them and they're
25 essentially stepped down to the east, and some around the

1 Cornudas Mountains might be fairly high or closer to the
2 land surface.

3 The blue color represents the Permian-age rocks
4 again, that carbonate aquifer that I'm talking about, which
5 is mainly the San Andres and the Yeso, similar to what the
6 Roswell-Artesian Basin is composed of.

7 And this pink color here are the older rocks,
8 sedimentary rocks, that from what I gather, reviewing the
9 oil and gas logs, that's where some of the shows have been,
10 in the Mississippian age, which probably might be in the
11 middle of that pink section.

12 I would also like to make one other comment about
13 the deeper rocks. Farther south and into Texas, right on
14 the other side of the state line, I've reviewed some
15 information on an oil/gas well that was done by Texaco
16 years ago, and it was drilled down to, I believe, a little
17 over 3000 feet. And they collected a water sample from the
18 Fusselman formation, which is in the lower part of this
19 pink stuff. And they took a water sample, and their
20 analysis showed it was around 2000 to 2500 part-per-million
21 water, which is fairly fresh for that depth.

22 There have been other publications that said
23 there's a likelihood of fresh water at depth in this
24 region, but with no specifics. Essentially one indication
25 is that the lack of salts -- we've been talking about salt

1 beds, but the lack -- there are salt beds or gypsum
2 deposits in the Yeso formation. The lack of them indicates
3 a flushing effect, which means fresh water has moved
4 through that system.

5 This slide is Figure 5 from my report, which
6 shows groundwater or water-level contours, and this
7 particular slide also shows the Salt Basin in New Mexico,
8 as well as the portion in Texas. It extends fairly far
9 into Texas, from Dell City on south, close to --
10 essentially all the way, practically, to Van Horn, Texas.

11 Q. (By Ms. Belin) Are the black numbers elevations?

12 A. The black numbers are elevations of the water-
13 level con- -- that represent the water-level contours, yes.
14 And the blue arrows are flow directions.

15 Now, one thing I would like to point out here
16 that to me is significant as a hydrogeologist, the closer
17 these lines are, the tighter their formation is and the
18 less permeable the water -- I mean the slower the flow of
19 water is, and the less will flow through that particular
20 section of water. As they open up, means the formation has
21 a greater transmissivity, it's able to move the water out
22 faster.

23 Where these lines are greatly separated right
24 here in the central part of the Basin, actually a good part
25 of the Basin, that's the Otero Break. And the Otero Break

1 essentially consists of a group of fractures and faults and
2 extremely high-density -- or high fracture density in areas
3 right at the -- from where the Sacramento River stops, all
4 the way to Dell City.

5 One thing we do not know is how deep these
6 fractures are and the faulting. I suspect they're fairly
7 continuous and deep. Essentially, it's a structure that's
8 been reactivated from Pennsylvanian time, which means it
9 was a structure that developed in those lower pink rocks,
10 and then as the Permian rocks were overlaying it
11 reactivated. So it's likely that it's fairly deep-seated,
12 these -- this fracture system.

13 COMMISSIONER CHAVEZ: What number is that?

14 THE WITNESS: That is Figure 5 --

15 COMMISSIONER CHAVEZ: Figure 5 --

16 THE WITNESS: -- from my report.

17 COMMISSIONER CHAVEZ: -- thank you.

18 THE WITNESS: The well -- the oil -- or the gas
19 test well I was talking about that had the fresh water down
20 to 3000 feet was right over here, approximately 20 miles
21 south of the state line, south of Otero Mesa.

22 COMMISSIONER CHAVEZ: Those elevations are sea
23 level?

24 THE WITNESS: That is correct, that's feet above
25 sea level.

1 One thing, I did talk a little bit about the
2 water use, but I haven't really mentioned anything about
3 the recharge. And one of my big points about -- or the
4 things that I've learned about this system is that it's a
5 very large regional system. The Salt Basin, and
6 particularly the Otero Mesa area, is a recharge area. It's
7 -- You can see where all these flow lines are flowing
8 towards the Otero Break, which essentially collects water
9 and discharges it down to the Salt Lakes south of Dell
10 City. But the recharge is primarily here where the
11 fracturing is. There's also fracturing around the Cornudas
12 mountains where the intrusions came up and essentially
13 broke through the rocks around it.

14 This particular figure is appended in the report
15 that I've provided, and essentially it's from Mayer and his
16 PhD dissertation. And like I said, he went out and mapped
17 the fractures, and that was a quite easy job for him. You
18 can see here, this is the exposed rock, and that's a
19 fracture, and so is this. And that's his dog up here. You
20 read the title and it says, 45-pound dog for scale.

21 This is primarily exposed rock, and then the thin
22 veneer of soil is what you see in the background. That's
23 typically what I've seen in a lot of the Otero Mesa area,
24 particularly in the Otero Break, is a thin veneer soil,
25 lots of fractures.

1 The recharge, quantity of recharge, has been
2 estimated by several, including myself. But the estimates
3 range from anywhere from 30 to 200,000 acre-feet a year,
4 which is a lot. The 200,000 acre-feet a year I'm not
5 buying. The 30 to maybe 75 is definitely more in the right
6 ballpark.

7 Even given that, for how arid this climate is and
8 the elevation, lack of snowfall and stuff like that, that
9 is a significant amount of water. And what that means is
10 that in order to have that much recharge you have to have a
11 mechanism to efficiently really water from the surface to
12 the ground, and that's indicative of the fracturing.

13 Let's see. The one thing I haven't discussed is
14 water quality, and I couldn't -- within the short time
15 frame I couldn't find a nice map that would demonstrate it,
16 but there are maps that we've developed that show the
17 distribution of water quality in the Tularosa and Salt
18 Basin Regional Water Plan, which was adopted by the
19 Interstate Stream Commission in 2002. But if I can just
20 use my pointer, I think that might suffice.

21 Primarily, everything except for the Dell City
22 and maybe part of the Cornudas Mountain area is less than
23 1000 part-per-million water. There is limited data on
24 that, but we have fairly good coverage. And --

25 Q. (By Ms. Belin) When you say 1000 parts-per-

1 million water, you mean 1000 parts TDS?

2 A. Correct, that's what I'm referring to, total
3 dissolved solids. Essentially fresh water and -- what I
4 call fresh water. I know the oil and gas industry has a
5 looser term for fresh water sometimes.

6 In the Dell City area the water is, although
7 saltier -- and the reason why that is is because it's near
8 the Salt Lakes or the playas, but also because of the
9 extensive irrigation that's been going on for the last 50,
10 60 years, they've had a lot of return flow and kind of a
11 little issue with salting of the water locally from
12 agriculture.

13 The particular map I have up as a slide now is
14 one that I submitted with my letter as part of the comment,
15 and it shows many things. And it gets fairly complicated,
16 but essentially I wanted to show everything I could on one
17 map.

18 It has the water level contours, so you know the
19 direction of flow, with the arrows. This brown line that
20 covers a good portion of the Salt Basin, essentially the
21 area of high fracture density that Mayer has identified,
22 taken directly from his report. And then the light green
23 coverage is from the BLM Resource Management Plan, which is
24 the area that they claim has some -- I guess medium or
25 moderate oil and gas potential.

1 And there's some land ownership coverage here.
2 The gray, which is also underneath this green -- it looks
3 like a darker green -- that particular overlay represents
4 the BLM land. You can see it's predominantly BLM.

5 Okay, I know I've missed some things, but
6 hopefully I'll get questions where I can fill those gaps
7 in. But I think I'll just go -- to save time, I'll just go
8 right into my opinions that I've provided as public
9 comment, and I'm just going to read them right off my
10 PowerPoint slides, which makes it easier for me, and then
11 conclude.

12 The first thing is that I think the proposed Rule
13 is a good start, it's in the right direction for protecting
14 water resources. I can probably talk all day on how
15 valuable the water resources are. I know the Interstate
16 Stream Commission would like to see those preserved for
17 future use, as well as the Governor.

18 And the next bullet is essentially what I've
19 pointed out. Given the geologic setting, which means the
20 fractured rock, the lack of soil cover and the subsequent
21 vulnerability of groundwater to contamination, the
22 potential for leaks and spills needs to be eliminated to
23 the maximum extent to protect known water resources.

24 I got the impression through listening to
25 testimony from the last day and a half of the hearing that

1 people don't feel like they know a whole lot about the Salt
2 Basin, and they probably don't. But I'm glad I'm here,
3 because I feel fairly comfortable -- I've had five years of
4 time to study the Salt Basin and I feel like it's a known
5 water resource. We've quantified how much is there in the
6 regional water plan, and for the Interstate Stream
7 Commission's interest.

8 The groundwater in other areas has been impacted
9 from oil and gas operations. I think that's been well
10 demonstrated. Even though they're from older operations
11 and the Rules might have been different at that time, they
12 probably thought the Rules were great. They weren't good
13 enough. We're learning all the time, and through that
14 learning process, things eventually need to change.

15 I guess my comment on that is, Otero and Sierra
16 County should not be put at risk to suffer the same
17 consequences.

18 My opinions regarding pits, digging pits where
19 there is little or no topsoil and fractured rock, I don't
20 see how that's really a viable protective measure, or
21 really economical. In the water-well business we wouldn't
22 even -- we'd do a closed-loop system. It's just cheaper.
23 I know there are differences in scale of depth, size of
24 hole, all those kind of things, but I think there's room to
25 be able to modify things to meet those objectives.

1 The proposed Rule does not allow for pits, which
2 I think is good, and supported by the things that I've
3 observed and I've presented here today. Depth to water, we
4 know, is less than 100 feet in many places. The fracturing
5 is well documented, and there's a driving force for
6 migration of surface spills. Essentially it's the
7 recharge. If it spills out and becomes soil contamination,
8 the recharge will drive it back in if it's not mitigated
9 within a quick time frame.

10 Also, I think this has been discussed, but there
11 are other things that are used in the oil and gas drilling,
12 and I think the closed-loop system in the pits are a good
13 idea when you -- it gives you the freedom to be able to use
14 those things without worrying about the environmental
15 consequences.

16 I know, for instance, I've seen a few cases where
17 dealing with stuck pipe you'll have to circulate with
18 diesel to get the stuck pipe out. Oil-based muds have
19 quite a bit of diesel in them. I think I'd want to recover
20 as much as I could. And I wouldn't even really recommend
21 that in this particular area with the degree of fracturing.

22 For the injection wells, I'm not really sure if
23 there's a zone viable for injecting produced water, unless
24 if you inject it back into the zone you took it from, which
25 would be not in the interest of the industry.

1 There's a lot of unknowns as far as how deep-
2 seated the regional freshwater groundwater flow system is,
3 and I think given the structural setting it's probably
4 likely it's there.

5 Also, with the fracturing and faulting there's a
6 high potential for vertical migration. Even if you make
7 the most beautiful Class I injection well, you can still
8 contaminate the aquifer, freshwater aquifer, through these
9 preferential pathways of faults and fractures. I don't
10 think it's worth the risk to do it.

11 And then just some other things to conclude with,
12 food for thought that I kind of picked up yesterday.

13 The water-well drilling methods are designed to
14 protect the aquifer. They're quite different than oil and
15 gas operations. Although we both do the same thing, we're
16 trying -- I'm not saying oil and gas operations don't
17 protect the aquifer. The primary method of a water well is
18 to extract water, so you're going to do everything you can
19 to maximize its production and maintain its integrity,
20 while the oilfield and oil and gas industry has a similar
21 objective, but mainly more focused for the resource they're
22 trying to get. And a lot of times in lost-circulation
23 zones, which might be freshwater zones, they'll use lost-
24 circulation material, cement or whatever, which really, to
25 me, kind of -- what it does is, it ruins the porosity of

1 the aquifer. It's not good for -- especially a fractured
2 system. If someone wants to have a nearby well, it might
3 limit that ability to do that.

4 The leaks that might incur from not -- using
5 these -- the proposed Rule, from the past methods,
6 essentially from buried piping, they're very difficult to
7 detect in fractured rock settings. I've seen this in water
8 systems. You'll have high water loss, you don't know where
9 it's coming from.

10 And the last thing is, the water resource beneath
11 the Salt Basin is -- it's really only an asset to the State
12 of New Mexico if it remains protected and contaminant-free.

13 Right now, I remember Mr. Core saying that the
14 feasibility of exporting water out of the Salt Basin to,
15 say, the Pecos River or whatever was very low or
16 negligible. Well, it would be even less if the resource is
17 contaminated, and it kind of lessens our options to do
18 things like that.

19 Q. I have just a couple of wrap-up questions.

20 A. Okay.

21 Q. Why, in your opinion -- why do you think that
22 injection wells should be prohibited in this area covered
23 by the Rule, as opposed to regulated as the Rule proposes?

24 A. Because I think there are areas that -- like I
25 said, you can construct a -- you can go through all the

1 motions. You can do the calculations using the Theis
2 equation, which doesn't apply to fractured rock. You can
3 do all these things, even select another method, look at
4 the -- you know, go through the motions of the regulations
5 which are good in most cases.

6 But here, I think you still have the probability,
7 or a high probability, of affecting a freshwater resource,
8 mainly because of the fracturing and the depth at which it
9 can occur. There's not much -- to my mind, there's not
10 much separation between -- from what I know, between what
11 might be the injection zone and the freshwater aquifer.

12 Q. Given all of your experience looking at water
13 resources around the state, do you believe that the water
14 resources in the area covered by this Rule are an
15 extraordinary resource that deserve special protection?

16 A. Yes, I do, and that's -- I mean, I think the
17 State has always had that in mind, in other areas as well,
18 in their protection measures, to do that. But yes, I think
19 this one is particularly of interest.

20 And it's not uncommon -- it's actually analogous
21 in some ways to the Edwards Aquifer in central Texas.
22 They've established a non-degradation policy where in the
23 recharge zone there's no such activity for potential
24 contamination.

25 Q. Because of the importance of this aquifer for --

1 A. Or that aquifer, right, that's right.

2 Q. And just so I understand, what are the
3 hydrological problems that come from digging pits in areas
4 of fractured rock with just a little bit of topsoil. Why
5 do you think you shouldn't put pits in that kind of
6 geology?

7 A. Well, you hit -- I mean, to dig a pit you'd have
8 to excavate the rock, essentially. And a lot of times what
9 a contractor will do is blast it out, which just magnifies
10 the problem of the fracturing issue. And then you don't
11 have a nice, even surface -- and I believe this was talked
12 about by -- I've forgotten, maybe Mr. Olson -- where a
13 liner or such can fail through a puncture.

14 It's just not worth the risk, I don't see the
15 benefit. If I was a contractor, I wouldn't -- I'd rather
16 do the closed-loop system.

17 Q. Is there anything else you want to add to your
18 testimony?

19 A. I think I've done my -- my part.

20 MS. BELIN: I have no further questions.

21 CHAIRMAN FESMIRE: Commissioner Bailey?

22 EXAMINATION

23 BY COMMISSIONER BAILEY:

24 Q. Your reference to the Edwards Aquifer is rather
25 interesting since their issues have to do with resort

1 hotels, golf courses, parking lots or shopping malls.

2 Somehow I don't see Mall of America in Timbron.

3 A. No, you don't, but they also deal with -- Well,
4 you never know about Timbron. They have, you know, high
5 hopes. They did before their spring dried up. But it's
6 the principle of protecting a recharge zone. You don't
7 have to have a shopping mall or whatever. There's -- They
8 also have special visions for underground storage tanks,
9 well drilling, of provisions. There are many other things,
10 rather than just what can be built on top of the recharge
11 zone.

12 Q. Would a better comparison be right here in New
13 Mexico, in the Carlsbad area, in the Dark Canyon area, and
14 have special cementing provisions have been instituted for
15 wells drilled throughout the fractured limestones?
16 Wouldn't that be a more equal kind of comparison?

17 A. Well, you know, that's -- I'm interested in that,
18 and I'm not as familiar, or I'm not familiar with that
19 particular example that you've provided.

20 Q. Another thing that's crossed my mind is that this
21 Application has to do with Otero County and Sierra
22 County --

23 A. That's correct.

24 Q. -- but there's been very little testimony at all
25 for water resources or implications for Sierra County. I'm

1 just curious why we should include Sierra County when we're
2 talking Otero County water supplies?

3 A. Well, that's a very good question. I've done
4 quite a bit of work in Sierra County, as well as Otero and
5 the Tularosa Basin, and the geology is quite different.
6 And I believe Mr. Core testified to that.

7 My primary focus was the Salt Basin, and the
8 reason why is because it stands out from the rest because
9 of its characteristics. I don't think you see those
10 characteristics in the other parts of Sierra County or
11 Otero.

12 Q. But you don't have any testimony for us to
13 include Sierra County in our consideration of the --

14 A. I would be -- If you have an area in particular,
15 I would be more than glad to provide testimony with what I
16 know.

17 Q. You said that 50,000 acre-feet had been declared
18 in the lower Otero County area, 20,000 acre-feet storage
19 use. Do you know what the beneficial use is or is
20 anticipated to be for those 70,000 acre-feet?

21 A. Maybe that was confusing. There's 50,000 acre-
22 feet per year of declared water right. Of those declared
23 rights, on the average, approximately 20 have been put to
24 beneficial use.

25 Q. Oh, okay, I just had that wrong. The beneficial

1 use, is that irrigation in Dell City?

2 A. No, that's irrigation in Crow Flats, that's
3 municipal supply in Timberon and Piñon and all the other
4 little -- you know, if you add up all the stock wells, all
5 those things. It's a combination.

6 Q. So there is some beneficial use within New
7 Mexico?

8 A. That is all in New Mexico. The Dell City
9 portion, if you go right on the other side of the state
10 line in Dell City, they pump over 100,000 acre-feet a year,
11 and the City of El Paso is currently gearing up to spend
12 \$700 million to put a -- to buy good portions of that and
13 pipe it to El Paso.

14 Q. With that high transmissivity within the Salt
15 Basin, does that mean, then, that the rule of capture is
16 applying here, that we are being drained by the Texas
17 interests?

18 A. It does. The main thing, what we haven't -- the
19 one reason why we haven't seen effects of great magnitude
20 historically is because the return flows have been
21 significant from the irrigation. Once El Paso starts to
22 pump it, there will no longer be return flows.

23 Q. And so New Mexico will lose its resource through
24 use in Texas?

25 A. To me, it is a very important card in the deck,

1 with our ongoing water war with Texas. And New Mexico has
2 the opportunity to develop that water and come up with good
3 plans to use it, which would put the breaks on the Texas
4 side, and that would be an extremely good negotiation tool
5 for New Mexico.

6 Q. But at this time we're losing our water
7 resources, we're not getting taxes from use of our
8 resources if we offer oil and gas and coal --

9 A. Uh-huh.

10 Q. -- and uranium and other natural resources of the
11 State --

12 A. That's right.

13 Q. -- we're not getting taxes, we're not getting
14 royalties. So the beneficial use to New Mexico is only for
15 a couple of small towns and a couple of ranches?

16 A. Well, and of that 20,000 acre-feet, I'd say 80
17 percent of it is agriculture and Crow Flat. So that's
18 fairly -- you know, that's fairly significant, you know,
19 10,000 to 15,000 acre-feet a year of irrigation is nothing
20 to sneeze at.

21 Q. Figure 2 shows the regional geology.

22 A. Yes.

23 Q. Has the northwestern portion showing as the Yeso
24 formation and not the San Andres, which is more towards the
25 center and towards the Dell City area.

1 A. That's correct.

2 Q. Is the water quality in the Yeso as clean as the
3 water quality around Dell City?

4 A. The wells that I've tested in the Timberon area
5 are in the Yeso, and that's very fresh water. It's less
6 than 500 milligrams per liter total dissolved solids.

7 Q. So -- You gave an example of water quality only
8 around the Dell City area. I was looking for water quality
9 more --

10 A. Oh --

11 Q. -- in other areas.

12 A. -- right, most of the Basin is 1000 milligrams
13 per liter total dissolved solids, or less.

14 Q. That's what I was getting at.

15 A. We're blessed with the good quality of water,
16 Texas is blessed with the ability to pump it from us.

17 Q. The intense fracturing is in the Otero Breaks
18 area; is that what I understood you to say?

19 A. That's correct, and -- surrounding the Otero
20 Break area, yes.

21 Q. What is the fracturing like in the other areas?
22 Is it as widespread, or is it as conducive for
23 transportation or whatever you call it in water?

24 A. Well, the map I showed, this brown line is
25 essentially the area that Mayer identified as extensive

1 fracturing. I'd have to go back and look at his report,
2 exactly how far he went to the west and east of that. But
3 I'm not -- it's -- Primarily my understanding is that when
4 you go back and look at the geologic map, the only place
5 where there's not bedrock exposed at the surface or the --
6 you know, the Yeso or San Andres, is in the Crow Flat,
7 which is essentially a small -- it's in the middle of the
8 graben where sediments have filled in, so there wouldn't be
9 fracturing there, except for below that.

10 Q. I'm looking for areas that don't have as high a
11 potential for transmissivity as you have indicated, such as
12 maybe in the northwestern area?

13 A. In the far north area, when you get up into the
14 mountains, the Sacramento Mountains, where these water-
15 level contours are fairly tight, around the communities of
16 Timberon and Piñon and north, I'd say it's less fractured
17 there, from my -- from what I know.

18 Q. So the testimony concerning the fracturing in the
19 pipelines, as you have it, to Dell City --

20 A. Uh-huh.

21 Q. -- would not be as apparent everywhere, and there
22 could be areas where the threat to groundwater as pictured
23 by so many people over the last two days is not as
24 threatening?

25 A. There may be localized areas, but even localized

1 -- it depends on what your zone of influence is, as far as
2 an injection well. In addition to the fracturing, there's
3 the faulting that we showed on the map, that offsets the
4 blocks, you know, essentially forms the Salt Basin graben.

5 So I think it's very complex. I'd be reluctant
6 to say there's an area that's not vulnerable or susceptible
7 in this particular region, Salt Basin.

8 Q. Including Sierra County?

9 A. No, I'm speaking just for the Salt Basin. Sierra
10 County and the remainder of Otero County, it's quite
11 variable. As Mr. Core testified to, you have the Rio
12 Grande Rift, you know, the basin there. If you go out in
13 the middle of the Tularosa Basin, essentially, you know,
14 it's where the extremely saline water is, but it's also
15 essentially mud. I mean, there's clay and silt. There's
16 no fracturing there.

17 Q. Did you map the location of the hundred or so oil
18 and gas wells to overlay your location of other wells in
19 that --

20 A. I do have those locations, but I don't have that
21 with me today.

22 Q. Could you see any impact from the previous oil
23 and gas drilling on water wells?

24 A. I don't -- that assessment has not been done.
25 That would be quite an elaborate study all in itself.

1 Q. But for your purposes, you did not see any
2 indications?

3 A. I don't think I can answer that question. I do
4 not have the data to support it either way.

5 COMMISSIONER BAILEY: Those are all the questions
6 I have.

7 CHAIRMAN FESMIRE: Commissioner Chavez?

8 EXAMINATION

9 BY COMMISSIONER CHAVEZ:

10 Q. Yes, in your slide titled Geology of Salt Basin,
11 or Salt Basin --

12 A. Right, it was one of those cross-sections?

13 Q. Yes, I think that one right there.

14 A. Okay.

15 Q. I think it was the one before that --

16 A. Okay, that --

17 Q. -- with the same title.

18 A. Let's see, there's Figure 4 and Figure 3.

19 Q. That's the one I'm --

20 A. Okay.

21 Q. What you're showing there as the regional water
22 table, that's the first occurrence of groundwater, is that
23 what you're --

24 A. No, it's not.

25 Q. Okay, maybe I'm misunderstanding. What does that

1 mean?

2 A. That is the regional water table. There are
3 perched systems, as I described a lot of times, like along
4 this geologic contact or in these valleys, there will be
5 perched water that is essentially migrating down to the
6 regional system. And you've got to remember, this is in
7 the far north area, at the tail end of the Sacramento
8 Mountains.

9 Q. Okay, so the water depth there, let's say right
10 above where that little wording is, Otero Mesa, let's say
11 the high point to just under the -- if you go down to the
12 R, from there to the water table, we're looking at a
13 distance of perhaps almost 2000 feet?

14 A. That's correct, in that particular area.

15 Q. Okay. And there doesn't seem to be any break
16 because of the grabens for the regional table there on the
17 right side of your graph. It seems like the regional water
18 table is continuous regardless of what the geology shows
19 with the grabens. Is that what that was indicating?

20 A. You mean the faulting doesn't affect the --

21 Q. Doesn't appear to affect the --

22 A. -- affect it as much?

23 Q. Right.

24 A. That's correct. My understanding is that a lot
25 of the faulting -- you know, faults can be barriers or

1 conduits, and I guess it depends on which formation is
2 offset from the other, but in this region the Yeso and the
3 San Andres are fairly similar. There's not a big offset of
4 totally different geologic units to cause a feature like
5 that.

6 Q. Okay. In the very center of that slide, you show
7 that regional water table with a bit of a dip in it --

8 A. Right.

9 Q. -- and yet you show the direction of flow
10 downward?

11 A. Yeah, that is confusing. I need to probably
12 brush that up a little bit.

13 Q. How would it look if you brushed it up?

14 A. I would probably take that one arrow out that's
15 dipping down in the middle of that dip.

16 Q. Well, then on either side of it you have water
17 flowing towards the center.

18 A. Right, then it's flowing out this way like a
19 trough. This is only a cross-sectional plane, so there's
20 another dimension we're not looking at.

21 Q. Okay. Then let's take a look at the other,
22 similarly titled, the B slide, that one there.

23 A. Okay.

24 Q. I guess according to those mountains with those
25 intrusions there, we have the same type of effect. There's

1 no apparent change in water across there.

2 A. That's right, it's fairly -- from previous work
3 that's been done by -- oh, I can't remember exactly who it
4 was. It might have been somebody that -- New Mexico Tech
5 was one paper, and then the City of El Paso has had me
6 review their model of the area. And essentially the
7 Cornudas Mountains is a highly fractured zone where it's
8 radial flow of recharge away from it.

9 You can't determine the radial-flow from this --
10 a cross-section like this.

11 Q. Okay. You showed a slide where the fractures
12 were right at the surface of the ground with very little
13 soil, and you mentioned the -- There you go. How typical
14 is that in the Otero Mesa area that -- the notation
15 underneath says a fracture zone in Otero Mesa. Is this
16 what might call typical of Otero Mesa, with this type of
17 rock exposure with little soil?

18 A. You know, I've driven through the Otero Mesa
19 area, Salt Basin, several times, and it's such a vast
20 region. And I don't live there, so I'd be reluctant to say
21 how typical this is. This is what Mayer presented as
22 typical in his PhD dissertation.

23 Q. Okay. Now to the Figure 5 illustration that you
24 have. There you go. You attribute the high
25 transmissibility to fractures. Now, we're talking about

1 the same water -- regional water table that you showed in
2 that other slide, the B-B' slide --

3 A. Correct.

4 Q. How -- Maybe I don't understand here. How is it
5 determined that is more attributable to fractures than to
6 some other conductivity of the natural permeability of the
7 lithology of the rock itself?

8 A. Well, I took it from the PhD dissertation by
9 Mayer and his advisor, Jack Sharp. They're the ones that
10 did the very detailed study. And that's what I reference
11 for this. The high-yielding wells that transect along that
12 line also -- you know --

13 Q. So fracture permeabilities --

14 A. Fracture permeability has also been verified by
15 well drilling, water-well drilling --

16 Q. Oh, okay.

17 A. -- in the southern part.

18 Q. This is kind of an odd one. Yesterday Mr. Core
19 referenced a fault and I wasn't able to get back to him.
20 Did you hear his testimony about a fault in Otero?

21 A. I vaguely recall that.

22 COMMISSIONER CHAVEZ: Okay. Well, I just
23 wondered if there was something generalized there that --
24 it came up, that you might know about.

25 That's all that I have, thank you.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. I do need to follow up on something Commissioner Bailey said. I too don't understand the idea of 50,000 acre-feet of water rights and 20,000 acre-feet of beneficial use. Having spent some time at the State Engineer's Office, I thought those numbers would be pretty close together.

A. What happens is, say, a rancher, or a farmer or a town or whoever, drills a well and then they file a declaration for a water right associated with that. Typically they'll file their declaration based on either -- let's take the farmer as an example. He's got a hundred acres he wants to irrigate, and his well will make 300 acre-feet. So he gets three acre feet per acre over his farm. That will be what he declares.

Now maybe over time, in reality, he only farms 50 acres. And so what he's diverting is half that.

And so when I talk about a declared water right, it's what people have declared as what they can legally use, and -- opposed to what they're actually pumping.

Q. So New Mexico could develop very easily another 30,000 acre-feet of use per year if the State Engineer were to step in and say, you know, if you don't develop this right, you're going to lose it, right?

1 A. That's correct, those people can still -- until
2 the State Engineer says you've forfeited your right, they
3 could pump up to that amount.

4 CHAIRMAN FESMIRE: That was the only question I
5 had.

6 Ms. MacQuesten, do you have any cross-examination
7 for this witness?

8 MS. MacQUESTEN: No, Mr. Chairman.

9 CHAIRMAN FESMIRE: Mr. Carr, do you have any
10 cross-examination?

11 MR. CARR: No, Mr. Chairman.

12 CHAIRMAN FESMIRE: Ms. Belin --

13 MS. BELIN: No further questions.

14 CHAIRMAN FESMIRE: -- do you have any other
15 witnesses?

16 MS. BELIN: No.

17 CHAIRMAN FESMIRE: Okay. Why don't we take a 10-
18 minute break and reconvene at 10 minutes to 4:00?

19 (Thereupon, a recess was taken at 3:40 p.m.)

20 (The following proceedings had at 3:50 p.m.)

21 CHAIRMAN FESMIRE: Okay, we're going to go back
22 on the record and back into session.

23 Ms. Belin, you had some housekeeping matters to
24 attend to?

25 MS. BELIN: Yes, I did, thank you. I wanted to

1 move two items into evidence. The first is Mr. Finch's
2 résumé that I already submitted, and the second is a
3 written copy of the PowerPoint presentation he gave, which
4 we've already given to the court reporter. I'm sorry, we
5 don't have enough copies everyone. So we'd like to move
6 both of those items into evidence.

7 CHAIRMAN FESMIRE: Is there any objection from
8 the Commission?

9 COMMISSIONER BAILEY: No.

10 CHAIRMAN FESMIRE: Any objection?

11 COMMISSIONER CHAVEZ: No.

12 CHAIRMAN FESMIRE: Any objection from the
13 attorneys?

14 MR. CARR: No objection.

15 CHAIRMAN FESMIRE: We're going to accept Mr.
16 Finch's résumé into the hearing record as Exhibit Number
17 34?

18 COURT REPORTER: Yes.

19 CHAIRMAN FESMIRE: And the written copy of the
20 PowerPoint presentation as Exhibit Number 35.

21 MS. BELIN: Thank you, Mr. Chair.

22 CHAIRMAN FESMIRE: Thank you, Ms. Belin.

23 Doctor, I understand that you had a technical
24 presentation that you'd like to address at this time.

25 DR. NEEPER: All right, thank you.

1 I'm not represented by counsel, but with your
2 permission I will qualify myself and submit myself to the
3 Commission for your approval.

4 CHAIRMAN FESMIRE: Please, Doctor, and start
5 with --

6 DONALD A. NEEPER,
7 the witness herein, after having been first duly sworn upon
8 his oath, testified as follows:

9 DIRECT TESTIMONY

10 BY DR. NEEPER:

11 My name is Donald Neeper. I received a doctorate
12 in low-temperature physics from the University of Wisconsin
13 in 1964.

14 Excuse me, I should give you people copies of
15 this prior to starting. I have a copy for each
16 Commissioner and one copy for the record, which I will
17 request permission to introduce later.

18 I'll start again with my qualifications.

19 I received a doctorate in low-temperature physics
20 from the University of Wisconsin in 1964. For the next two
21 years I was in military service. Thereafter I did
22 postdoctoral research for two years at the University of
23 Chicago. Starting in 1968 I was employed at the Los Alamos
24 National Laboratory, where I worked for 25 years in various
25 areas of thermal physics. That included both things at

1 very high temperatures such as thermonuclear devices, it
2 also included things at normal temperatures such as solar
3 buildings.

4 During the last three years I was at the
5 Laboratory, I managed a RCRA facility investigation for a
6 fairly large site containing hazardous waste, including
7 organic vapor plumes, tritium plumes and radioactive wastes
8 that had been buried and were under active burial there at
9 that time. These areas still sometimes appear in the
10 newspaper, called Area G and Area L.

11 I retired from the Laboratory in 1993. I
12 continue research in the interests that I developed just as
13 I moved into the RCRA facility investigation, and this is
14 in transport, particularly of volatile contaminants in the
15 vadose zone.

16 I worked part-time for several years with various
17 consulting firms privately, in the private sector, and the
18 last year or so I have finally more or less retired from
19 that. I simply pursue my own interests. I am at the
20 present a guest scientist back at Los Alamos National
21 Laboratory where I occupy a desk in order to carry out my
22 research, which is now mostly theoretical, trying to
23 account for data that I acquired 10 years earlier.

24 I also -- I represent here the New Mexico
25 Citizens for Clean Air and Water, but I am also on the

1 national board of an organization known as STRONGER, State
2 Review of Oil and Natural Gas Environmental Regulations.
3 It's a nonprofit corporation funded by the federal
4 government and by the American Petroleum institute to
5 assist states in developing better regulatory programs for
6 the environmental -- for the exempt wastes and their oil
7 and gas programs.

8 And so, Mr. Chairman, I submit that as my
9 qualifications for your consideration as an expert witness
10 in vadose zone transport.

11 CHAIRMAN FESMIRE: Any objection from the
12 Commission?

13 COMMISSIONER BAILEY: (Shakes head)

14 COMMISSIONER CHAVEZ: No.

15 CHAIRMAN FESMIRE: Any objection from the
16 attorneys?

17 MR. CARR: No objection?

18 MS. MacQUESTEN: (Shakes head)

19 MS. BELIN: (Shakes head)

20 CHAIRMAN FESMIRE: We'll accept you as a witness
21 in that field, Dr. Neeper.

22 DR. NEEPER: Thank you. I'll give you just a few
23 words as the background of the organization for whom I'm
24 speaking today.

25 This group organized, as best I could see in my

1 records, about 1968 or 1969, centering on issues of power
2 plant pollution and possible pollution from a pulp mill
3 that was then proposed. The group has spent most of its
4 efforts on technical things. It's had notable successes in
5 fields in controlling emissions from power plants, from
6 copper smelters and mining in the Rio Grande, mining gravel
7 in the Rio Grande. There have been numerous other issues
8 we have worked in.

9 Whereas occasionally we will work in the public
10 or political arena, most of our work is in the technical
11 arena, and that is what I'm attempting to do today.

12 What I'd like to do is deviate from the written
13 testimony, not sit here and just read this, but consider
14 all the things that have happened here in the last couple
15 of days and see if I can possibly lend any light or any
16 breadth to those issues or in any way give some kind of
17 technical answers that might be useful to you. There's no
18 need to repeat things that other people have said.

19 Some discussion, a lot of discussion, has
20 centered on water and the protection of water, and we hear
21 that a lot. We've heard words that OCD mostly should be
22 concerned with protection of water, particularly
23 groundwater.

24 I throw up a viewgraph of the Department's stated
25 goals, and it's also stated in the written testimony. I

1 outlined in red one particular line which says, "to protect
2 the environment and ensure responsible reclamation of land
3 and resources affected by mineral extraction..." That
4 attracts my attention. I want to assert we should not be
5 concerned only with water. There is a broader concern.

6 A lot of the people who spoke here spoke from the
7 concern with land disturbance. This is the citizens' view
8 of E-and-P operations, largely. They see the land
9 disturbance, they feel the effects on their land or on
10 their water. And you've seen plenty of pictures of land
11 disturbance. I'll show another couple or so, but then I'll
12 get down to some technical things that underlie the land
13 disturbance.

14 This is -- and these pictures are in your
15 handout. They may be easier to see, even in the handout.
16 This is just a drill site. As you can see, it's neat and
17 well kept. This is part of a drill site we can see in
18 northwestern New Mexico. And it gives me a chance to say
19 something good. I always like to go in and say bad things.

20 Over here is a little tank, probably from the
21 separator. I shouldn't say what it's from. I saw a lot of
22 those tanks in the northwest. That thing has a steel mesh
23 on top that's tacked down and welded. There's no way any
24 animal bigger than this could ever get in there. The
25 operator can come up with his truck and suck the produced

1 water out with his vacuum system, and that is kind of
2 exemplary, and I've seen quite a bit of that.

3 That's not required. We have a rule that says if
4 you're bigger than 16 feet with your tank you've got to
5 have a cover, but this shows it can be done on small tanks.

6 And I'd just like to get up in public forum and say, Great
7 for the industry, let's do more of that, whatever we can do
8 to encourage that kind of activity, that's showing good
9 behavior.

10 Now, back to the bigger thing that I'm
11 discussing, which is the question of the land disturbance,
12 that's half the drill site. Here's looking around for more
13 of it. It's the same pickup truck and a little piece of
14 the same tank operation you see there.

15 What's happened is, a large area has been
16 bulldozed. This is more like clay, the topsoil is gone,
17 and we have this huge expanse out here, which you question
18 if it can be reclaimed, and that worries people.

19 One of the things you can't see in the picture
20 is, there's a little channel coming across here. By
21 historical memory, the reserve pit was right around in
22 here. I was not there when the reserve pit was there, so
23 in my own expert testimony I can't say where the reserve
24 pit was.

25 A little channel leads up to the region of the

1 reserve pit and over to the edge of the disturbed area.
2 This is my wife standing in that little channel. This is
3 how we really treat our land. The wash from this is
4 actually back up to the region of the pit, and there's kind
5 of a hole there where water is going down into what I
6 presume was the pit. I reached down there about eight feet
7 and found some remnants of liner and pieces of trees. It
8 had been backed over with logs and trees, I guess. But
9 it's hard for this kind of thing to become reclaimed, and I
10 think this is the thing that is getting people excited, and
11 we need to ask, are there ways in which we can do a better
12 job with our land disturbance?

13 I'll show another example, because this takes us
14 right directly into the pits. This an example of land
15 disturbance around an evaporation pit. This is just one
16 end of a very large oval pit. It extends thataway quite a
17 ways. And again, the clay, the white material, has been
18 bulldozed up to form the berm. It's well formed, it's very
19 broad, but you can see the berm is eroding heavily. Here
20 is erosion to a ditch where all the runoff comes into a
21 ditch, comes up here and then is discharged to the
22 landscape down here where it's creating floods. The
23 operator tried to bulldoze in some logs and a little dirt
24 to stop the floods, but it washed right on through and goes
25 on downstream.

1 The next picture gives us a view of the bottom --
2 that is, this is the narrow end of the oval pit, and it
3 goes back up that way for quite a ways. Vegetation is
4 missing all around here. I'm told it was salt-kill from
5 windblown salt, but I wasn't there.

6 It's simply this very large disturbance. It's a
7 lot larger area than just the volume of the pit, and it
8 probably -- the soil disturbance is several times the area
9 of the water surface that you have in the pit.

10 And so these are factors we need to take into
11 account when we debate pits versus steel-tank-type systems.

12 Pits are used for waste. This is just a small
13 pit. I think you would probably call it an emergency pit
14 or a blowdown pit. It's currently used rather routinely to
15 accept any overflow that would come from this tank. One
16 can see there's petroleum in the bottom, and it isn't
17 lined.

18 This by itself isn't a huge sin. We're not going
19 to make a big issue over something like that. What you
20 need to make an issue of is that you've got 10,000 of those
21 kinds of wells out in one county. And if you're going to
22 have another 10,000 wells somewhere, you want to ask what
23 kind of things are we going to do? Because it isn't one
24 well, or it isn't a hundred wells. It's the 10,000 wells
25 that have the impact on the landscape. And so it's these

1 kinds of practices that we want to look and ask what we're
2 doing about them.

3 Why is this important? What science leads this?
4 How does this relate, really, to pits?

5 I'm going back here, now, to some testimony with
6 apologies to one Commissioner, because I gave some of the
7 same technical testimony at the previous hearing, but in
8 order for it to be on the record I have to give it in this
9 hearing too. We do have two new Commissioners.

10 I'm plotting here some data in which I plot the
11 amount of moisture in the rock -- and this is volcanic rock
12 -- against the depth below ground surface. There are two
13 drillings fairly near each other, at least in the same
14 substance. It might have been a hundred feet or more, the
15 distance between the drilling. But you notice one of them
16 has high moisture down to about a hundred feet. The other
17 one has high moisture near ground surface where it might
18 have rained, and then only about 1-percent moisture for
19 quite a depth.

20 Near the red line or the red data from the hole
21 that was drilled actually through asphalt, there was
22 originally an evaporation pit there. The pit was closed
23 about 15 years before we went back and drilled, looking for
24 evidence. And what we found was, under the asphalt there
25 was this accumulation of moisture. Or another way to put

1 it might be, there's this moisture that never got back to
2 where it was going. It penetrates down to 100 feet, and I
3 use this particular data this time, because we often hear
4 statements as though there were no danger if groundwater is
5 down at 100 feet.

6 Here is OCD's ranking criteria for threat to the
7 environment -- this is actually copied from OCD literature
8 -- in which the ranking for if the groundwater is deeper
9 than a hundred feet is zero, no threat.

10 I argue with that because water will move
11 downward. In this case I show you some that's down at 100
12 feet. What I think really happened in this case is a minor
13 picture of what we see happening and talking about in
14 fractures. That is, we are finding more and more that even
15 in apparently uniform material, when you get into saturated
16 flow conditions the majority of the flow goes through
17 little preferential channels. We can picture it if it's a
18 fracture that big, but if it's a little channel this big,
19 we don't think much about it.

20 Well, what that means is that the contaminants
21 arrive where ever they're going a lot sooner than you
22 expected them, because you have fast flow in preferential
23 paths. So here we kind of saturated or put moisture into a
24 lot of the rock, and it didn't get evaporated back out, but
25 I am suspecting whatever was draining through that pit

1 while it was evaporating went pretty fast.

2 And it was only a few days ago when I was
3 preparing the testimony for this, it suddenly struck me:
4 We're drilling another hole down about 400 feet on top of a
5 little tiny clay layer that sat on top of some basalt and
6 maybe a little swale of basalt, and we picked up wet
7 cuttings, saturated cuttings, and said, where did this come
8 from? Being thorough investigators, when we completed that
9 hole as a monitoring hole we put a pump at that level and
10 backfilled the hole and never got another drop out of it to
11 sample.

12 I suspect that what was sitting there was water
13 that had trickled out of that evaporation pit years before
14 and got stuck in that little area and sat there, and there
15 are still people out looking -- there are people now
16 looking for a perched aquifer kind of place, and it isn't
17 there.

18 Okay, enough for that story, the point being that
19 contaminants can follow fast paths. They don't necessarily
20 follow the uniform Darcy flow throughout the whole matrix.

21 We did hear a word from Mr. Olson. He said with
22 salt, the chloride is the bad actor, we always see the
23 chloride moving ahead. That's right. The chloride ion
24 moves ahead with the water front, and it gives you sort of
25 almost -- sometimes your first indicator of a plume coming

1 along. That's because the sodium ion gets bound onto the
2 particles in the soil. And it may not be that the chloride
3 is necessarily the worst actor, because the sodium binding
4 to the soil eventually replaces calcium in the soil and the
5 soil becomes what we call sodic, kind of like what we call
6 sometimes alkali pan. There are various other words for
7 this kind of soil. It loses its flocculants. It can't
8 hold water anymore, it can't support life anymore. So one
9 of the big points we make has to do with salt.

10 Now, I'll come back to that, but it's an
11 interesting feature of transport as the chloride moves
12 ahead and the sodium stays behind.

13 In my story that protection of water is not the
14 only protection we need to give, I want to look at what
15 water is like in most of the ground. Most of the ground
16 out there doesn't have water in it. It's so-called dry
17 ground, the vadose zone between -- somewhere between the
18 level of groundwater and the surface of the ground. But
19 I'll point out, that is the crucial water for a lot of our
20 life. All of the plants depend on that water. All of the
21 bacteria that manage to recycle a lot of the wastes that we
22 generate inadvertently, and have for the thousands of years
23 that humans and animals have been on this planet, depend on
24 that water.

25 If we destroy the vadose zone, we're committing

1 some kind of suicide. All of our crops are grown in the
2 vadose zone.

3 So it's important to consider that vadose-zone
4 water is very important water, even though it's not so-
5 called protectible water, because you can't develop it, you
6 can't pump it.

7 Water can be sucked in the soil just like you
8 know it can be sucked up in a sponge, and so if you stick a
9 sponge in the water and leave it alone for a while, some of
10 it will move up to the top. If the sponge is one foot
11 tall, you'd say the suction in the sponge is minus one
12 foot. That's another way of talking about the head or the
13 pressure it would take to get the water back out of the
14 sponge to that level.

15 So in my mind, I can put a sponge down in the
16 soil at some depth, and I say, well, it takes me a certain
17 amount of energy per unit volume, which is pressure, to
18 suck the water out, and it would take me more energy to
19 bring the water up and set it at ground surface. And
20 that's called the potential, that's the total energy it
21 takes to get that drop of water, get it up. It's a way of
22 measuring how tightly is the water held? It's both by
23 gravity and by the sponge effect. Water will try to flow
24 toward the lowest potential, the most negative potential.

25 So I'm showing here some data that we took out in

1 the same general areas where we were acquiring data. While
2 we were drilling, we were doing potential measurements as
3 best we could.

4 In this left-hand graph with the blue, I show the
5 volumetric moisture. This is depth as we go feet down, in
6 this case 110 feet. And in the red I show the suction. If
7 you just took a piece of that soil and asked, how hard do I
8 have to squeeze it, how much do I have to suck on it to get
9 a drop of water out of it? And we see at one level the
10 suction is quite high, due to rock properties or why, we
11 don't know. We spent a bit of time worrying about that,
12 and we still don't know why. But that happens in desert
13 regions. I found these same kind of data elsewhere. I
14 found this kind of data repeatedly here in Los Alamos, this
15 kind of an effect.

16 All I did was re-plot the suction data, adding in
17 gravity to say, what's the total potential of the water?
18 How much energy would it take me to get this drop of water
19 out and put it on the ground surface, and put it all on the
20 chart. So that is this blue picture here.

21 And sure enough, here where the suction is
22 greatest happens to be the place where the potential is the
23 most negative.

24 Now, right here water is flowing toward the
25 lowest potential, it's flowing downhill. Down here, water

1 is flowing toward the lowest potential, it's flowing
2 uphill, just like water will flow uphill in a towel. If
3 you dip your bath towel in a bucket of water and wait long
4 enough, you'll find the top of your towel getting wet.
5 Water will move up, down or sideways, depending on
6 potential.

7 What we do at the surface of the ground, it rains
8 and gets wet and the potential goes to zero. And pretty
9 soon in this arid climate it will dry it out, and the sun
10 shines on it and the potential might become quite low and
11 water would be wicked up to it.

12 So I say that's one of the problems with burying
13 wastes in pits. If you have soluble wastes and you put
14 them in the pit and you think they're going to stay there,
15 wait a while. They can go up, down or sideways. In
16 particular, they can go up.

17 And you might say, we'll put a clay cap on the
18 pit. Clay also can dry out and fracture, and sooner or
19 later you will be wicking -- trying to wick back through
20 the clay.

21 We can say we can put an impermeable in the
22 bottom. But all liners have finite lifetimes. Most of our
23 liners get torn up.

24 Texas went through an exercise of trying to pass
25 a rule requiring maintenance of an intact liner in closing

1 pits, and they got argument back from industry who said, we
2 can't do that, we can't guarantee that you're going to
3 maintain liner intact. I take industry's word for it, I
4 think it would be very difficult to maintain an intact
5 liner. And if you did, it might be good only for 30 years.

6 So we're talking about long-term things here.
7 We're talking about what happens to pits after 30, 50, 100
8 years. I don't think we have much experience with that.
9 We can't go out and do ground truth on it, but we can do a
10 little science and say we know what's likely to happen: If
11 you have contaminants in there that are soluble, they're
12 going to move. How fast depends upon the weather, it
13 depends on the geology, it depends on the characteristics
14 of the soil and everything else, and unless you did a
15 detailed study, you really couldn't forget.

16 I want to make it clear, my organization is not
17 objecting to the burial of what we will call harmless
18 minerals. I know "harmless" is not a technical term, and
19 we haven't defined what "harmless" means here, but if you
20 can get the idea we're not objecting to burial of things
21 you might develop on the site. I was drilling some of this
22 other stuff and I couldn't put my own cuttings back in the
23 borehole because I wasn't allowed to put wastes down the
24 borehole. Well, I just took it out of the borehole. I
25 understand the problems that can come with overregulation.

1 On the other hand, I understand the need for not
2 putting toxic materials in the pits and in closing the pits
3 with toxic materials in there, and that's the thing we
4 really object to. That's one big reason for not liking
5 pits, is that they're use as burial mechanisms.

6 Other industries in this country are not allowed
7 to discharge their wastes onsite most of the time, they're
8 under RCRA. The oil and gas exploration and production
9 industry has a very unique exemption from RCRA, as you
10 know. You people are here because of that exemption. It
11 gives the State the privilege of doing the environmental
12 regulations on those exempt wastes.

13 And it behooves us to do a careful job of that,
14 and I'm saying in this state -- and not only in this state,
15 in other states -- we are not doing an adequate job. And
16 the way I can say that for now is, you heard people
17 hollering about it yesterday. Wastes are getting away from
18 us.

19 One of the larger concerns of the organization I
20 work with is salt. This stems from our doing a study
21 looking around, actually, a large part of the United States
22 at the practices of road-salting, which are resulting in
23 both lost domestic wells and in vegetation kill, various
24 places.

25 It was happening in Los Alamos. We did a study

1 in Los Alamos of some pretty large-scale kills of pine
2 trees there in the mid-1970s. Being technical folks, we
3 did a neutron activation analysis for the needles from the
4 trees. It proved unquestionably what was killing the trees
5 was the sodium content of the needles. It was many times
6 beyond the toxic limit of those trees.

7 This has given us sensitivity to spreading salt
8 on the landscape. And for that reason, we're very
9 sensitive to large amounts of saltwater that are generated
10 in the petroleum production industry.

11 We have no statement to make regarding injection
12 wells because it's not in our territory, not in our
13 technical area. We do encourage whatever mechanisms you
14 may see fit to place on the pipelines. We recognize the
15 problem with pipelines. We had a supportive statement of
16 double wall, but that's been withdrawn from the proposed
17 Rule. We just simply encourage you not to ignore that,
18 whether you would consider lined trenches or whatever
19 mechanisms. We consider that it's necessary to see if you
20 have a leak. That's the key thing.

21 When that pipe is buried, what happens is, you
22 get a leak. And it goes on and it goes on, and until it
23 squirts up through the ground you don't know you have a
24 leak. You're lucky if it squirts right away and you see
25 it. But leaks can go on for years without you knowing it.

1 The Oil Conservation Division has one site with
2 about 100,000 gallons of petroleum floating on the
3 groundwater at a depth of something like seven feet, with a
4 leak that people just didn't notice for many years, from a
5 pipe, pipe about that big, and it wasn't under much
6 pressure. That has happened lots of other places. And so
7 it is the slow leaks that concern one, I think, a lot.

8 In regard to the slow leak, I'll put up a
9 picture, again in northwest New Mexico. This is a tank,
10 probably a produced-water tank. It would be out of my area
11 of expertise to declare what it is. I didn't ask anyone
12 what it is. This, I think, is the feed pipe to the tank,
13 around here is the berm.

14 And you can see a shiny black surface here on the
15 pipe. What's going on is, a fitting is leaking and it's
16 just drizzling into the ground, and drizzled and drizzled
17 for a long time. It looked like it had been drizzling a
18 long time, because it was -- get some kind of accumulation
19 of dust or algae or whatever could grow in there, or
20 collect on there, on the pipe. So it wasn't yesterday's
21 leak. But it is that kind of thing that concerns one.

22 And so if you are proposing to put tanks on
23 impermeable base, which is part of the old Rule, I strongly
24 suggest you assure that any penetration here in the reserve
25 -- in the -- I can't say the word properly. Any

1 penetration that comes through your impermeable base should
2 be sealed with pipe, just like you would seal a chimney.

3 I think that is enough comments. I appreciate
4 your patience, and I would be pleased to answer questions
5 or be examined.

6 The one copy that I gave to the recorder, I would
7 like to propose as submission for the record. Whether it's
8 accepted is up to your judgment.

9 CHAIRMAN FESMIRE: Is there any objection to
10 admitting that as Exhibit --

11 COURT REPORTER: -- 36.

12 CHAIRMAN FESMIRE: -- 36 to the hearing today?

13 COMMISSIONER BAILEY: No.

14 COMMISSIONER CHAVEZ: No.

15 CHAIRMAN FESMIRE: It will be so admitted.

16 Commissioner Bailey, do you have any questions of
17 Dr. Neeper?

18 COMMISSIONER BAILEY: Questions and comments.

19 EXAMINATION

20 BY COMMISSIONER BAILEY:

21 Q. Thank you very much for your presubmittal
22 comments concerning the land descriptions that were given.
23 You are the only person, other than me, who has an issue or
24 has mentioned an issue concerning the land descriptions
25 that are included in this proposed order.

1 A. You've made my day. Thank-you.

2 Q. You made mine, let's put it that way too.

3 So I strongly recommend to the rest of the
4 Commission that we pay very clear attention to Dr. Neeper's
5 comments concerning the land description.

6 In addition, would you have an objection to
7 simply titling this Sierra and Otero Counties?

8 A. Titling the testimony?

9 Q. No, the proposed Rule --

10 A. Oh --

11 Q. The title of it Special Provisions for the
12 Chihuahuan Desert area, where we heard that the Chihuahuan
13 Desert area is not confined to these areas, and it's not --
14 that this is not maybe an appropriate title. Would you
15 support having it Special Provisions for Sierra and Otero
16 Counties?

17 A. I wouldn't support it, but I wouldn't object to
18 it. That's not an issue on which I would fall on my sword.
19 I like the Chihuahuan Desert title, because it's calling
20 attention to why people are doing this. You have sometimes
21 questioned whether -- why that was appropriate, but it does
22 call attention to the why, and that's the only reason.
23 It's a very small reason. As I say, I'm not going to fall
24 on my sword over that issue.

25 Q. But you wouldn't object?

1 A. I would not file an objection at all. I wouldn't
2 give it a thought.

3 Q. Many of your comments had to do with restoration
4 of sites. That's not specific to the Chihuahuan Desert
5 area. It's not specific to Otero or Sierra Counties. Your
6 comments would be appropriate for the entire state, is what
7 you're telling me?

8 A. That's right. There's a reason why I bring it in
9 here, and that is because our practices make restoration --
10 difficult, shall we say? I don't mean it can't be done. I
11 have been at a site where I couldn't see anything except
12 just a pipe sticking out of the ground. I've been at such
13 a site.

14 But I think it applies doubly so to these
15 counties or to the Chihuahuan Desert area because, as best
16 I can tell, it's going to be even more difficult to restore
17 there. We've heard testimony to the effect that you can't
18 even buy the native seeds and things like that. That's out
19 of my area of expertise, but I thought it appropriate to
20 bring in the difficulty of restoration and why -- what is
21 the link between pits, which is really a narrow
22 consideration here, and the citizens who are out here
23 trying to tell you their difficulties? And the link has to
24 do with restoration and the pollution that comes out of the
25 pits.

1 And the example we can see probably anywhere in
2 New Mexico, but it's going to be seen even more in the
3 Otero Mesa area, and it won't have anything to do with a
4 hundred wells, it will have to do with 10,000 wells.

5 Q. I'm sure that number is up for debate also.

6 A. I don't know. I have been told variously that
7 there are 10,000, and I've been told that there were 30,000
8 wells in San Juan County alone, and I don't know. I
9 haven't gone into the records to look. But there must be
10 numbers like that floating around.

11 Q. I don't think we need to get into that today.

12 A. No, I'm not an expert on that anyway.

13 COMMISSIONER BAILEY: That's all I have.

14 CHAIRMAN FESMIRE: Commissioner Chavez?

15 EXAMINATION

16 BY COMMISSIONER CHAVEZ:

17 Q. Yes, Dr. Neeper, I got from your presentation two
18 recommendations to us concerning the Rules that have been
19 proposed. And one, did I hear you correctly, recommending
20 -- at least I think it was in your written presentation
21 that the piping that's recommended be on the surface, not
22 buried? Is that --

23 A. The situation was so fluid since the proposal
24 change that I stayed off of that. My original
25 recommendation was that the piping be double-walled if it

1 weren't adjacent to a road and inspectible. Testimony here
2 reminded me that there are people who shoot bullet holes in
3 pipes, and I should have known that because I've seen
4 bullet holes in condensate tanks and the plume running away
5 from it.

6 And so that left me, then, in a quandary of
7 what's the best thing to do with the pipe, since you're not
8 considering double-wall anymore? The most I can do is say,
9 whatever you do, it should be inspectible or you should be
10 able to contain what's getting out of it until you can see
11 it, until you can find out that it's leaking, so you get
12 there before you do big damage.

13 Q. Okay, the second recommendation you made was, any
14 penetrations of the proposed impermeable barrier, the way
15 it is written in the Rule, be sealed?

16 A. Yes.

17 Q. Okay. You mentioned the lifetime of a pit liner
18 at 30 years. Tell me some more about that. I don't
19 understand.

20 A. I can tell you where that number came from. At
21 one time it was proposed as part of the Los Alamos
22 Environmental Restoration Program to build a mixed-waste
23 disposal area, essentially a pit, a big pit. We have big
24 pits at Los Alamos. Some of them you could put a football
25 field in.

1 The gentleman who was explaining this to the
2 public was presented with a question, well, for how long is
3 the liner valid? And he said, our EPDM liners are
4 guaranteed for 30 years in this application. So I pick up
5 that number. We really don't know how long a liner is good
6 for. But it's, I think, not likely to be hundreds of
7 years, even if it's a chlorinated plastic. And most of the
8 time I don't think in our pits we're using EPDM, but I'm
9 not an expert to testify what the industry is using in
10 their pits, the liners.

11 COMMISSIONER CHAVEZ: Thank you, that's all.

12 EXAMINATION

13 BY CHAIRMAN FESMIRE:

14 Q. Doctor, I'm kind of intrigued by your Figure 3,
15 what I'm going to call the wicking curve. Is this sort of
16 a generalized curve, or is this specific under these
17 conditions that, if I understand it correctly, everything
18 above about 51 feet is flowing down, and everything below
19 about 70 feet is flowing up, and so you're going to have
20 sort of a concentration at that 50- to 70-foot area?

21 A. What's happening right here is a big question.
22 That's still a question that's open to science in that
23 case.

24 Q. And that's not generalized -- wouldn't apply,
25 statewide, it's just under these conditions, right?

1 A. This is this particular borehole. However -- and
2 I should have brought this up, and I thank you for your
3 question -- from what I have read in the literature in
4 other desert regions, particularly like Nevada where people
5 have gone in and measured potential, which is rare, we're
6 finding very frequently from groundwater, however deep that
7 may be, a few hundred feet, a fairly uniform potential line
8 back up to ground surface. The flow is going this way in
9 those desert areas that just don't get any rainfall.

10 Most of New Mexico, we get some rainfall, and so
11 we're going to have the curve flip-flopping seasonally up
12 here. But it's easily possible to get situations where
13 it's going this way at least part of the year. In fact, in
14 the pit hearing I showed a picture of rocks in the canyon
15 behind my house that have grown, oh, a millimeter or two of
16 a salt layer around them just after one winter with wicking
17 up through the rock.

18 So this is a particular case, but it can happen
19 almost anywhere.

20 Q. So our assumption that we generally have flow
21 through the vadose zone down to the water table may not be
22 correct. Under some conditions we'll have flow out of the
23 water table, up towards the surface?

24 A. Yes, or in some conditions you may have flow at
25 least of a pit up toward the surface. A pit is a fairly

1 shallow object, you will be subject to the seasonal
2 variations of moisture and you can wind up getting some
3 pumping coming out of the pit.

4 Q. But you have no thesis on what's causing this
5 sort of phenomenon?

6 A. This particular one. Remember, this is one
7 particular line, and I've seen several other cases.

8 I can tell you what we're looking for. This is
9 on the mesa, which has sides. I was looking for breathing
10 of the Mesa, evaporation at this level, carrying moisture
11 out the sides of the mesa and causing this.

12 Q. So it may be caused by --

13 A. I haven't been able to prove that. This could be
14 left from some ancient event that I don't know about. But
15 my own personal research is chasing how the rocks in the
16 mesas breath.

17 Q. So it may be a function of, you know, the
18 geologic situation and the permeability in the strata that
19 lays in that 50- to 70-foot area?

20 A. Yes, it could have to do with all kinds of
21 things. We just found several different boreholes around
22 Los Alamos, some of them several miles from this one, where
23 there was a thing like that. Not necessarily in the same
24 layer.

25 Q. So this kind of phenomenon could happen at a

1 drill site where they built the pit up and, you know, have
2 a sort of an unnatural unconformity there?

3 A. I would expect it could happen at a drill site in
4 an arid region. If you were in a really wet region,
5 Florida Everglades or something, it might not, you might
6 have a very steady gradient. But I would expect this could
7 happen anywhere in New Mexico.

8 CHAIRMAN FESMIRE: Ms. MacQuesten, do you have --

9 MS. MacQUESTEN: I don't have any questions of
10 Dr. Neeper.

11 I wonder if I might be allowed to address the
12 land-description question raised by Commissioner Bailey.

13 CHAIRMAN FESMIRE: Okay, let's -- with your
14 permission we'll go ahead and finish with Dr. Neeper and
15 then address that question.

16 MS. MacQUESTEN: Sure, thank you.

17 CHAIRMAN FESMIRE: Mr. Carr, do you have any
18 questions of Dr. Neeper?

19 MR. CARR: No, I do not, thank you.

20 CHAIRMAN FESMIRE: Ms. Belin?

21 MS. BELIN: No, I don't.

22 CHAIRMAN FESMIRE: Okay. Dr. Neeper, thank you
23 very much.

24 DR. NEEPER: Thank you for your patience.

25 CHAIRMAN FESMIRE: That, with the exception of

1 the comments that we're going to address now, I think
2 concludes the public testimony and input section.

3 Why don't we go ahead and address your question
4 on the land description and see how long that takes.

5 MS. MacQUESTEN: When we were trying to describe
6 the area that we were excluding from the Rule, in Otero
7 County we found a parcel of land, an odd-shaped parcel of
8 land, that could not be described simply by township and
9 range like the other parcels.

10 We tried to come up with a way of describing that
11 parcel. My understanding, although it's incomplete, is
12 that this area hasn't been surveyed, so we don't have a
13 township and range description for it.

14 The way we tried to describe it was by describing
15 all the describable areas around it and saying, look at all
16 these areas around it, exclude that piece in the middle.

17 We have no objection if you find a different way
18 of describing this area that makes sense, but I would ask
19 you to exercise some caution, because when we tried to come
20 up with ways of describing this area and took it to our
21 mapmakers and said, make us a map of what we are describing
22 here, they came up with maps that didn't look like what we
23 had intended with regard to that parcel. And the
24 description we have here was the one that seemed to make
25 sense to our mapmakers.

1 COMMISSIONER BAILEY: Maybe an abstractor would
2 be able to help you with land descriptions. Because, as
3 Dr. Neeper said, part of the description is exclusionary
4 and part of it is inclusionary, which creates a real
5 problem for people who do not have a lot of experience
6 understanding land descriptions. So you might want to
7 contact a title abstractor who is highly experienced.
8 There are several companies here in Santa Fe that may be
9 able to give a more understandable description that's not
10 confusing exclusionary, inclusionary, some descriptions of
11 township, range, and some range to this point.

12 I would recommend the couple of companies that we
13 deal with all the time.

14 CHAIRMAN FESMIRE: It's 4:35. I think the
15 Commission has expressed the desire to at least start into
16 deliberations on this order -- on the order and on the
17 Rule, and so I think we're going to do that. I intend to
18 go to about 5:30 and then start looking for times when we
19 can reconvene as a Commission. And with the permission of
20 the rest of the Commission, I think we'll go ahead and do
21 that.

22 COMMISSIONER BAILEY: Sure.

23 COMMISSIONER CHAVEZ: Okay.

24 CHAIRMAN FESMIRE: I think the thing we need to
25 start with is to maybe start with the Rule section by

1 section and see if there's going to be some disagreement on
2 any part of it and concentrate our deliberations on the
3 areas that are going to --

4 COMMISSIONER BAILEY: Are we going to go into
5 closed session?

6 MR. BROOKS: I believe that is not permitted in
7 rulemaking, unless it would be for the purpose of
8 consulting with your counsel, and that might be covered by
9 the attorney-client privilege.

10 (Off the record)

11 CHAIRMAN FESMIRE: I don't quite understand the
12 issue on the Section A on the proposed Rule. I guess I
13 didn't understand what you were concerned about.

14 COMMISSIONER BAILEY: Okay, if you have a map of
15 township, range, sections, and you try to map this out,
16 it's not at all clear what you're talking about. If you
17 simply say Township 18 South, 12-13 East, through Township
18 15 South, 16 East are included within the area where these
19 Rules apply -- That's an example, I'm not saying that
20 that's --

21 CHAIRMAN FESMIRE: Right.

22 COMMISSIONER BAILEY: -- but I'm saying, if you
23 say this is the area included within the area where these
24 apply, then it's a lot easier for people to understand,
25 rather than say, okay for this paragraph we're talking

1 about everything outside of this area, but skip down and
2 we'll talk about range area here without the township
3 connected to it. See, for people who are familiar with
4 land descriptions, this is probably the most convoluted way
5 to do it.

6 CHAIRMAN FESMIRE: Okay, so if we start, for
7 instance, in A.(1), all of Sierra County except the area
8 west of Range 8 West, NMPM, and north of Township 18 South,
9 NMPM.

10 COMMISSIONER BAILEY: Or you could also say all
11 of Sierra County within this township range is included in
12 this Rule. See, when you start saying excepting for or
13 exclusion of, that's when you get confusing. It's not very
14 clear to people when they're trying to map this out.

15 CHAIRMAN FESMIRE: I think on A.(1) -- you know,
16 I don't want to get partially inclusionary, partially
17 exclusionary, so --

18 COMMISSIONER BAILEY: Exactly.

19 CHAIRMAN FESMIRE: So all of Sierra County,
20 except this, and then all of Otero County except these
21 areas, and where's the part --

22 COMMISSIONER BAILEY: That's the exclusionary
23 part. And then you drop down to the area bounded by Range
24 9 East, that's the inclusionary part.

25 COMMISSIONER CHAVEZ: I thought that was

1 exclusionary. It says except.

2 CHAIRMAN FESMIRE: Except. All of Otero County
3 except the area bounded by -- although I can see where it
4 would be ambiguous.

5 COMMISSIONER BAILEY: Yes, it really is.

6 MR. BROOKS: I would read those last two lands as
7 being excluded -- part of the -- as being area excluded
8 rather than area included.

9 CHAIRMAN FESMIRE: Yeah, but it is not clear, so
10 perhaps we need to -- If that is the intent of the Oil
11 Conservation Division, and excluding -- also excluding, but
12 then that would sound like you were --

13 MS. LEACH: Mr. Chairman --

14 CHAIRMAN FESMIRE: Yes, ma'am.

15 MS. LEACH: -- I'm sorry to interrupt, but
16 hearing the people in the hall, they feel like you have in
17 effect gone into executive session, because with the way
18 you people are talking, no one can hear you, so they've all
19 gone out in the hall to grumble. And while you may have it
20 on the record, you may end up with a complaint --

21 CHAIRMAN FESMIRE: Okay.

22 MS. LEACH: -- as a result, so you may want to
23 talk a little louder, because this is supposed to be open
24 to the public. So --

25 CHAIRMAN FESMIRE: Okay.

1 MS. LEACH: If you guys will talk a little
2 louder, I will bring people back.

3 CHAIRMAN FESMIRE: Okay, we'll talk a little
4 louder.

5 Did they leave?

6 MS. MacQUESTEN: I didn't have any takers,
7 there's no --

8 COMMISSIONER CHAVEZ: Well, maybe they don't want
9 to hear.

10 CHAIRMAN FESMIRE: Maybe they don't want to hear.

11 MR. OLSON: It's Friday.

12 (Laughter)

13 CHAIRMAN FESMIRE: Friday at a quarter till 5:00.

14 MS. MacQUESTEN: There are a few people who seem
15 to be coming in from the outside.

16 CHAIRMAN FESMIRE: Okay.

17 (Off the record)

18 CHAIRMAN FESMIRE: Mr. Merit, are you the only
19 taker?

20 MR. MORAN: What was the offer?

21 CHAIRMAN FESMIRE: Well, apparently we were
22 speaking too low to be overheard, to be heard in the
23 audience, and I need to issue an apology for that.

24 MR. MORAN: No, I think people were just trying
25 to figure out what was going on.

1 CHAIRMAN FESMIRE: Oh, okay. Well, we should be
2 speaking loudly enough that you shouldn't have to figure
3 that out, so --

4 MR. MORAN: Okay.

5 CHAIRMAN FESMIRE: -- if you would notify anybody
6 out there that's concerned about that, we will be speaking
7 up so that you can adequately hear. I keep forgetting that
8 these microphones are not connected to a PA system. So I
9 apologize for that, I was concentrating and didn't notice
10 the people leave.

11 MR. MORAN: They were just curious if closing
12 statements were going to be given and whether you were
13 conclude the hearing and go into executive session.

14 CHAIRMAN FESMIRE: We don't intend to go into
15 executive session. We're not in executive session. We --
16 probably in a rulemaking proceeding, barring something
17 unforeseen that comes up, I don't think we will be going
18 into executive session.

19 If -- We had not planned on accepting closing
20 statements, but if there's anybody who wishes to issue a
21 closing statement on the record, we'd be glad to accept
22 that.

23 MR. MORAN: Okay.

24 CHAIRMAN FESMIRE: Is your attorney available?

25 MR. MORAN: I'll go find out.

1 CHAIRMAN FESMIRE: Did Ms. Belin leave?

2 MS. LEACH: I think so.

3 MR. BROOKS: Well, I have a suggestion to make,
4 but I don't want to make it when it's ambiguous whether
5 we're in session or not, so...

6 CHAIRMAN FESMIRE: Mr. Carr, did you have a
7 closing statement you wanted to make to the Commission?

8 MR. CARR: Mr. Chairman, I could give a closing
9 statement, just to make everyone have to suffer with a
10 glutton for punishment, so I'll ask that I don't, if it's
11 all right with you.

12 CHAIRMAN FESMIRE: Thank you, sir.

13 Ms. MacQuesten, did you have a closing statement
14 to give?

15 MS. MacQUESTEN: No, I feel exactly the same way
16 as Mr. Carr.

17 CHAIRMAN FESMIRE: Okay.

18 MR. CARR: I'm sure I could really add a lot at
19 this point.

20 CHAIRMAN FESMIRE: Well, Mr. Carr, you've added a
21 lot already. Let's say that's enough, unless you just
22 really want to.

23 MR. CARR: I'd be glad to take that as a signal
24 that that's enough.

25 CHAIRMAN FESMIRE: And we're going to assume,

1 since Ms. Belin has left and didn't make a request, that
2 she had no closing statement to make either.

3 With that, we are going to in essence begin our
4 deliberations. We have been speaking on the record of
5 Section A.(1) and (2) concerning the description of the
6 property. There seems to be some ambiguity in the mind of
7 the Commissioners about exactly what land is described
8 here, and we are trying to come up with a means of
9 eliminating that ambiguity without changing the meaning or
10 without changing the areas that we intended to include, and
11 that's where we stand right now.

12 MR. BROOKS: Okay, the suggestion I was going to
13 make, Mr. Chairman, honorable Commissioners, was that as
14 the Commission's counsel and the person responsible for
15 preparing the draft of the Order, in the absence of any
16 issue of policy that the Commission has to decide about
17 what land it applies to, and there has not been any
18 evidence that would adduce such an issue, it might be most
19 practical if I worked with the Division counsel and
20 possibly the Land Office people and, as Commissioner Bailey
21 has suggested, an abstractor if necessary, and try to come
22 up with the clearest possible description and incorporate
23 it into the draft order. And then when the Commissioners
24 review the draft order at the next meeting, if there is any
25 misunderstanding or difference of opinion among the

1 Commissioners about what land this ought to apply to, then
2 perhaps that could be resolved at that time.

3 CHAIRMAN FESMIRE: Will we need to modify the
4 order?

5 MR. BROOKS: Well, of course if the Commissioners
6 find that there is a difference about what land this
7 applies to and it has not been drawn correctly, then
8 obviously we would have to modify the order.

9 As of now I am not aware of, and there was not
10 anything brought out at the hearing which would involve any
11 kind of policy decision about exactly what land it applies
12 to, and if there is such an issue, I'm not sure the
13 Commission will really be in a position to discuss it until
14 we know exactly if there is an ambiguity and, if there is
15 an ambiguity, what that ambiguity exactly is.

16 CHAIRMAN FESMIRE: Commissioner Bailey?

17 COMMISSIONER BAILEY: I agree with David that it
18 would be a good idea to work with Division counsel and
19 possibly abstractors and other people very knowledgeable in
20 land descriptions for oil and gas to come up with a better
21 description, and I'm not suggesting changing the land that
22 is intended --

23 MR. BROOKS: That's what I thought, you were not
24 raising an issue about land, you were --

25 COMMISSIONER BAILEY: No, I'm not raising an

1 issue on the land, I'm raising the issue on the -- how it's
2 described.

3 CHAIRMAN FESMIRE: Okay, the awkwardness --

4 COMMISSIONER BAILEY: Yes.

5 CHAIRMAN FESMIRE: -- of the description.

6 COMMISSIONER BAILEY: Yes.

7 CHAIRMAN FESMIRE: Okay. I would add to that
8 that you also offer Mr. Carr and Ms. Belin the opportunity
9 to participate and be aware of what we are doing and get
10 their approval of anything that will come back to the
11 Commission.

12 MR. BROOKS: Yes, Mr. Chairman, I will do that.

13 CHAIRMAN FESMIRE: Section B, the Division shall
14 not issue permits under 19.15.2.50 NMAC or 19.15.9.711 NMAC
15 for pits located in the Chihuahuan Desert area.

16 Essentially this is the Oil Conservation
17 Division's commitment to drilling with closed-loop systems.
18 There's been an awful lot of testimony on it. I am
19 inclined to agree with the need for closed-loop systems. I
20 think it's a viable alternative out there. I think the
21 fracturing in the rock and the susceptibility of the
22 groundwater to contamination from surface sources justifies
23 the need for this requirement.

24 Commissioner Bailey?

25 COMMISSIONER BAILEY: I understand you have

1 marching orders from the Governor to include this
2 paragraph. I understand that you really don't have any
3 choice, other than to include this paragraph in this Order.

4 You must also understand that as a designee of
5 the Commissioner of Public Lands, we do not believe that a
6 case was made to include Section B within this order.

7 I can go detail by detail, but I asked every
8 single witness if they had seen any impact from the
9 previously drilled oil and gas wells, and not one said that
10 they had any evidence of any impact.

11 In addition, we have seen that there are areas
12 that are not covered by the specific black grama grasses
13 where locations should be acceptable, where there are
14 locations that are not over highly fractured Otero Breaks
15 limestone areas, where oil and gas locations should be
16 acceptable.

17 But on a personal note, I was a part of
18 promulgation of OCD Rule 50, and there hasn't even been an
19 opportunity to prove out the effectiveness of that rule.
20 And so I think that we should believe that Rule 50 would
21 take care of many of the issues that were brought up.

22 So there are rules on the books that have not had
23 the chance to be tested to see their practicality in real
24 life, and I do not believe the case was made for
25 vegetation, for water contamination, for any other of the

1 aspects that were part of your marching orders -- I'm sorry
2 -- so we do not support the inclusion of Part B of this
3 rulemaking.

4 CHAIRMAN FESMIRE: Commissioner Chavez, do you
5 have a comment?

6 COMMISSIONER CHAVEZ: Yes, I think there's enough
7 evidence to indicate that we should support the Application
8 on Part B. There's always a provision, even though there's
9 -- I was concerned that there wasn't an administrative
10 process available for exception to a rule. I've always
11 thought that many of these that do have these strict
12 requirements should have some type of administrative
13 exception.

14 There is still an opportunity for an operator who
15 wants to look at a specific area or an individual well, to
16 grant exception to any rule, to come in and present the
17 evidence to show why they should have an exception to this
18 particular requirement.

19 The issue that I think the OCD raised with the
20 interpretation of the statutes for the prevention of waste,
21 protection of human health and the environment, was
22 appropriate, so I would support that Provision B.

23 CHAIRMAN FESMIRE: A matter of procedure and a
24 quick comment.

25 Commissioner Bailey, my decision was based on the

1 evidence as presented today, and I believe that this is in
2 the best interests for the State of New Mexico and the
3 people of New Mexico. I think that's a water resource
4 that's highly susceptible to contamination down there, and
5 it's been my position that water resources and the
6 protection of those resources should be a focus of the Oil
7 Conservation Division, and that's the reason that I would
8 approve of Provision B in 19.15.1.21.

9 Provision C, Produced water injection wells
10 located in the Chihuahuan Desert area are subject to the
11 following requirements in addition to those set out in
12 19.15.9.701 NMAC through 19.15.9.710 NMAC.

13 Subsection (1), Permits shall be issued under
14 19.15.9.701 NMAC only after notice and hearing.

15 Commissioner Bailey, do you have a comment on
16 that?

17 COMMISSIONER BAILEY: No, I do not.

18 CHAIRMAN FESMIRE: Commissioner Chavez?

19 COMMISSIONER CHAVEZ: I think Mr. Jones made a
20 good case about the issue of the notice for the hearing be
21 much more expanded, and under the new provisions that were
22 approved in the rulemaking for 12. -- I forget what it is
23 -- there will be even more notice. If it appears that
24 there's not going to be an objection to the case, the
25 administrative burden will decrease.

1 And as it is right now, I think there's an
2 opportunity at the very beginning of development in this
3 area, which is so -- It's not as if we have, you know, a
4 hundred producing wells; all we have is a hundred wildcats.
5 And we've got some production capability there, that we
6 start a provision here, again, the operators can come back
7 in and request some exceptions if they want to, after
8 noticing hearing even to that.

9 But at this point we don't know what the needs
10 are going to be, so I don't have a problem with this notice
11 and hearing for these applications. As it is, Mr. Jones
12 has set them for hearing anyway. And so I don't see
13 anything different with the requirement here than what the
14 OCD is going to be doing, and this way it won't be -- He
15 gave a good reason why it needed to be done, and this won't
16 make it arbitrary.

17 CHAIRMAN FESMIRE: I think I agree. I think Mr.
18 Jones did make a pretty compelling argument for making the
19 hearings mandatory, although I think he did moot it by --
20 at least for his tenure here, stating that he would ask the
21 Director to set it for hearing anyhow. So I agree on that
22 one.

23 COMMISSIONER BAILEY: If we can go back to the
24 title --

25 CHAIRMAN FESMIRE: Yes.

1 COMMISSIONER BAILEY: -- you know, you skipped
2 over the title.

3 COMMISSIONER CHAVEZ: Yes, he did.

4 CHAIRMAN FESMIRE: Let's go ahead and -- C.(1), I
5 think the consensus is that we will leave it in.

6 Going back to the title, Special Provisions for
7 the Chihuahuan Desert Area, Commissioner Bailey, you had
8 a --

9 COMMISSIONER BAILEY: I believe that should read
10 Special provisions for Sierra and Otero Counties, or
11 Selected Areas of Sierra and Otero Counties.

12 CHAIRMAN FESMIRE: What about special provisions
13 for the Chihuahuan Desert Area in Sierra and Otero
14 Counties?

15 COMMISSIONER BAILEY: Don't like it, but I'll go
16 for it.

17 CHAIRMAN FESMIRE: Commissioner Chavez?

18 COMMISSIONER CHAVEZ: I think that type of
19 limitation does not give us the flexibility that the OCD is
20 going to need, and they will need -- should hydrologic
21 conditions arise in other areas of the state, that might --
22 all we would need is an expansion of the described area.

23 So I would even want to eliminate the references
24 to the counties except under A, so Special Provisions for
25 Special Areas in New Mexico, or change that title in some

1 way to not limit it to the Chihuahuan Desert area or to
2 Sierra and Otero County, and therefore give, I say, the OCD
3 more flexibility.

4 So perhaps some of the title like Special
5 Provisions for Special Area in New Mexico, or Special
6 Consideration Areas, Areas of Special Interest -- There's
7 all kinds of ways we can word that, but without that
8 limitation I think we're --

9 CHAIRMAN FESMIRE: Well, if we were going to
10 expand the area, we would have to come in and change the
11 description, and that would take a change in the Rule. But
12 probably, you know, if we were to change the title and then
13 expand the area, it would be the same change in the Rule.

14 Your suggestion is Special Provisions for --

15 COMMISSIONER CHAVEZ: -- Special Areas, or
16 something like that, in New Mexico.

17 COMMISSIONER BAILEY: I think that's dangerous,
18 because the testimony that we were given has only to do
19 with Otero County. Very little was even given of Sierra
20 County. Your implication is that it could apply statewide,
21 and I think that we need to be very careful and specific as
22 to what we heard and why we're doing this.

23 You want to leave the door open to apply this to
24 areas larger than what we heard today, and I think we need
25 to be very specific in that this applies to Sierra and

1 Otero Counties. That's one reason why I ask that question.
2 Why is that large white triangle missing? Because Doña Ana
3 County clearly is not included in this order.

4 COMMISSIONER CHAVEZ: I was concerned about that
5 too, but the way it was approached -- What the OCD
6 presented, you're correct, they presented only for Sierra
7 and Otero Counties. But I'd be concerned about next month
8 we'll be here for Rule 22, Special Provisions for the
9 Chihuahuan Desert Area, Doña Ana County, then Rule 23,
10 Special Provisions for another desert-type of area in
11 another county, and have all these special-provision areas
12 that would basically have the same type of requirements due
13 to hydrology and those special conditions there that might
14 be easier taken up under this one Rule.

15 COMMISSIONER BAILEY: Well, the title changes,
16 the rule changes.

17 COMMISSIONER CHAVEZ: That's true. I don't have
18 an objection to just making it county-specific, and that
19 would allow us to have more flexibility there too.

20 I don't agree that Sierra County was that much
21 left out, especially under Mr. Core's testimony, and I was
22 considering we might be leaving things out. That's why I
23 asked him some specific questions about the areas of Sierra
24 County that are part of the Application. And I think he --
25 what he spoke of in response to -- in his answers to the

1 questions concerning the waters in Sierra County made that
2 very valid to put in.

3 CHAIRMAN FESMIRE: Commissioner Bailey, do you
4 have a -- given that discussion, do you have a suggestion?

5 COMMISSIONER BAILEY: Special Provisions for
6 Selected Areas of Sierra and Otero Counties.

7 COMMISSIONER CHAVEZ: I would go for that.

8 CHAIRMAN FESMIRE: How about Selected Areas --
9 Selected Chihuahuan Desert area?

10 COMMISSIONER BAILEY: That brings up this little
11 weak dog, or it brings up Mexico, neither of which apply.

12 CHAIRMAN FESMIRE: Okay, say that again, Special
13 Provisions --

14 COMMISSIONER BAILEY: -- for Selected Areas of
15 Sierra and Otero Counties.

16 CHAIRMAN FESMIRE: And that's acceptable to you?

17 COMMISSIONER CHAVEZ: That's acceptable.

18 CHAIRMAN FESMIRE: Special Provisions for
19 Selected Areas of Sierra and Otero Counties.

20 COMMISSIONER CHAVEZ: Then the first part of A
21 would have to be changed to say the special area comprises,
22 rather than the Chihuahuan Desert area.

23 And under B where it says in the Chihuahuan
24 Desert area, that would also have to say -- the same type
25 of reference.

1 CHAIRMAN FESMIRE: That's acceptable to me. Is
2 that acceptable to you?

3 COMMISSIONER BAILEY: Yes.

4 COMMISSIONER CHAVEZ: Then under C again we'd
5 have to make that change.

6 CHAIRMAN FESMIRE: Right. That brings us to
7 C.(2), The radius of the area of review shall be the
8 greater of one-half mile; or one and one-third times the
9 radius of the zone of endangering influence as calculated
10 under Environmental Protection Agency Regulation 40 CFR,
11 Part 146.6.(a).

12 I think there are two things that came out in the
13 testimony in (a) and (b) that perhaps we need to address.
14 First of all, the ability to use another method acceptable
15 to the Commission or to the Division, and second of all,
16 capping it at a maximum of one and one-third miles; is that
17 your understanding?

18 COMMISSIONER BAILEY: Yes.

19 CHAIRMAN FESMIRE: Commissioner Chavez?

20 COMMISSIONER CHAVEZ: I agree with that.

21 CHAIRMAN FESMIRE: Mr. Brooks, when we draft
22 this, the radius of the area of review shall be the greater
23 of one-half mile or one and one-third times the radius of
24 the zone of endangering influence as calculated under
25 Environmental Protection Agency Regulation 40 CFR, Part

1 146.(a), or some other method acceptable to the Oil
2 Conservation Division, but in no case shall such radius
3 exceed one and one-third miles. Is that acceptable?

4 COMMISSIONER CHAVEZ: Yes.

5 CHAIRMAN FESMIRE: C.(3), Operators shall log or
6 test to demonstrate the vertical extent of any freshwater
7 aquifer prior to using a new or existing well, and file the
8 log or test results with the appropriate district office of
9 the Division.

10 The issue that arose on that is the -- or the
11 question that arose in my mind is whether or not that
12 included producing wells that are being drilled. And it
13 looked to me like the intent of the Division was that it
14 not include producing wells.

15 COMMISSIONER CHAVEZ: That's right, there's some
16 ambiguity under there that we had to clear up several times
17 because of the language. Everything under C for a well,
18 unless it says existing wells, means a well that's
19 permitted or -- which is being permitted for disposal, or
20 at least for injection. That's the way I understood the
21 OCD's testimony in response to the questions.

22 CHAIRMAN FESMIRE: Right.

23 COMMISSIONER CHAVEZ: So the -- First of all, we
24 need to clear up prior to use -- to -- let's see, how would
25 that --

1 MR. BROOKS: What if we said any new or existing
2 well, prior to using any new or existing well for
3 injection? That would resolve any ambiguity as to whether
4 or not it included the production wells.

5 CHAIRMAN FESMIRE: Commissioner Bailey?

6 COMMISSIONER BAILEY: Would it be adequate?
7 Because I brought up the question of the water wells that
8 were drilled in conjunction with the drilling of an oil and
9 gas well, which would include an injection well. And the
10 answer was that yes, that was common practice.

11 If those water wells are descriptive of the
12 vertical extent of any freshwater aquifer, wouldn't that
13 substitute? You're getting the same information?

14 COMMISSIONER CHAVEZ: Yeah, the OCD is trying to
15 get information on freshwater aquifers.

16 COMMISSIONER BAILEY: Uh-huh.

17 COMMISSIONER CHAVEZ: Okay? And the way that
18 it's phrased in here would seem to exclude using
19 information from a water well that was drilled as a supply
20 well.

21 MR. BROOKS: It could be construed to mean that
22 the log or test has to be conducted well in that particular
23 well --

24 CHAIRMAN FESMIRE: Right.

25 MR. BROOKS: -- as opposed to in a neighboring

1 well, such as a water well drilled for that purpose.

2 COMMISSIONER BAILEY: Shall furnish information
3 from...

4 CHAIRMAN FESMIRE: Well, there's a question about
5 whether or not -- yeah, the State Engineer, you know, will
6 permit a well for oil and gas drilling purposes out there.

7 COMMISSIONER BAILEY: But if the Rule allows the
8 furnishing of information from adjacent wells or close --
9 nearby wells or whatever the correct term would be,
10 operators shall demonstrate the vertical extent prior to
11 using new or existing well, blah, blah, either through
12 logging, testing or data from relevant wells in the area.
13 I mean, we could rephrase that to give that alternative.

14 CHAIRMAN FESMIRE: File the log or test results
15 with the appropriate district office of the Division prior
16 to beginning injection --

17 COMMISSIONER CHAVEZ: I think we already have a
18 -- I think I unplugged myself. -- Rule 1105 already
19 requires the reporting of waters that are encountered
20 during the drilling of a well, and perhaps a reference to
21 that might be -- help us to get through the wording of that
22 requirement.

23 CHAIRMAN FESMIRE: Why don't you pull it up?

24 MR. BROOKS: Unfortunately, I do not have the --

25 COMMISSIONER CHAVEZ: I've got it.

1 COMMISSIONER BAILEY: Just happen to.

2 COMMISSIONER CHAVEZ: It may just be on the form
3 itself.

4 CHAIRMAN FESMIRE: Well completion or
5 recompletion report log.

6 COMMISSIONER CHAVEZ: The form itself is what
7 requires it. It's not clear in 1105 that absolutely, so
8 I'm double-checking the form itself. For reporting all
9 waters encountered during the drilling of a well.

10 CHAIRMAN FESMIRE: C.(3), Operators shall log or
11 test to demonstrate the vertical extent of any freshwater
12 aquifer prior to using a new or existing well for water
13 injection purposes, and file the log or test results with
14 the appropriate district office of the Division.

15 How about a sentence to the effect that a water
16 -- the log or test of a water well in the same horizon,
17 within a certain distance --

18 COMMISSIONER BAILEY: Would make sense.

19 CHAIRMAN FESMIRE: -- from the well, may be
20 substituted for this log and test?

21 COMMISSIONER BAILEY: Works for me.

22 CHAIRMAN FESMIRE: What kind of distance? Is
23 there any evidence in the record to support a geologic
24 similarity within X number of feet?

25 COMMISSIONER BAILEY: No one has given any.

1 COMMISSIONER CHAVEZ: We don't have any
2 additional --

3 MR. BROOKS: I don't recall such testimony.

4 CHAIRMAN FESMIRE: Okay, so we'd have to make it
5 acceptable to the Oil Conservation Division. So the second
6 sentence in C.(3) should be, A log or test to demonstrate
7 the vertical extent of any freshwater aquifer --

8 COMMISSIONER BAILEY: -- shall be furnished to
9 the appropriate District Office of the Division prior to
10 using any new or existing well for injection. Such
11 information may be obtained from --

12 CHAIRMAN FESMIRE: Or injection.

13 COMMISSIONER BAILEY: Such data must be
14 acceptable to the Division.

15 CHAIRMAN FESMIRE: Or how about a log or test on
16 a properly permitted and legally drilled water well in
17 proximity to the injection well may be substituted for this
18 test or log? How's that?

19 COMMISSIONER CHAVEZ: That may be too specific.
20 Since the applicant will be going to hearing, they must
21 satisfy the Examiner of where they got the information that
22 demonstrates the --

23 COMMISSIONER BAILEY: Good point, Frank.

24 COMMISSIONER CHAVEZ: I beg your pardon?

25 COMMISSIONER BAILEY: Good point.

1 CHAIRMAN FESMIRE: Acceptable to the Division.

2 COMMISSIONER CHAVEZ: Yeah, so what's going to be
3 important is that they have the information, and maybe what
4 we need to do is just -- not tell them how to get it, but
5 just to get it, and let the Examiner determine whether that
6 is appropriate. So basically, the operator shall
7 demonstrate the vertical extent of the freshwater aquifers,
8 period. In the well, or -- say in the well, or encountered
9 by the well, and whether they can do that by analogy to a
10 nearby water well or through the logs done on this well,
11 they have to comply with that provision for the Examiner.

12 COMMISSIONER BAILEY: I think that's reasonable.

13 CHAIRMAN FESMIRE: Okay, say that again.

14 COMMISSIONER CHAVEZ: The operator shall supply
15 the vertical extent of any freshwater aquifers in the well,
16 and that covers the existing well, it can be a new well
17 drilled, and the Examiner will determine whether or not the
18 information supplied is adequate, either from that well or
19 nearby water.

20 CHAIRMAN FESMIRE: Okay. So how about, Operator
21 shall demonstrate the vertical extent of any freshwater
22 aquifer prior to using a new or existing well for injection
23 purposes, period. Does that --

24 COMMISSIONER BAILEY: Works for me.

25 CHAIRMAN FESMIRE: C.(4), All freshwater aquifers

1 shall be isolated throughout their vertical --

2 MR. BROOKS: Excuse me, point of clarification on
3 that language. That last sentence you just read would
4 substitute for the entire material -- for all the material
5 in Subdivision (3) that currently exists, correct?

6 CHAIRMAN FESMIRE: Right. C.(3) should read,
7 Operator shall demonstrate the vertical extent of any
8 freshwater aquifers prior to using a new or existing well
9 for injection --

10 MR. BROOKS: Okay, thank you.

11 COMMISSIONER CHAVEZ: -- period.

12 C.(4), All freshwater aquifers shall be isolated
13 throughout their vertical extent with at least two cemented
14 casing strings. In addition, (a), existing wells converted
15 to injection shall have continuous, adequate cement from
16 casing shoe to surface on the smallest diameter casing, and
17 -- starting with (4).(a), (4).(a), All freshwater aquifers
18 shall be isolated throughout their vertical extent with at
19 least two cemented casing strings.

20 Satisfactory?

21 COMMISSIONER CHAVEZ: We do have that
22 requirement, and I think, Jami, you pointed that out -- and
23 again, I'm not familiar with the southeast -- the Carlsbad
24 water basin; is that correct?

25 COMMISSIONER BAILEY: Yes.

1 COMMISSIONER CHAVEZ: So that's not an unusual
2 requirement for the OCD to implement that, and I don't know
3 about other provisions that are made, but I don't have any
4 problem with that, since we've already got --

5 COMMISSIONER BAILEY: I agree.

6 CHAIRMAN FESMIRE: Okay. In addition, (4).(a)
7 reads, existing wells converted to injection shall have
8 continuous, adequate cement from casing shoe to surface on
9 the smallest diameter casing.

10 Is that acceptable?

11 COMMISSIONER BAILEY: It is to me.

12 COMMISSIONER CHAVEZ: Yes.

13 CHAIRMAN FESMIRE: Me too.

14 And, (4).(b), wells drilled for the purpose of
15 injection shall have cement circulated continuously to the
16 surface on all casing strings, except the smallest diameter
17 casing shall have cement raised to at least 100 feet above
18 the casing shoe of the next larger diameter casing.

19 Acceptable?

20 COMMISSIONER BAILEY: Uh-huh.

21 COMMISSIONER CHAVEZ: Yes.

22 CHAIRMAN FESMIRE: That's acceptable to all three
23 Commissioners.

24 C.(5), Operators --

25 COMMISSIONER CHAVEZ: We can drop the word

1 "raised", because that -- I think it said shall have cement
2 to at least 100 feet above the casing shoe. Makes it a
3 little more clear. "Raised" indicates that if it's not
4 there, shall do it, and it's already implicit, and -- more
5 explicit, really, that that needs to be done.

6 CHAIRMAN FESMIRE: That's a valid argument, I
7 think.

8 COMMISSIONER BAILEY: Yes, it is.

9 CHAIRMAN FESMIRE: Okay, so (4).(b) shall read,
10 wells drilled for the purpose of injection shall have
11 cement circulated continuously to the surface on all casing
12 strings, except the smallest diameter casing shall have
13 cement to at least 100 feet above the casing shoe of the
14 next larger diameter casing.

15 C.(5), Operators shall run cement bond logs
16 acceptable to the Division after each casing string is
17 cemented, and file the logs with the appropriate district
18 office of the Division. For existing wells the operator
19 proposes to convert to injection, the operator shall
20 demonstrate to the Division's satisfaction adequate and
21 competent cementing of all casing strings.

22 COMMISSIONER BAILEY: My only concern there is
23 the testimony concerning the art of cement bond log
24 interpretation, as opposed to the science of it, and the
25 potential for different requirements or approvals by the

1 different districts of the OCD. I don't believe that there
2 would be consistency in how that's implemented.

3 COMMISSIONER CHAVEZ: It's a good question, and
4 Mr. -- is it Collins'? -- testimony was appropriate that
5 it's not quantitative, it is qualitative, but that's
6 actually just fine. In our use of cement bond logs in the
7 OCD over the years, we've developed a way to read the logs.

8 Now, if you're talking about consistency, I think
9 we're okay. This is all in one district, right here, so
10 it's not as if the operator would be requiring
11 interpretation from -- different from one district to
12 another, since it's just in one district. And my
13 understanding, at least from the conversations I've had,
14 even though we may interpret them differently from district
15 to district, it's because of the nature of the geology that
16 we have.

17 For example, interpreting a formation signal or a
18 CBL, cement bond log, depending on the formation we have
19 behind the pipe and what you expect there, can be different
20 from district to district, but that's because our geology
21 is different. We have sandstone and we have carbonate
22 reservoirs, and the -- carbonate reservoirs in the
23 southeast.

24 Also, the consistency has developed in the
25 industry from the logging companies and the OCD of what's

1 expected, so if we follow the standard pressurization of
2 the casing during running a CBL, and -- within the district
3 we're going to pretty much come up with the same results.
4 I think we're going to be okay on that. It is our -- We're
5 on the same page with the operators.

6 CHAIRMAN FESMIRE: Acceptable as written?

7 COMMISSIONER BAILEY: I still would like to
8 review the testimony from the engineer on this, because I
9 think he raised so many valid points. What is the current
10 practice, Frank?

11 COMMISSIONER CHAVEZ: I can tell you about the
12 practice in the northwest. For producing wells on -- when
13 a well is cemented, if the cement is not circulated, then
14 the operator must supply either a cement bond log or the
15 temperature survey that indicates where the top of the
16 cement is.

17 For injection wells, that is handled out of -- we
18 do do district review and make our recommendations to the
19 UIC Director, to Mr. Jones, as far as what we consider
20 approvable or modifications to an application or what might
21 be necessary on an individual well.

22 CHAIRMAN FESMIRE: That's bad.

23 COMMISSIONER CHAVEZ: But his final judgment, his
24 interpretation of the -- if there's any issues of the law -
25 - will be generally what would prevail, unless he calls us

1 and asks us what did we think about this section of a well,
2 of a log, and what does it indicate to us. And then we can
3 discuss it with him.

4 But generally we're in agreement. In fact, I
5 can't think of the last time we've been in disagreement
6 with Will Jones on an application form the northwest.

7 Now, as far as practice in the southeast, I don't
8 know what to -- about that.

9 COMMISSIONER BAILEY: But the final decision is
10 made by the UIC program director, Will Jones, right now.

11 COMMISSIONER CHAVEZ: Right now, yes, unless it
12 goes to hearing. Then whoever the Examiner is would -- if
13 it's him or --

14 COMMISSIONER BAILEY: And this would change that
15 responsibility from Will Jones to each district.

16 COMMISSIONER CHAVEZ: No, what I see here, we're
17 talking about two levels here. Any well in the district,
18 when we look -- if it's not been circulated and we review
19 the temperature survey or the cement bond log, we compare
20 that to what our responsibility is under Rule 108 --

21 COMMISSIONER BAILEY: Uh-huh.

22 COMMISSIONER CHAVEZ: -- that requires the wells
23 to be cased and cemented in a manner that prevents the flow
24 of fluids between the zones. So we do not require the
25 operator to take any kind of remedial action on the well

1 unless the logs, either the temperature or the CBL,
2 indicates to us that there needs to be action to bring the
3 well into compliance with the Rule.

4 So just the act of getting a log itself does
5 not -- well, actually seldom initiates an action.

6 COMMISSIONER BAILEY: And there's no approval
7 connected with this.

8 COMMISSIONER CHAVEZ: There's no approval --

9 COMMISSIONER BAILEY: There's no approval
10 connected with this?

11 COMMISSIONER CHAVEZ: There's no approval
12 connected to the log as such. What it is, it's another
13 tool or another report that the operator makes.

14 My recollection is that in the Artesia District
15 they have the same procedures that we do, that if the
16 string isn't cemented they want a temperature survey or a
17 cement bond log, and -- I don't imagine them doing anything
18 different than we do in Aztec where if those reports
19 indicate that there needs to be remedial work, then the
20 district will require it.

21 COMMISSIONER BAILEY: Then why is this needed?

22 COMMISSIONER CHAVEZ: That's a good question, but
23 it would be something -- the district people weren't here
24 to determine or to ask whether they already required this.
25 Now, this does require just cement bond logs and not

1 temperature surveys.

2 CHAIRMAN FESMIRE: Right.

3 COMMISSIONER CHAVEZ: And this is also only for
4 proposed injection wells, that would require cement bond
5 logs and not temperature survey. So if my understanding is
6 correct, if Artesia already requires, a producing well
7 would have either a CBL or a --

8 CHAIRMAN FESMIRE: -- temperature log.

9 COMMISSIONER CHAVEZ: -- temperature log, if the
10 string isn't cemented. This is for injection wells only,
11 that require the cement bond for all strings. This is
12 actually the same type of requirement for an operator who
13 proposes to drill a Class I well.

14 CHAIRMAN FESMIRE: Run cement bond logs
15 acceptable to the Division, after each casing string is
16 cemented, and file the logs with the appropriate district
17 office of the Division. For existing wells the operator
18 proposes to convert to injection, the operator shall
19 demonstrate to the Division's satisfaction adequate and
20 competent cementing of all...strings.

21 And this applies only to --

22 COMMISSIONER BAILEY: -- injection wells.

23 CHAIRMAN FESMIRE: -- injection wells. So if
24 they drill the well for injection, they have to run a
25 cement bond log each string. If they convert it to

1 injection, they have to demonstrate to the Division's
2 satisfaction adequate and competent cementing of all casing
3 strings.

4 Jami -- Commissioner Bailey, I guess I don't
5 understand what your concern is.

6 COMMISSIONER BAILEY: Why do we need to have this
7 if it's already covered -- if it's already in the Rules?

8 COMMISSIONER CHAVEZ: It's not a rule as such.
9 This would be codifying a -- the practice in the Artesia
10 Office, partially. Again, the difference is that in the
11 district office a temperature survey or CBL for cement that
12 is not circulated; this is for CBL exclusively for all
13 strings, this -- even if it's circulated, for wells that
14 are proposed for -- to be drilled as disposal wells. So it
15 is -- this is a difference.

16 Now, the second sentence in there -- First of
17 all, on that first sentence, under 1301.B or 1302, we don't
18 have to say that they have to file with the appropriate
19 district office, because when you say file with the
20 Division it would already be there. So that's maybe
21 wording that's not necessary.

22 But the second sentence, For existing wells the
23 operator proposes to convert to injection, the operator
24 shall demonstrate to the Division's satisfaction adequate
25 and competent cementing of all casing strings. We can

1 actually drop that, because it's going to be under the
2 hearing anyway. It's redundant -- What I'm saying is we
3 can include it or drop it because it will be a
4 demonstration that has been made at the hearing.

5 CHAIRMAN FESMIRE: And that's part of the current
6 Rules on converting to injection?

7 COMMISSIONER CHAVEZ: That's correct.

8 CHAIRMAN FESMIRE: And it's --

9 COMMISSIONER CHAVEZ: So we can either leave it
10 in or -- It doesn't hurt to leave it in.

11 CHAIRMAN FESMIRE: Does it --

12 COMMISSIONER BAILEY: So often when we have rules
13 repeated many places, one rule is changed and another rule
14 isn't.

15 CHAIRMAN FESMIRE: Right.

16 COMMISSIONER BAILEY: Then we could have
17 problems. So why don't we just stick with the rule that
18 we've got and not have to repeat?

19 CHAIRMAN FESMIRE: Well, let's find -- Which rule
20 did you say that was on converting to injection well?
21 Competent cement?

22 COMMISSIONER CHAVEZ: Let's see, I think that's
23 actually on the 108, application for injection. Let me
24 double-check.

25 CHAIRMAN FESMIRE: 107?

1 COMMISSIONER CHAVEZ: It would be Form 108.

2 CHAIRMAN FESMIRE: Yeah, Rule 107 or 108?

3 COMMISSIONER CHAVEZ: 701 and Form 108.

4 CHAIRMAN FESMIRE: Are you doing okay?

5 COMMISSIONER BAILEY: Oh, I'm fine. I'll fall
6 asleep at 8:30, but...

7 CHAIRMAN FESMIRE: Did you say 701?

8 COMMISSIONER CHAVEZ: Yes, requires the
9 application --

10 CHAIRMAN FESMIRE: 702, casing and cementing of
11 injection wells. Wells used for injection of gas, air,
12 water or other medium into any formation shall be cased
13 with safe and adequate casing or tubing so as to prevent
14 leakage, and such casing or tubing shall be so set and
15 cemented as to prevent the movement of formation or
16 injected fluid from the injection zone into any other zone,
17 or to the surface around the outside of any casing string.

18 COMMISSIONER BAILEY: That pretty much covers it,
19 doesn't it?

20 CHAIRMAN FESMIRE: Operator shall run cement bond
21 logs acceptable to the Division after each casing -- and
22 file the logs with the appropriate district office of the
23 Division.

24 COMMISSIONER CHAVEZ: The Division is, I think,
25 working for some specific information that otherwise would

1 not necessarily be required under the -- Let's see. I
2 think I see what's --

3 CHAIRMAN FESMIRE: ...adequate casing or tubing
4 so as to prevent leakage, and such casing or tubing shall
5 be so set and cemented as to prevent the movement of
6 formation or injected fluids from the injection zone into
7 any other zone, or to the surface around the outside of any
8 casing string.

9 ...appropriate district office of the Division.
10 For existing wells the operator proposes to convert to
11 injection, the operator shall demonstrate to the Division's
12 satisfaction adequate and competent cementing of all casing
13 strings.

14 Well, what if we were to -- operator shall --
15 after each casing string is -- office of the Division.

16 The second sentence perhaps should say, casing
17 and cementing shall otherwise -- or, additionally, casing
18 and cementing --

19 COMMISSIONER BAILEY: Easier, why not delete that
20 part, because you've got 702?

21 CHAIRMAN FESMIRE: For existing wells, casing and
22 cementing shall be in conformance with Rule 702? How's
23 that? So C.(5) will read, Operators shall run cement bond
24 logs acceptable to the Division after each casing string is
25 cemented, and file the logs with the appropriate district

1 office of the Division. For existing wells, the casing and
2 cementing program shall comply with NMAC 19.15.9.702.

3 Good enough?

4 COMMISSIONER BAILEY: Good.

5 CHAIRMAN FESMIRE: Okay. C.(6) -- and we're
6 going a little past 5:30. Are there any objections to us
7 continuing? Good.

8 Produced water transportation lines shall be
9 constructed of internally plastic-coated steel pipe.
10 Produced water transportation lines shall be pressure
11 tested to one and one-half times the working pressure prior
12 to operation, and annually thereafter.

13 They made some points about some alternatives,
14 one of which was cement-lined pipe, that I've never been
15 happy with.

16 COMMISSIONER CHAVEZ: The issue was corrosion
17 leaks, preventing corrosion leaks, and plastic-lined pipe
18 is better than it used to be, but still I think you have to
19 question about finding holidays in plastic-lined pipe. Our
20 experience has been that at the joints it can still have
21 some severe -- many times have problems if the connections
22 with plastic-lined pipe. So we had the possibility of
23 using -- The issue is corrosion.

24 CHAIRMAN FESMIRE: Right.

25 COMMISSIONER CHAVEZ: So material that resists or

1 is the -- corrosion from the produced water -- I don't know
2 exactly how to state that, because I know there's been some
3 really good success with good plastic pipe in gathering
4 systems.

5 COMMISSIONER BAILEY: Would it make sense, then,
6 to say produced water transportation lines shall be
7 constructed of materials resistant to corrosion, or
8 corrosion-resistant materials, which would allow for any
9 new materials that may come on the market in the future?

10 CHAIRMAN FESMIRE: Yeah, and two of them
11 mentioned bullets, bullet holes, bullet damages. Does this
12 rule require us to lay those lines on the surface?

13 COMMISSIONER BAILEY: No. That's handled at the
14 district level, as to whether that's buried or surface.

15 COMMISSIONER CHAVEZ: Well, not even that,
16 there's no rule requirement. An operator can choose to
17 bury the line or leave it exposed.

18 CHAIRMAN FESMIRE: We need to make the decision.
19 Where do we want --

20 COMMISSIONER CHAVEZ: Vandalism is something that
21 -- make a rule to protect from.

22 CHAIRMAN FESMIRE: Right, vandalism, as opposed
23 -- the chance for vandalism, as opposed to the probability
24 -- possibility that you will be able to locate a leak
25 quickly in a buried line.

1 COMMISSIONER BAILEY: Or having to bury in
2 caliche or fractured limestone, which would create more
3 problems for your solvent. I think it's got to be a site-
4 specific decision.

5 COMMISSIONER CHAVEZ: It's got to be the
6 operator's.

7 CHAIRMAN FESMIRE: Left to the operator. So
8 produced water transportation lines shall be constructed of
9 corrosion-resistant materials and pressure-tested to one
10 and one-half times the working pressure prior to operation
11 and annually thereafter.

12 MR. BROOKS: Would the Commission perhaps want to
13 say corrosion-resistant materials that are acceptable to
14 the Division, so as to give the Division an opportunity to
15 promulgate that --

16 CHAIRMAN FESMIRE: Yes. How's that?

17 COMMISSIONER BAILEY: Okay.

18 COMMISSIONER CHAVEZ: Would that be part of the
19 application under the hearing?

20 CHAIRMAN FESMIRE: Yes.

21 COMMISSIONER CHAVEZ: Okay, so it wouldn't be a
22 district choice at all. Okay, because it's under C. Okay,
23 that would work.

24 MR. BROOKS: Okay, so it would read, produced
25 water transportation lines shall be constructed of

1 corrosion-resistant materials acceptable to the Division.
2 Then we have not yet determined what will be the second
3 sentence.

4 CHAIRMAN FESMIRE: And shall be pressure tested
5 to one and one-half times the working pressure prior to
6 operation and annually thereafter.

7 There was some question as to how we describe
8 working pressure.

9 COMMISSIONER CHAVEZ: Yeah, it's too generalized,
10 and I would say -- We've got some choices there that Mr.
11 Collins said were acceptable, and I don't mind either of
12 them. Let's see if I can remember them both.

13 One of them was, we test it to one and a half
14 times the anticipated operating pressure, and I think we
15 used that language elsewhere in our regulations.

16 He also mentioned that he didn't have a problem
17 with the requirements that we have for testing casing,
18 which is --

19 CHAIRMAN FESMIRE: How about maximum operating
20 pressure, instead of anticipated? Test it to one and one-
21 half times the maximum operating pressure prior to
22 operation and annually thereafter.

23 COMMISSIONER CHAVEZ: That would work.

24 COMMISSIONER BAILEY: Uh-huh.

25 CHAIRMAN FESMIRE: So we're in agreement down to

1 C.(7).

2 C.(7), All tanks shall be placed on an
3 impermeable pad and surrounded by lined berms or other
4 impermeable secondary containment device of adequate
5 capacity to contain leaks or spills.

6 COMMISSIONER BAILEY: I agree with that, but I
7 need to correct something here. Not all in agreement about
8 all provisions of this Rule.

9 CHAIRMAN FESMIRE: That's correct.

10 COMMISSIONER BAILEY: Okay.

11 CHAIRMAN FESMIRE: Except for B, Section B.

12 COMMISSIONER CHAVEZ: Would it be good at this
13 time to clarify the "all tanks"? Because when I first read
14 that -- in fact, the first couple times I read it, I
15 thought it was all tanks until we double-checked with Mr.
16 Olson what the intention was, and this was for produced-
17 water storage tanks and injection facilities, is what he
18 said this was supposed to address.

19 CHAIRMAN FESMIRE: That's right, because this is
20 addressing the produced water injection.

21 COMMISSIONER BAILEY: That must be specific.

22 CHAIRMAN FESMIRE: Yeah.

23 COMMISSIONER CHAVEZ: Yes. So we should make
24 that specific.

25 The question came up with what's impermeable, and

1 Roger Anderson talked about some standards that are used,
2 and I didn't get all the notes. It's in the record there,
3 but I don't know if all of that was available to operators
4 to take a look at, as far as what's an impermeable
5 standard, as long as it doesn't leave so much. But I'm not
6 clear on how to address the issue of what's impermeable.

7 CHAIRMAN FESMIRE: What is the requirement for
8 oil storage tanks?

9 COMMISSIONER CHAVEZ: There isn't one, except
10 within cities or municipalities, there's some berming
11 requirements.

12 MR. BROOKS: Testimony was, I believe, that this
13 language has been used by the Division in permitting
14 orders.

15 COMMISSIONER BAILEY: For the discharge permits?

16 MR. BROOKS: Yes, in discharge --

17 COMMISSIONER BAILEY: And he used 10^{-7} --

18 MR. BROOKS: -- permits and Rule 711 permits.

19 COMMISSIONER BAILEY: Yes, and he used a value of
20 10^{-7} centimeters per second.

21 COMMISSIONER CHAVEZ: Okay, I couldn't remember
22 that value.

23 MR. BROOKS: Now, as I understood the testimony,
24 that was that that value is the Division's interpretation
25 of the word "impermeable" as it has been using the word in

1 permits.

2 COMMISSIONER CHAVEZ: We could either stick that
3 directly in there, which I think would make it clearer --

4 CHAIRMAN FESMIRE: You mean the permeability
5 thing?

6 COMMISSIONER CHAVEZ: Yes.

7 CHAIRMAN FESMIRE: Okay.

8 COMMISSIONER CHAVEZ: I don't know that it would
9 save some phone calls. Say what's impermeable mean, and
10 then we tell them what it means.

11 COMMISSIONER BAILEY: How are they going to test?

12 COMMISSIONER CHAVEZ: I don't know.

13 CHAIRMAN FESMIRE: You've got some --
14 permeabilities, surely they -- construction handles that
15 sort of information there.

16 COMMISSIONER BAILEY: Okay, I'm just trying to
17 think of the practicalities that it would take.

18 CHAIRMAN FESMIRE: Yeah.

19 COMMISSIONER CHAVEZ: And this will be part of
20 the hearing application, this one under C?

21 CHAIRMAN FESMIRE: Yeah, uh-huh.

22 COMMISSIONER CHAVEZ: The next issue came up,
23 adequate capacity, and if I remember Mr. Olson's testimony,
24 he looked at one and a third the volume of the tanks.

25 That's very similar to the berming requirements for storage

1 tanks within municipalities, so we should --

2 COMMISSIONER BAILEY: -- be consistent.

3 COMMISSIONER CHAVEZ: Yes.

4 CHAIRMAN FESMIRE: The one thing that concerns
5 me, and I know the way we've defined it that all of this
6 applies to injection wells, but we're now taking oil tanks
7 out of that requirement. I mean, the arguability that an
8 oil tank is subject to this requirement too now comes out.

9 COMMISSIONER CHAVEZ: -- the only incident the
10 OCD presented actually had to do -- for this particular
11 requirement, had to do with a leaking oil storage tank, not
12 a leaking produced-water storage tank.

13 CHAIRMAN FESMIRE: Right.

14 COMMISSIONER BAILEY: Right.

15 COMMISSIONER CHAVEZ: But they didn't propose
16 production tanks under their application. I don't have a
17 problem with it unless they're demonstrating that leaking
18 tanks can contaminate groundwater. They only proposed it
19 for these particular tanks, they didn't propose it for
20 oil.

21 CHAIRMAN FESMIRE: My recommendation is that we
22 leave that wording in there. I realize that it is highly
23 arguable and provides an ambiguity, but at the same time
24 this is what was noticed, this is what was -- the hearing
25 was conducted on, and rather than take it out, I'd rather

1 leave it in there.

2 COMMISSIONER BAILEY: You're the one who has to
3 enforce it.

4 COMMISSIONER CHAVEZ: That's the only issue, is
5 that the enforcement staff would have to understand that
6 that's applying to storage tanks at produce-water --

7 CHAIRMAN FESMIRE: Yeah.

8 COMMISSIONER CHAVEZ: -- disposal facilities.

9 CHAIRMAN FESMIRE: And I'm not ready to --
10 although I'd sure hate to face your interpretation on the
11 other side of a hearing, I'm not ready to give up the small
12 strand we had there to be able to enforce the positioning
13 of oil tanks also, but we cannot go more stringently,
14 because this is what was advertised and what the hearing
15 was conducted on.

16 So I would like to leave it in there and give us
17 the opportunity, at least, to try to enforce it.

18 COMMISSIONER CHAVEZ: Okay.

19 CHAIRMAN FESMIRE: C.(8).

20 MR. BROOKS: I'm sorry, was there a decision
21 about adequate capacity? Are we going to leave that
22 language unchanged, or are we going to substitute something
23 else?

24 COMMISSIONER CHAVEZ: I think in order to make it
25 enforceable, we need to substitute the standards that Mr.

1 Olson said that he used when he testified on that, one and
2 a half times --

3 MR. BROOKS: One and one-half times the volume of
4 the tank or of all interconnected -- of the largest tank or
5 all interconnected tanks?

6 COMMISSIONER CHAVEZ: If I remember correctly, I
7 think it was the tanks within -- all interconnected tanks.

8 MR. BROOKS: As I understood, it was one and one-
9 third times the volume of the largest tank, or of all
10 interconnected tanks if they're interconnected.

11 CHAIRMAN FESMIRE: Yes, that was my
12 understanding.

13 COMMISSIONER CHAVEZ: Oh, okay.

14 MR. BROOKS: Okay, and on "impermeable", did we
15 decide whether we're going to leave that wording or whether
16 we're going to insert the 10^{-7} standard?

17 COMMISSIONER CHAVEZ: We decided we could leave
18 it and then -- because we've used it in other regulatory
19 language.

20 MR. BROOKS: Okay.

21 CHAIRMAN FESMIRE: Okay, down to number (8),
22 C.(8), Operators shall record injection pressures and
23 volumes daily, and make the record available to the
24 Division upon request.

25 Commissioner Bailey?

1 COMMISSIONER BAILEY: I think that's excessive, I
2 really do. You're asking them to develop a lot of
3 paperwork to sit in a file somewhere. I think the intent
4 was to ensure that the maximum pressure does not exceed the
5 frac pressure or the pressure that was given within their
6 order. I think that this is excessive in making that
7 assurance that that pressure is not violated.

8 COMMISSIONER CHAVEZ: Our current application of
9 this type of requirement in the Class II wells requires a
10 continuous pen recorder, and actually it works very well,
11 basically set up a time plot, put a circular chart on it to
12 record the pressure. And the operator doesn't have to be
13 there every day because the recording is continuous with
14 the pen on the chart. They just come as they find
15 necessary for maintenance purposes at the site, and once a
16 month they change the 31- -- or 32-day chart, and they keep
17 that information.

18 But Will Jones also pointed out something that's
19 really helpful and important, especially in an area like
20 this, that the monitoring of those pressures can be used to
21 analyze the problems that may develop at the well. Say for
22 example, a drop in the pressure during continuous injection
23 may indicate mechanical failure or a change -- something
24 happened within the zone that was being used for injection.
25 And it could be determined -- or help to determine what

1 actually happened if there was a mechanical failure of the
2 well. So it's a great analytical tool for that too.

3 As far as being a burden, it's just the idea of
4 supplying the chart recorder, the circular chart, it's
5 changed once a month. I don't -- Myself, I wouldn't think
6 it's excessive at all.

7 COMMISSIONER BAILEY: But if the current system,
8 as you describe it, works well, why not continue with it?

9 CHAIRMAN FESMIRE: What about giving them an
10 option to do this, or monthly -- or continuous chart on a
11 monthly basis?

12 COMMISSIONER BAILEY: Sure.

13 COMMISSIONER CHAVEZ: That would work.

14 COMMISSIONER BAILEY: Sure.

15 CHAIRMAN FESMIRE: How do we word that? Operator
16 shall record injection pressures and volumes daily and make
17 the record available to Division upon request.
18 Alternatively, operators may record continuous pressure and
19 volume measurements.

20 COMMISSIONER CHAVEZ: Yes, that -- the same way,
21 and make those available to the Division upon request.

22 CHAIRMAN FESMIRE: Why don't you word it, then,
23 because I'm --

24 COMMISSIONER CHAVEZ: Oh, boy.

25 CHAIRMAN FESMIRE: -- falling asleep here.

1 COMMISSIONER CHAVEZ: What happens is that -- the
2 wording actually allows -- is so broad that it would allow
3 for a continuous recorder or instantaneous measurements.

4 MR. BROOKS: I believe that it would actually. I
5 believe that the "continuous" would satisfy the daily
6 requirement. However, I think if the Commission wants to
7 make that clearer it could be done very simply by just
8 saying daily or continuously.

9 CHAIRMAN FESMIRE: How about, Operators shall
10 record injection pressures and volumes daily or
11 continuously? Is that what you're saying?

12 MR. BROOKS: That's what I was suggesting, that
13 you all furnish -- make available to the Division upon
14 request.

15 CHAIRMAN FESMIRE: Let's see if we can -- That
16 wording sounds a little awkward, but that's the idea.

17 Shall make injection -- shall record injection
18 pressures and volumes --

19 COMMISSIONER BAILEY: How does the current rule
20 read? Can we go back to what the current rule says?

21 CHAIRMAN FESMIRE: The injection rule?

22 COMMISSIONER CHAVEZ: There isn't a rule about
23 daily recording. It's just -- it's required monthly on the
24 C-115, that the operator take a pressure once a month on
25 the well when it's injecting and report that on the C-115.

1 So it's just once a month currently.

2 COMMISSIONER BAILEY: Oh, okay, and just some
3 operators are doing the continuous recording?

4 COMMISSIONER CHAVEZ: The Class II wells. As
5 Roger was saying, some of these requirements are more like
6 Class II well requirements. The Class II wells do require
7 continuous recording.

8 COMMISSIONER BAILEY: Class I wells?

9 COMMISSIONER CHAVEZ: I'm sorry, you're right,
10 Class I wells.

11 CHAIRMAN FESMIRE: But that's -- Operators shall
12 record injection pressures and volumes daily and make the
13 record available to the Division upon request.
14 Alternatively, operators may use continuous recording
15 devices to record pressures and volumes --

16 COMMISSIONER CHAVEZ: Or operators may take
17 instantaneous or continuous records of injection pressures
18 and volumes daily.

19 COMMISSIONER BAILEY: Alternatively, operators
20 may use methods acceptable to the Division.

21 COMMISSIONER CHAVEZ: Since this will be at the
22 hearing also, the method by which they do that shall be
23 approved after -- at the hearing anyway, right?

24 CHAIRMAN FESMIRE: Right.

25 COMMISSIONER BAILEY: Uh-huh.

1 COMMISSIONER CHAVEZ: So I'm leading to what you
2 say, something along the lines of operators shall record
3 injection pressures and volumes daily in a manner approved
4 by the Division?

5 CHAIRMAN FESMIRE: Or in a manner? Or do we need
6 to make that --

7 COMMISSIONER CHAVEZ: I think the daily -- Oh, I
8 see what you mean. Or in a manner approved by the
9 Division.

10 CHAIRMAN FESMIRE: And make that record available
11 to the Division upon request.

12 COMMISSIONER CHAVEZ: That's right.

13 CHAIRMAN FESMIRE: So what we've got is,
14 operators shall record injection pressures and volumes
15 daily or in a manner acceptable to the Division, and make
16 that record available to the Division upon request.

17 Last, but not least, C.(9), Operators shall
18 perform a mechanical integrity test as described in
19 Paragraph 2 of Subsection A of 19.15.9.704 NMAC annually,
20 advise the appropriate district office of the Division at
21 least 24 hours prior to testing, and file a pressure chart
22 with the appropriate district office of the Division.

23 Commissioner Bailey?

24 COMMISSIONER BAILEY: How is that different from
25 what's stated in Number 6, tested to one and a half times

1 the --

2 CHAIRMAN FESMIRE: That's a produced-water line.

3 COMMISSIONER BAILEY: -- and annually thereafter?

4 Okay, one's for the line, and one's for the --

5 CHAIRMAN FESMIRE: Well.

6 COMMISSIONER BAILEY: -- well itself.

7 COMMISSIONER CHAVEZ: Yeah, 704 is the positive
8 pressure test of the annular area and recording of tubing,
9 casing and pressures on intermediate --

10 CHAIRMAN FESMIRE: The big difference is, they
11 test the well once every year on this and once every five
12 years under the standard rules.

13 COMMISSIONER BAILEY: I won't argue with --

14 CHAIRMAN FESMIRE: Frank?

15 COMMISSIONER CHAVEZ: Well, right now, the OCD in
16 Hobbs and in the Artesia offices schedule a test with the
17 operators. Otherwise, it would be impossible to witness
18 the test as necessary. So this test done annually has to
19 be coordinated with the district office in some way.

20 CHAIRMAN FESMIRE: That's a question I didn't
21 ask. What kind of manpower demands is this going to put on
22 us? But that would be a pleasant problem to have, if they
23 were to develop enough production out there to need
24 additional people.

25 COMMISSIONER CHAVEZ: Well, right now I don't

1 know that it's going to be an issue of manpower.

2 CHAIRMAN FESMIRE: Yeah.

3 COMMISSIONER CHAVEZ: But the issue is of
4 coordinating with the Division, something in conjunction
5 with the district office.

6 CHAIRMAN FESMIRE: So we have agreement on
7 everything but B?

8 COMMISSIONER BAILEY: Yes, and I cannot accept B.

9 CHAIRMAN FESMIRE: And I understand that.

10 MR. BROOKS: Okay, now where I thought Frank was
11 -- I'm sorry, Commissioner Chavez was going on (9), I
12 believe, Commissioner Chavez, you made a remark earlier
13 that for coordination with the Division, it would want to
14 -- it would pose a longer notice provision than 24 hours.

15 COMMISSIONER CHAVEZ: Oh, yes, 24 is nowhere near
16 enough.

17 EXAMINER BROOKS: So are you suggesting that we
18 change that provision in any way?

19 COMMISSIONER CHAVEZ: Yes, in --

20 MR. BROOKS: I'm sorry, are you suggesting that
21 the Commission change that provision?

22 COMMISSIONER CHAVEZ: Yes. Let me take a look at
23 what the current testing rules requires as far as
24 scheduling. I'm not sure that it is specific about how the
25 operator notifies the Division.

1 CHAIRMAN FESMIRE: What's the rule?

2 COMMISSIONER CHAVEZ: It's 704. It's A.(5), the
3 injection well operator shall advise the Division of the
4 date and time any initial, five-year or special test will
5 be commencing, or that such tests may be witnessed --

6 As it is, the OCD offices are actually scheduling
7 those tests with the operator, so they're not -- when the
8 district goes ahead and assigns the test schedule --

9 CHAIRMAN FESMIRE: Why don't we make the wording
10 the same then?

11 MR. BROOKS: What rule is this?

12 CHAIRMAN FESMIRE: 704.

13 COMMISSIONER CHAVEZ: 704.A.(5)

14 CHAIRMAN FESMIRE: That would work. How about --

15 COMMISSIONER CHAVEZ: Operators shall perform a
16 mechanical integrity test as described in Paragraph 2,
17 blah, blah, blah, annually and shall advise the Division of
18 the date and time the test is to be commenced in order that
19 such tests may be witnessed?

20 CHAIRMAN FESMIRE: Yes.

21 MR. BROOKS: Okay. If the Commission is through
22 with the Rule now, I want to clarify the record on one
23 matter.

24 CHAIRMAN FESMIRE: Sure.

25 MR. BROOKS: On subsection B, it was clear, I

1 believe, that Commissioner Bailey's decision was that she
2 felt that that subsection should be deleted in its
3 entirety. It was clear that Commissioner Fesmire's
4 position was that the subsection should remain as it is.

5 It was not entirely clear to me from your
6 observations, Commissioner Chavez, whether you had
7 explicitly voted to keep the section as is and your --
8 because of your comments about an exception procedure, I
9 was unsure whether your eventual decision was an
10 unqualified keep it as it is, or whether you were keeping
11 open the idea that there should be an exception procedure.
12 And because it's a two-to-one vote, I would like to see
13 that be clear for the record.

14 COMMISSIONER CHAVEZ: I want to keep it as it is.

15 MR. BROOKS: Okay, very good.

16 CHAIRMAN FESMIRE: With one exception, we have
17 agreed to remove the Chihuahuan Desert.

18 MR. BROOKS: Correct, yes, the Chihuahuan Desert
19 would be changed to a special area, or something similar.

20 CHAIRMAN FESMIRE: Right.

21 MR. BROOKS: Okay.

22 CHAIRMAN FESMIRE: Okay. With that, we've
23 hammered out a Rule that, with the exception of the
24 provisions on closed-loop drilling, is acceptable to the
25 Commissioners. The closed-loop drilling provision is

1 acceptable to two out of the three Commissioners, with
2 Commissioner Bailey objecting.

3 At this time we're going to instruct Counsel
4 Brooks to draft an order and make our amendments to a draft
5 Rule. He will circulate them to the Commissioners, the
6 Commissioners will review them prior to our next meeting,
7 which will be July 15th. At that time we will reconvene
8 the hearing on this matter, and hopefully draft a final
9 order and vote on the final order.

10 Do I hear a motion to adjourn?

11 COMMISSIONER BAILEY: I so move.

12 CHAIRMAN FESMIRE: A second?

13 COMMISSIONER CHAVEZ: Second.

14 CHAIRMAN FESMIRE: This meeting is adjourned.

15 (Thereupon, these proceedings were concluded at
16 6:03 p.m.)

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CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL June 27th, 2004.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006