

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

APPLICATION OF THE NEW MEXICO OIL AND GAS
ASSOCIATION FOR AMENDMENT OF CERTAIN PROVISIONS OF
TITLE 19, CHAPTER 15 OF THE NEW MEXICO
ADMINISTRATIVE CODE CONCERNING PITS, CLOSED-LOOP
SYSTEMS, BELOW GRADE TANKS AND SUMPS AND OTHER
ALTERNATIVE METHODS RELATED TO THE FORE GOING
MATTERS, STATE-WIDE.

CASE NO. 14784 AND 14785

VOLUME 2

May 15, 2012
9:00 a.m.
Wendell Chino Building
1220 South St. Francis Drive
Porter Hall, Room 102
Santa Fe, New Mexico

THE COMMISSION:

JAMI BAILEY, Chairperson

GREG BLOOM, Commissioner

DR. ROBERT BALCH, Commissioner

MARK SMITH, Esq.

FLORENE DAVIDSON, COMMISSION CLERK

REPORTED BY: Jan Gibson, CCR, RPR, CRR
Paul Baca Court Reporters
500 Fourth Street, NW - Suite 105

1 APPEARANCES

2 FOR NEW MEXICO OIL & GAS ASSOCIATION (NMOGA):

3 HOLLAND & HART, LLP
4 P.O. Box 2208
Santa Fe, New Mexico 87504-2208
5 505-988-4421
6 BY: WILLIAM F. CARR
MICHAEL H. FELDEWERT
wcarr@hollandhart.com

7
8 JORDEN BISCHOFF & HISER
7272 E. Indian School Road, Rd. Suite 360
9 Scottsdale, Arizona 85251
480-505-3927
10 BY: ERIC L. HISER
ehiser@jordenbischoff.com

11
12 FOR OIL & GAS ACCOUNTABILITY PROJECT (OGAP):

13 NEW MEXICO ENVIRONMENTAL LAW CENTER
14 1405 Luisa Street, Suite 5
Santa Fe, New Mexico 87505
15 505-989-9022
16 BY: ERIC D. JANTZ
ejantz@nmelc.org

17
18 FOR THE OCD:

19 GABRIELLE GERHOLT
Assistant General Counsel
20 1220 St. Francis Drive
Santa Fe, New Mexico 87505
21 505-476-3210
gabrielle.Gerholt@state.nm.us

22

23

24

25

APPEARANCES CONTINUED

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

FOR INDEPENDENT PETROLEUM ASSOCIATION OF NM:

K. FOSTER ASSOCIATES, LLC
5805 Mariola Place, NE
Albuquerque, New Mexico 87111
BY: KARIN FOSTER
505-238-8385
fosterassociates@yahoo.com

FOR THE NEW MEXICO CITIZENS FOR CLEAN AIR & WATER:

DR. DONALD NEEPER
2708 B. Walnut Street
Los Alamos, New Mexico 87544
505-662-4592
dneeper@earthlink.net

FOR JALAPENO CORPORATION:

PATRICK FORT
P.O. Box 1608
Albuquerque, New Mexico 87103
patrickfort@msn.com

FOR NEW MEXICO WILDERNESS ALLIANCE:

JUDITH CALMAN
142 Truman Street, Suite B-1
Albuquerque, New Mexico 87108
judy@nmwild.org

FOR NEW MEXICO STATE LAND OFFICE:

HUGH DANGLER
310 Old Santa Fe Trail
P.O. Box 1148
Santa Fe, New Mexico 87504
(505) 827-5756

APPEARANCES CONTINUED

FOR NEARBURG PRODUCING COMPANY:

JAMES G. BRUCE
P.O. Box 1056
Santa Fe, New Mexico 87504
505-982-2043
jamesbruc@aol.com

INDEX

THE WITNESSES: PAGE:

MICHAEL LANE

Cross-Examination by Mr. Jantz.....269
Cross-Examination by Mr. Dangler.....283
Cross-Examination by Dr. Neeper.....293
Examination by the Commission.....308
Redirect Examination.....326

JERRY D. FANNING, JR.

Direct Examination by Mr. Carr.....332
Cross-Examination by Ms. Foster.....371
Cross-Examination by Mr. Jantz.....385
Cross-Examination by Ms. Gerholt.....398
Cross-Examination by Mr. Dangler.....409
Cross-Examination by Dr. Neeper.....415
Examination by the Commission.....419
Redirect Examination.....435

BENJAMIN THOMAS

Direct Examination by Mr. Hiser.....442
Cross-Examination by Mr. Jantz.....475
Cross-Examination by Mr. Dangler.....479
Cross-Examination by Dr. Neeper.....488

JAMES DANIEL ARTHUR

Direct Examination by Mr. Hiser.....511

Reporter's Certificate.....527

EXHIBITS

PAGE ADMITTED

1		
2		
3		
4	7.	Michael Lane Presentation.....370
5	8.	Jerry Fanning Resume.....370
6	10.	Ben Thomas Resume.....446
7	11.	Ben Thomas Presentation.....474
8	12.	Ben Thomas Report.....474
9	13.	Arthur Resume.....515

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

1 (Note: In session at 9:00.)

2 CHAIRWOMAN BAILEY: Good morning. This is
3 the meeting of the Oil Conservation Commission on
4 Tuesday, May 15, 2012 at Porter Hall in Santa Fe,
5 New Mexico. I am Jami Bailey, chairman of the
6 Commission. To my right is Commissioner Greg Bloom
7 who represents the Commissioner of Public Lands. To
8 my left is Commissioner Robert Balch who is the
9 appointee of the Secretary of Energy, Minerals and
10 Natural Resources Department. We are continuing
11 testimony in Case No. 14784. Myke Lane has been
12 sworn. You are still under oath. We were about to
13 begin cross-examination for Mr. Lane from his
14 testimony from yesterday.

15 MICHAEL LANE
16 after having been previously sworn under oath,
17 was questioned and testified as follows:

18 MS. FOSTER: I have no questions for the
19 witness.

20 MR. JANTZ: Thank you, Madam Chair.

21 CROSS-EXAMINATION

22 BY MR. JANTZ

23 Q. Good morning, Mr. Lane.

24 A. Good morning.

25 Q. I'm Eric Jantz with the New Mexico

1 Environmental Law Center. During your testimony
2 yesterday, you talked a lot about stimulation
3 fluids. Just so I'm straight, that's frac fluids.
4 That's for frac jobs, right?

5 A. Predominantly, yes.

6 Q. So these multi-well management pits, if I
7 understand it correctly, are predominantly for frac
8 jobs, right?

9 A. That would be the intent, yes.

10 Q. Okay. You talked about -- if I could have
11 Slide 7-2. You talked about the footprints of
12 these. You talked about applying to the BLM for up
13 to 40 wells; is that right?

14 A. Correct.

15 Q. So can you give me a sense of well spacing
16 for an operation like this? Are these your typical
17 160 spacing, one per 160 acre or one per 40 acre
18 spacing or is it closer? On the schematic they look
19 a little closer than that.

20 A. On the surface they are about
21 seven-and-a-half to ten feet apart. I do not know
22 what the actual spacing is. That depends on the
23 target zone that the well would be drilled for.

24 Q. Right. That's the well on each pad. How
25 close are the pads to each other?

1 A. They could be as far apart as a couple
2 miles.

3 Q. And they could be as close as?

4 A. You know, honestly, I don't know. The
5 intent would be they wouldn't be very close
6 together. But again, it depends on the plan of
7 development, depends on the target zones and it
8 depends on the geography.

9 Q. In your experience, what's been the
10 closest they have spaced the well pads?

11 A. Again, it's so variable. They can be --
12 well, the intent here is to consolidate these wells
13 onto a common pad.

14 Q. Sure. My question is in your experience,
15 what's the closest the wells have been spaced?

16 A. Forgive me, but I'm not sure how that's
17 relevant to the multi-well fluid management pits.

18 Q. Again, I think it's the Commission's
19 determination about relevancy, but I wonder if you
20 could just answer the question.

21 A. In my experience, wells have been on a
22 common pad anywhere in a distance of, like I said,
23 seven to ten feet apart or as far apart as about 50
24 feet. That's on a common pad, and pads are
25 typically -- it's so variable. Pads can be anywhere

1 from a quarter mile apart to several miles apart.

2 Q. So in your experience, the closest they
3 have been is a quarter mile apart? Is that your
4 testimony?

5 A. No, I said it's variable.

6 Q. Sure. My question, again, was what's the
7 closest in your experience the pads have been to
8 each other?

9 MR. FELDEWERT: Madam Chair, I think he
10 answered to the best of his ability. Are we talking
11 about -- I guess at this point I would object on the
12 grounds of relevancy. I mean, Mr. Lane's experience
13 extends for a number of years in a number of
14 different states.

15 CHAIRWOMAN BAILEY: You appear to be
16 laying a foundation.

17 MR. JANTZ: Yes, Madam Chair, I am.

18 CHAIRWOMAN BAILEY: Then please answer the
19 question to the best of your ability.

20 A. Okay. I have seen well pads across a
21 common road. The distance between individual wells
22 typically ranges, until we have gone to a closer
23 spacing, somewhere around 50 feet apart.

24 Q. Thank you. So these fairly densely packed
25 wells, the fluids from those go to this single

1 multi-well pit, right? Is that the way the -- the
2 intent of the setup here?

3 MR. FELDEWERT: Object to the form of the
4 question. I don't know what he means by fairly
5 dense wells. What Mr. Lane described was a
6 circumstance where the wells could be miles away.

7 MR. JANTZ: Let me rephrase it.

8 Q. The intent of this setup, the multi-well
9 fluid setup, is to have the fluids from all these
10 wells, whatever their spacing may be, go to the
11 centralized area; is that right?

12 A. The intent is if that's where the
13 source -- if that pad or if that multi-well fluid
14 management pit is to service those wells, the intent
15 is to gather the fluids from the other wells and
16 recycle those produced waters.

17 Q. So from all these different wells, what
18 kind of fluid volumes are we looking at typically?

19 A. As I said yesterday, it can range from
20 less than a barrel a day to upwards of hundreds of
21 barrels a day. That's on the current formations
22 that we are producing.

23 Q. The current formations you are producing
24 where?

25 A. In the San Juan Basin.

1 Q. In the San Juan Basin. So this is typical
2 of the San Juan Basin?

3 A. That is where my experience is based.

4 Q. Sure. That's -- I don't want you to
5 testify beyond your experience unless, I guess, I
6 ask for it.

7 MR. FELDEWERT: Objection.

8 Q. So in the San Juan Basin, the fluid
9 volume, you're saying, ranges from a barrel a day to
10 100 barrels a day? How much is 100 barrels a day in
11 gallons? Can you give me a ballpark?

12 A. Well, about 42 times 100, so 4200.

13 Q. That's a typical frac job?

14 A. No. Oh, typical frac job?

15 Q. Yeah--

16 A. Excuse me. Let me let you ask the
17 question.

18 Q. So my understanding is that the fluids
19 that go into this are being reused for the fracking
20 operations; is that right? The intent is to reuse
21 these for a fracking operation, correct?

22 A. Correct.

23 Q. So is that fluid volume typical, 4200
24 gallons, typical of a frac job?

25 A. No.

1 Q. How much water does a typical frac job
2 use?

3 A. Depends on the target formation. Depends
4 on the design of the frac job itself.

5 Q. Could you give me a range?

6 A. I don't design frac jobs, but as I showed
7 in the one picture, that footprint you had -- I
8 can't remember how many were there, but upwards of
9 400 tanks, so 400 400-barrel tanks.

10 Q. So millions of gallons of water?

11 A. Yep.

12 Q. And are these pits, these multi-well fluid
13 management pits intended to hold that much water?

14 A. Twenty acre feet, 30 acre feet, yeah.

15 Q. Twenty to 30 acre feet. Now that I have
16 sort of a better idea of what kind of process is
17 involved, I would like to take a look at the rule
18 itself. Now, you said yesterday your testimony was
19 that these multi-well fluid management pits were
20 meant to be regulated like temporary pits, sort of
21 like temporary pits. They were akin, analogous to
22 temporary pits; is that right?

23 A. Correct.

24 Q. And you noted there were some differences
25 between these multi-well management pits and

1 temporary pits? Could you refresh me about what
2 those were?

3 A. Principally that, one, their size would be
4 larger than ten acre feet or could be larger than
5 ten acre feet; that they are intended to service a
6 plan of development so, therefore, they may have an
7 extended life relative to a temporary pit being
8 beyond a year; that when they are closed, they would
9 be closed essentially removing all of the material
10 or waste that might be left behind, and then
11 completely reclaimed; that they had a leak detection
12 with that double liner system so the inspection not
13 only would focus on the visual inspection of the
14 liner system, the netting, the fencing or anything
15 else that's there but also that the leak detection
16 would be included in that inspection process. I
17 think that's the vast majority of it.

18 Q. Okay. So the rules -- you said that these
19 pits could be bigger than ten acre feet which is the
20 limit on temporary pits; is that right?

21 A. Currently.

22 Q. How much bigger? Is there a limit? Let
23 me rephrase that. Do the rules place a limit on the
24 size of these pits?

25 A. They do not propose a limit on the size.

1 Q. You said that they had leak detection
2 systems. Could you explain to me what those leak
3 detection systems, how those are designed just
4 generally?

5 A. In general, there's two liners. There is
6 some type of piping system that goes underneath it
7 and that there is a media between the two liners
8 that allows fluid, should it seep from the primary
9 liner, that would gather in the leak detection
10 system. But each one is typically site-specific or
11 case by case.

12 Q. So again, as with any liner operation, the
13 efficacy, how good the detection system is, depends
14 on how well the liner is installed; is that correct?
15 If you have a rip in either of the liners as they
16 are installed, you are not going to get a good leak
17 detection system. Is that fair to say?

18 A. No, I think a leak detection system, if
19 there's a rip in the primary liner then the leak
20 detection system should have no problems. If
21 there's a problem with the integrity of the
22 secondary liner system, until the primary liner
23 system fails you don't have to challenge the leak
24 detection system. And --

25 Q. Please finish.

1 A. Part of proper liner installation is the
2 QAQC requirements identified in here as part of
3 manufacturer's specs. It's a performance-based
4 standard.

5 Q. But if both liners happen to be
6 compromised, then that would challenge how good the
7 leak detection system was; is that right? Is that
8 fair to say?

9 A. Conceivable, yes.

10 Q. Okay.

11 A. But it doesn't mean the leak detection
12 system would not detect a leak.

13 Q. These pits, the new rules, the proposed
14 amendments for the Pit Rule, intend for these to be
15 open longer than temporary pits; is that right?
16 Longer than a year?

17 A. Conceivably, yes.

18 Q. Is there any limit on how long they can be
19 open?

20 A. Yes. As soon as all of the wells that are
21 identified in the permit are completed, then the pit
22 is to be closed in six months from then. It's
23 stated in the closure.

24 Q. And how long do these fairly large frac
25 jobs usually last?

1 A. A single frac job doesn't extend more
2 than -- well, the largest ones I have seen with
3 multiple stages extend no more than about a week to
4 two weeks.

5 Q. Is that per well?

6 A. Per well.

7 Q. So a formation might be fracked for as
8 long as 24 months? Is that conceivable?

9 A. To service multiple wells from that and to
10 service those frac jobs it could conceivably be 24
11 months.

12 Q. Longer than that? Multiple wells?

13 A. Well, it depends on such restrictions and
14 resources as drilling -- how long it takes to drill
15 the wells before we can stimulate them.

16 Q. Let me just go back to the pit volume
17 again. Is there any limit on how deep these pits
18 go? So when you say 20 acre feet, you don't
19 necessarily mean that the pit surface area is going
20 to be 20 acres filled to a foot, right?

21 A. Correct. It's not going to be 20 acres.

22 Q. Filled to a foot?

23 A. Filled to a foot. Twenty acre feet of
24 water in one of these pits will conceivably have a
25 surface footprint of about two acres and a depth

1 of -- well, with freeboard, assuming it's a
2 perfectly rectangular or cubicle box, you are
3 talking about two acre feet by 12 feet deep to
4 accommodate 20 acre feet plus freeboard.

5 Q. Could it be deeper than that?

6 A. Yeah.

7 Q. Is there a limit on the depth to these in
8 the regulations?

9 A. Not in the regulations, other than the
10 siting criteria and how close -- or the proximity to
11 depth of groundwater.

12 Q. Let me go to the siting criteria. My
13 understanding of the language in the regulation is
14 that these multi-well management pits have the same
15 siting criteria as temporary pits; is that right?

16 A. That was the intent, yes.

17 Q. So assuming that their contents meet the
18 tables, you could be as close as 25 feet to
19 unconfined groundwater; am I remembering the regs
20 correctly?

21 A. I believe so, yes.

22 Q. And there's not really any sort of spacing
23 in terms of how close the bottom of one of these
24 pits might be to confined groundwater; is that
25 right?

1 A. I would have to go back and look at the
2 siting criteria on that one.

3 Q. Why don't we do that.

4 A. Okay.

5 MR. FELDEWERT: Is there a question?

6 MR. JANTZ: I am giving Mr. Lane a chance
7 to look at the regulation. Have you had that
8 chance?

9 A. I have.

10 Q. Is there any restrictions on distance in
11 terms of confined groundwater?

12 A. No.

13 Q. One last series of questions. You said
14 that, if I recall correctly, that part of the
15 rationale for this multi-well management pit permit
16 was to allow -- rather than asking for a variance
17 for one of these type permits for operations, was
18 that the variance process wasn't a sure thing and
19 that it took a long time; is that correct? Am I
20 remembering your testimony correctly?

21 A. The exception process.

22 Q. The exception process. I'm sorry. Is
23 that right? Was that your testimony?

24 A. My testimony is it can be very lengthy.

25 Q. And there wasn't a guarantee?

1 MR. FELDEWERT: I object. Object to the
2 form of the question. That wasn't part of his
3 testimony.

4 MR. JANTZ: Can we read the record back
5 then? I believe it was at the beginning of the
6 testimony yesterday. Is that possible?

7 COURT REPORTER: Yes, it's possible. I
8 would need to get into yesterday's file and have you
9 help me search for the section you're referencing.

10 CHAIRWOMAN BAILEY: Would you like to
11 rephrase?

12 MR. JANTZ: Sure.

13 Q. For the sake of time, part of it was that
14 it took a long time to do these exceptions; is that
15 right?

16 A. Exceptions, our experience at WPX Formerly
17 Williams Production was that going through the
18 exception process is very lengthy and
19 resource-intensive.

20 Q. Do you expect the permit process to take a
21 shorter period of time?

22 A. Yes.

23 Q. That's all I have. Thank you.

24 CHAIRWOMAN BAILEY: Ms. Gerholt? Would
25 you like to cross-examine the witness?

1 MS. GERHOLT: No questions for the
2 witness. Thank you.

3 CHAIRWOMAN BAILEY: Is Mr. Bruce in today?
4 Mr. Dangler?

5 CROSS-EXAMINATION

6 BY MR. DANGLER

7 Q. My name is Hugh Dangler and I am with
8 State Land Office. I think you have given us the
9 30,000 foot -- we like to say that -- view of this
10 process.

11 A. Okay.

12 Q. How much do you know about horizontal
13 wells?

14 A. I know of them and with my petroleum
15 background what I have read about them. I have not
16 designed them. I have not designed the drilling
17 program and monitored it.

18 Q. I want to ask you a few general questions
19 just to orient ourselves. Isn't it fair to say that
20 horizontal well technology has been developing very
21 rapidly in the last half dozen years?

22 MR. FELDEWERT: Madam Chair, I'm going to
23 object on the grounds that Mr. Lane was not here to
24 testify about horizontal well technology or
25 horizontal drilling. He was here to testify about

1 multi-well fluid management pits in closed
2 modifications, so I think we are getting beyond the
3 scope of the direct.

4 CHAIRWOMAN BAILEY: If he is able to
5 answer then he can answer based on his knowledge but
6 not on his expertise because he was not qualified as
7 a fracking engineer.

8 MR. DANGLER: Thank you, Madam Chair.
9 Thank you, Counsel.

10 A. Could you repeat the question?

11 Q. From your general experience, without your
12 expertise, is it fair to say that there's been a lot
13 of progress and a lot of technological development
14 in horizontal drilling?

15 A. I think that's fair to say.

16 Q. Is it fair to say in Texas they can go as
17 far as five miles now?

18 A. Honestly, that's news to me. I have
19 not -- I wasn't aware of it.

20 Q. Along with this progress in horizontal
21 drilling, there are a lot of new opportunities for
22 oil and gas. Is that fair to say?

23 A. That's what is in the media as well.

24 Q. Great. And along with this is this
25 ability to send a number of different horizontal

1 wells off a single downward shaft; is that fair to
2 say?

3 A. From what I've read, it is possible.

4 Q. And the reason this relates is because you
5 are talking about multi-well fluid containment. Do
6 you see how they relate?

7 A. Forgive me, no. I don't see the
8 relationship between pits that we're talking about
9 and the wells in your question.

10 Q. I am just conceiving of a number of uses
11 for a large body of water that can be recycled and
12 used for fracking.

13 A. That is the intent of one opportunity for
14 these pits, yes.

15 Q. That's right. So you've described one
16 opportunity, which is where you have a number of
17 vertical wells, and I'm describing an opportunity
18 with a single vertical well and a number of
19 horizontal wells.

20 A. Those wells -- all that's represented --
21 if we're talking about the schematic up there, all
22 I'm showing is the surface footprint. Where those
23 wells actually go and how they are drilled, whether
24 they are vertical, directional or horizontal, the
25 intent of this is within the plan of development

1 each of those wells could be configured differently.
2 And the intent is to be able to have sufficient
3 fluids to stimulate those wells.

4 Q. Right. And maybe this is frightening but
5 these are sympathetic questions. I am suggesting
6 there may be a whole other area for this concept
7 that you have that's going to be required. There's
8 going to be a whole other area of multi-fracking
9 operations that are going to require this kind of
10 volume of water. That's all I'm suggesting.

11 A. Okay. I would agree.

12 Q. Thank you. Now, you didn't suggest,
13 although you did suggest in terms of money, do you
14 have any idea what the cost savings is in the
15 industry of having a big volume of water that they
16 can recycle on the sites?

17 A. You know, I have actually not looked at
18 the cost associated with it. I guess from a
19 practical perspective, looking at the efficiencies
20 gained here, we are not filling tanks by trucking
21 water. We could truck water here or we could pipe
22 it here, so you have all of those costs associated
23 with mobilization, demobilization of trucks. Here
24 obviously we have the construction of conceptually
25 one vessel versus multiple vessels if we just kind

1 of conceptually separate those two. So the costs
2 associated with maintaining smaller individual or a
3 tank farm versus this should be substantial.

4 Q. And there's a virtue in this recycling of
5 water because we will use less water for the
6 operations; is that fair to say?

7 A. Yes.

8 Q. That's the implication of recycling?
9 Sounds like we would use the water more than once
10 and that would save some water, would it not?

11 A. Yes.

12 Q. I would like to turn to Page 19 of the
13 Exhibit A, the design of construction. I did hear
14 you testify that these would be double-lined; is
15 that correct?

16 A. That's the intent, yes.

17 Q. I had a little bit of trouble finding the
18 words "double-lined" in the design and construction
19 area. I will point out that I did find a primary
20 liner reference in J-9, which would indicate a
21 double liner and there's also a leak detection
22 system, which I understand requires double-lined,
23 but does it say double-lined in there?

24 A. I will have to look real quick. It does
25 not. I don't see it explicitly spelled out as

1 double-lined.

2 Q. But it is the intention that they be
3 double-lined and this was written with that in mind;
4 is that fair to say?

5 A. That is the intent, yes.

6 Q. Now, the fluids that we're talking about
7 that you're going to be recycling and using for more
8 than one job, would they be considered low chloride
9 or would they be considered a brine type?

10 A. Depends on the source of the water. So if
11 they exceed the low chloride they would have to meet
12 the siting criteria for a non-low chloride system.
13 If they are fresher than that, if the source of the
14 water is fresher than 15 or 15,000 parts per
15 million, then it would allow us to site them to 25.
16 But it's all operationally.

17 Q. So --

18 A. So it depends on the source of water.

19 Q. So would you know going into the
20 permitting phase which kind of water you would be
21 dealing with for the siting?

22 A. Hopefully with a plan of development we
23 would know our source of water, yes.

24 Q. Because that would matter under the
25 testimony that we heard yesterday about the two

1 different kinds of water and the plans for the
2 different siting requirements for those different
3 kinds of fluids; is that right?

4 A. Knowledge of process, yes.

5 Q. And while we're at it, if you would go to
6 that page, Siting Requirements, Page 9 of Exhibit A.
7 Just conceptually to fit these pieces together, you
8 testified on direct that the plan of development
9 might take as much as five years.

10 A. That's correct.

11 Q. And we just had some testimony about two
12 years, and that was also in the range. Have you
13 considered plans of development that might go longer
14 than five years?

15 A. I have not been a part of anything that
16 extends for five years out.

17 Q. There is no limit -- there's no five-year
18 limit in the rule as proposed; is that correct?

19 A. We have not placed the timing restriction
20 on it other than completion of the plan of
21 development.

22 Q. So if an oil company were to develop a
23 certain oil field, might they want to drill and see
24 if they hit before they drill the next well?

25 A. Conceivably, if you are doing that, then

1 you are more in an exploratory phase, and I couldn't
2 conceive of a company building a multi-well fluid
3 management pit just to drill one well and test it.
4 This is after you have pretty much proved up that
5 the potential is there and that the level of success
6 is -- of having successful wells, developing that
7 resource. Now we are looking at how do we come up
8 with a more efficient and effective way to extract
9 or to develop -- to build out that development plan.
10 But to put one or two wells in, we are going to
11 stick with the current technology or the current
12 methodology.

13 Q. And plans or multi-year plans are the best
14 we do when we think about it at that time; is that
15 fair to say? Based on the price, what we think the
16 price is going to be?

17 A. Right.

18 Q. It's very sensitive. So when there's a
19 huge fall in the price of the commodity like there
20 has been in natural gas recently, that could cause
21 your plan to get interrupted? Is that fair to say?

22 A. It's fair to say that a plan of
23 development could get interrupted, yes.

24 Q. So we can conceive of a development plan
25 that might last longer than five years to fully play

1 it out?

2 A. Fair enough.

3 Q. So given that problem, we are really
4 talking about an animal that's somewhere between a
5 temporary pit and a permanent pit, aren't we?

6 A. Fair to say.

7 Q. And that's why the double liner, which is
8 a wonderful idea, and the leak detection to make it
9 extra safe, is in there as well as the volume issue?

10 A. Correct.

11 Q. So you have taken a little bit of that
12 into account. When we go to the siting
13 requirements -- let me ask one more predicate. We
14 are talking about building a big holding area that's
15 going to service as much as a two-mile radius, maybe
16 less depending on the development plan?

17 A. Currently that's how it's conceptually
18 intended.

19 Q. And that's how you presented it, correct?

20 A. Based on what we have planned and my
21 experience with it, yes.

22 Q. Okay. So presumably in that larger
23 radius, you would have a certain amount of freedom
24 in where you cited this large holding pond?

25 A. Correct.

1 Q. More freedom than, say, an individual well
2 pad where you want to put it right there and you
3 want to put the waste disposal pit right next to it;
4 is that fair to say?

5 A. Fair to say.

6 Q. So since you have more freedom and since
7 this could be considered more permanent, why wasn't
8 the definition placed here with permanent pit and
9 have all those distances and all of the reassurances
10 that we have with the distances for a permanent pit?
11 Why was it placed up here with the temporary pit?

12 A. Because in our view, it's more temporary
13 in nature.

14 Q. Would there be some large economic cost to
15 place it down here with the permanent pits, those
16 standards?

17 A. There are additional costs associated with
18 the siting and the studies and everything that's
19 required to permit a permanent pit.

20 Q. Do you have any figures or can you cite
21 any studies about the costs of a permanent pit?

22 A. I haven't permitted a permanent pit.

23 Q. So you wouldn't hazard an opinion about
24 the cost benefit here of the risk versus the cost?

25 A. I have not done an analysis.

1 Q. Would a multi-well fluid management pit
2 with a capacity for 20 acre feet require a permit
3 from the Office of the State Engineer, do you know?

4 A. Depending on its design, it should not.

5 Q. I have no further questions. Thank you
6 very much.

7 CHAIRWOMAN BAILEY: Dr. Neeper.

8 CROSS-EXAMINATION

9 BY MR. NEEPER

10 Q. Thank you and good morning. Would a
11 person such as yourself or a worker for another
12 company with your level of expertise be the person
13 who chooses the site, who would assure that the site
14 of a multi-well pit meets the criteria of the
15 regulation?

16 A. Myself or someone in our permitting group.

17 Q. So you could be the person who says this
18 site meets the criteria?

19 A. Yes.

20 Q. Could you explain why a confined aquifer
21 then should have no setback from your multi-well
22 pit? Would you maintain that it's impossible to
23 contaminate a confined aquifer?

24 MR. FELDEWERT: Madam Chair, I object to
25 this. I think this is beyond the scope of his

1 direct and we do have expert witnesses who will be
2 addressing in more detail the basis for the siting
3 requirements.

4 MR. NEEPER: I would like to respond.

5 CHAIRWOMAN BAILEY: Please.

6 MR. NEEPER: The witness testified that
7 those siting and those decisions are within his
8 authority and his position and within the authority
9 of other persons of a similar position. He has to
10 make the decisions based on his estimate in the
11 field of the situation.

12 MR. FELDEWERT: I don't disagree with what
13 Dr. Neeper said. Mr. Lane testified once we have
14 established what the siting criteria are by way of
15 the rule, then he and others within his company will
16 make the decision as to whether they are in
17 compliance with that rule as well as the members of
18 the Oil Conservation Division to the permitting
19 process. But that's a different question from what
20 the siting requirements should be under the form of
21 the rule. Mr. Lane is not here to testify to that.

22 CHAIRWOMAN BAILEY: I will sustain that
23 objection. Mr. Lane is not testifying for the
24 hydrology of this siting requirement.

25 MR. NEEPER: Very good.

1 Q. Mr. Lane, how would you know whether a
2 site will qualify as having a confined aquifer?

3 A. We would have to go to data that's
4 available or similar studies.

5 Q. Is it correct that the rule requires no
6 inspection of the ground surface when a multi-well
7 pit is closed and the liner is removed unless the
8 leak detection system has indicated a leak?

9 A. That is correct.

10 Q. A primary liner is specified in the rule
11 as meeting at least a particular criteria for its
12 hydraulic conductivity; is that correct?

13 A. Yes.

14 Q. If a liner had that hydraulic conductivity
15 or even something, let us say, that is ten times
16 better, would not the seepage rate be so great as to
17 give you a continuing input of fluid to your leak
18 detection system?

19 MR. FELDEWERT: Madam Chair, I object.
20 This is beyond the scope of his direct. He is not
21 here to talk about liners and hydraulic conductivity
22 of liners.

23 CHAIRWOMAN BAILEY: Will we have a witness
24 who can --

25 MR. FELDEWERT: We certainly will have a

1 witness who can address those.

2 MR. NEEPER: May I address the Chair
3 before the decision is made on the objection?

4 CHAIRWOMAN BAILEY: Please.

5 MR. NEEPER: The witness has stated
6 that -- and described the operation of a leak
7 detection system. A person in his position has to
8 understand whether he is getting a real signal or a
9 false signal out of a leak detection system. In
10 particular, this knowledge impacts whether or not
11 the ground is inspected when the pit is removed and
12 the contents taken away.

13 MR. FELDEWERT: I have no objection to him
14 questioning about how you determine whether there's
15 a leak and whether a leak detection system works and
16 how it works. But I think he was asking a different
17 question when we start going into hydrology
18 conductivity.

19 CHAIRWOMAN BAILEY: Would you like to
20 rephrase your questions so he is capable of
21 answering?

22 Q (By Mr. Neeper) Mr. Lane, do most membranes
23 have some finite seepage rate, however small it may
24 be?

25 A. I'm not an expert at liners, but that's

1 the intent of the design criteria.

2 Q. How can you tell the difference between
3 seepage from a liner that you feel is working
4 correctly and liquid that has gotten into the
5 secondary liner from what we would call a leak or a
6 penetration?

7 A. I can only speculate that one could test
8 the fluid if there was fluid detected in the leak
9 detection system to see if it's comparable to the
10 liquid being stored on the liner.

11 Q. But in either case, the liquid came from
12 the storage above the primary liner, so in either
13 case would it not be the same fluid?

14 A. Not necessarily.

15 Q. I will have to clarify my question. If
16 fluid seeps through a liner it came from the primary
17 contained fluid, did it not? If it seeps through
18 the primary liner, it must be the stored fluid that
19 has seeped through the primary liner? This is not a
20 trick question.

21 A. Well, it is in a sense. But the fluid in
22 the leak detection system -- it is not a guarantee
23 that the fluid in the leak detection system is from
24 the fluid that's stored above it or below it.

25 Q. I understand. That is right. There could

1 be some other path.

2 A. Okay.

3 Q. But if the primary fluid seeped through --
4 if the stored fluid seeped through the primary liner
5 or if the primary liner had a real penetration, in
6 either case the same stored fluid would appear in
7 the secondary liner.

8 A. If there's a breach in integrity of the
9 primary liner then the leak detection system will
10 detect the fluids that were stored on the primary
11 liner.

12 Q. Yes. And how can you tell the difference
13 of that, given the large area of the primary liner,
14 from what might be ordinary seepage through the
15 primary liner?

16 A. Seepage through the primary liner is a
17 failure of the primer liner's integrity.

18 Q. Are you stating that all primary liners
19 then have perfect retention? They do not seep fluid
20 at all just by virtue of their nature?

21 MR. FELDEWERT: Madam Chair, I think we
22 are getting again beyond the scope of his expertise.
23 I think the premise of Mr. Neeper's questions is
24 that there is a seepage component of these primary
25 liners. Mr. Lane is not here to address the

1 circumstances associated with liners. He is here to
2 address the multi-well fluid management systems. It
3 seems to me this is a question best posed to the
4 experts who will be following Mr. Lane.

5 CHAIRWOMAN BAILEY: I will sustain that
6 objection.

7 MR. NEEPER: Very well.

8 Q. Do fracking fluids, particularly the
9 return fluids, contain heavier hydrocarbons or
10 things other than light hydrocarbons and chlorides?

11 MR. FELDEWERT: Madam Chair, I'm going to
12 object here on the grounds that Mr. Lane isn't here
13 to talk what is contained in fracking fluid or what
14 is not contained in fracking fluid. That wasn't the
15 scope of his direct.

16 MR. NEEPER: Madam Chairman, I would like
17 to address the objection.

18 CHAIRWOMAN BAILEY: Please do.

19 MR. NEEPER: Madam Chairman, with witness
20 after witness we hear that the witness is not the
21 expertise in a particular area. Yet, we are trying
22 to get answers that are relevant to the safety of
23 these systems in the field. The restrictions within
24 the proposed rule deal with what is detected. One
25 needs to know whether those quantities, whether

1 those chemicals, are what is to be expected in the
2 pit or whether something else is in the pit that's
3 beyond the regulations. It seems reasonable that
4 the expert on the pit should know what's in it.

5 CHAIRWOMAN BAILEY: I have to agree with
6 you. Please try to answer that.

7 A. Could you repeat the question?

8 Q. Yes. The rule -- I will try to rephrase
9 the question. The rule states certain things that
10 may be detected in the ground under the pit when you
11 remove the liner. The things that appear in the
12 rule as regulated are chlorides and light
13 hydrocarbons up through diesel range. Are there
14 heavier hydrocarbons in a frac pit or are there
15 other chemicals that might not be light hydrocarbons
16 or chlorides? In other words, we know what we might
17 expect in a drilling pit but would the contents of a
18 frac pit contain potentially other chemicals?

19 A. I don't believe that the chemicals in a
20 frac pit would be -- if we are talking the general
21 chemical makeup in the water in a frac pit -- would
22 be any different from the chemical makeup that's
23 currently in temporary pits, workover and drilling
24 pits.

25 Q. So there are not different chemicals

1 returned from the ground then in the fracking
2 process?

3 A. The overall chemical makeup, if we're
4 talking just the chemistry, should be consistent
5 with what we currently see coming out associated
6 with workovers and drilling.

7 Q. You showed a picture of a -- I believe
8 your word was approximately two-acre multi-well pit.

9 A. The surface footprint of that pit was
10 about two acres.

11 Q. And I believe you testified that it had a
12 four-foot fence and netting; is that correct?

13 A. I did not testify to the height of the
14 fence. It had a fence and a netting system on it.

15 Q. So is it within your testimony then that a
16 suitable netting can be maintained over a two-acre
17 pit?

18 A. Netting systems can be designed.

19 Q. The question is: Can they be maintained
20 over a two-acre pit, not whether they can be
21 designed.

22 A. That particular one had one, yes.

23 Q. So then may I infer from that that
24 operators who say it is impossible to maintain
25 netting over much smaller pits must somehow be in

1 error? Is that correct?

2 MR. FELDEWERT: I object. Mr. Lane is not
3 here to testify on the nature of what other
4 operators may or may not be saying or on the factual
5 assumptions behind Mr. Neeper's question.

6 MR. NEEPER: I will rephrase the question.

7 Q. In as much as netting can be maintained on
8 the pit that you have shown, is there any reason why
9 the rule should not simply require netting rather
10 than leaving it somewhat arbitrary saying, "Well, in
11 effect, if it's too difficult you don't have to do
12 it." That is the thrust of the rule.

13 MR. FELDEWERT: I object to the
14 characterization of the rule. Mr. Neeper is
15 characterizing the rule improperly. If we can go to
16 the rule he can ask the question from the rule.

17 MR. NEEPER: I will be pleased to rephrase
18 the question.

19 CHAIRWOMAN BAILEY: Please do.

20 Q. Would you please read the rule requiring
21 netting on multi-well pits.

22 COMMISSIONER BLOOM: Page 14.

23 A. "Netting. The operator shall ensure that
24 a permanent pit, a multi-well fluid management pit
25 or an open-top tank is screened, netted or otherwise

1 rendered non-hazardous to wildlife including
2 migratory birds. Where netting or screening is not
3 feasible, the operator shall, on a monthly basis,
4 inspect for and within 30 days of discovery report
5 discovery of dead migratory birds or other wildlife
6 to the appropriate wildlife agency and to the
7 appropriate division district, office in order to
8 facilitate assessment and implementation of measures
9 to prevent incidents from reoccurring."

10 Q. Thank you. So now we see that the rule
11 would allow an operator not to have netting provided
12 the operator inspects every 30 days and reports the
13 dead wildlife. Given the fact that you have shown
14 that netting is possible and is done on a two-acre
15 pit, is there any reason why the rule should not
16 simply require netting rather than stating well, if
17 it is not feasible, then report the dead wildlife?

18 A. Yes. Netting is proscriptive. It forces
19 us not to look at other alternatives.

20 Q. So it would be acceptable to you then if
21 that situation were deleted from the rule that says
22 if the operator finds it infeasible to do netting?
23 You feel it is always feasible?

24 A. Not always.

25 Q. All right. Can you give us a case where

1 netting is infeasible?

2 A. Well, first of all, netting is intended to
3 screen the pit to keep, in particular, migratory
4 birds and wildlife off the pit. That also assumes
5 that the material, the fluids in the pit, are going
6 to be hazardous to that wildlife and those birds.
7 If the material in the pit isn't hazardous, then why
8 should we restrict the birds from having access to
9 the water? I mean, inspecting the pit and having a
10 bird sitting on it resting and flying off is -- the
11 rule doesn't prohibit that. Putting netting on it
12 restricts that. So it's back to looking at the site
13 and determining whether or not netting is critical.
14 The only purpose for the netting is to protect
15 wildlife.

16 Q. I understand the purpose for the netting.
17 I understand that if it's freshwater the netting
18 shouldn't be needed. That is not an infeasibility.
19 That is a question of whether it's necessary. But
20 is it not true what the rule says is even, let us
21 say, if the water is contaminated, if the operator
22 finds it infeasible in his terms, he doesn't have to
23 use netting?

24 A. I think that's a demonstration that we
25 have to give as part of the permitting process and

1 the design process.

2 Q. Point is made. Thank you. Finally, I
3 will ask about the visible layer of oil. At present
4 I understand from other testimony that it is allowed
5 to have a layer of oil that's approximately 30
6 percent of the area of the pit. In large pits such
7 as the multi-well fluid pits are likely to be, would
8 it be acceptable to specify an area of floating oil
9 rather than a fraction of the pit, in that one-third
10 of a two-acre pit is two-thirds of an acre of
11 floating oil, and it would seem that the operator
12 could confine the oil slick to something smaller
13 than that. Should we not specify a given area
14 rather than fraction of pit?

15 A. I believe the way it's set up makes it
16 easier for an operator or an inspector or anyone to
17 be able to evaluate whether or not there's an
18 exceedance of the standard.

19 Q. I will agree it's easy to determine
20 whether or not you have two-thirds of an acre of oil
21 floating on the pit. I'm questioning whether we
22 should allow that.

23 A. I would think so, yes.

24 Q. We should allow it? Thank you. Finally,
25 I will address your testimony regarding the

1 difficult process you went through in getting an
2 exception. If I am correct, I understood you to say
3 the process took about eight months, and in the
4 process you got two denials, one from the district
5 office and one finally from the OCD in Santa Fe.
6 Did I understand correctly?

7 A. Well, in general, the process was fairly
8 convoluted, but essentially the denial from the
9 district office was a statement that it needed to go
10 to exception. They didn't per se deny it.

11 Q. Very good.

12 A. They said you have to go to exception so
13 it took a fairly long period of time for them to
14 even get to the point of saying, "Your application
15 merits an exception." And then we went through
16 the -- or then it rolled to exception.

17 Q. I will make a statement and then ask the
18 question so that you can argue against the statement
19 if you so choose.

20 MR. FELDEWERT: I object. That's not the
21 proper cross-examination.

22 CHAIRWOMAN BAILEY: We will allow it.

23 Q. If an exception is granted, in effect it
24 at least in part is a change in a rule because other
25 operators should be allowed the same exception; is

1 that not correct? Would that not be expected?

2 A. No. Exceptions are case by case.

3 Q. They are, but by precedent wouldn't it be
4 expected that other operators should have the same
5 privilege if an exception is made?

6 MR. FELDEWERT: Object to the form of the
7 question. I think it's already answered and kind of
8 borders on a legal determination, Madam Chair.

9 CHAIRWOMAN BAILEY: He can answer to the
10 best of his ability.

11 A. Repeat the question, please.

12 Q. I will try to rephrase the question in an
13 attempt to honor the objection as well even though
14 it has been overruled. An exception at least for
15 one operator is a change in the rule. Many, many
16 months of effort go into rule-making. For any
17 reason, should it be easy to get an exception when
18 it is, at least for that one operator, a change in
19 the rule?

20 A. Exceptions, as I read them, are a
21 case-by-case situation. An operator granted an
22 exception in one situation does not guarantee that
23 the operator will receive that exception on further
24 situations.

25 Q. But it is, in effect, at least in that

1 case, a change in the rule; is that not correct?

2 MR. FELDEWERT: Object to the form of the
3 question. Improper predicate and asks for a legal
4 determination as to whether an exception is, in
5 fact, a change in the rule.

6 CHAIRWOMAN BAILEY: He is asking for his
7 opinion.

8 A. It is not a change in the rule. An
9 exception does not change the whole rule. It does
10 not set a precedent. It is specific to that one
11 situation.

12 Q. Thank you. No further questions.

13 CHAIRWOMAN BAILEY: Mr. Fort?

14 MR. FORT: I have no questions. Thank
15 you.

16 EXAMINATION BY THE COMMISSION

17 COMMISSIONER BLOOM: Mr. Lane, thank you
18 for your testimony. I have a number of areas of
19 questions. First I want to talk about rules and
20 then risk and then impact. I want to talk -- I
21 think I will go to rules first. We heard there's no
22 volume limit. I believe in your testimony we hear
23 20 acre feet and later on something between 30 and
24 40 acre feet; is that correct?

25 THE WITNESS: It depends on the

1 application and what we're seeking. There is no
2 volume limit placed in the rule.

3 COMMISSIONER BLOOM: And again, I think we
4 established there's no lifespan limit to the
5 multi-well pit, correct?

6 THE WITNESS: Other than it must -- it is
7 to be closed at completion of a plan of development.

8 COMMISSIONER BLOOM: If the plan of
9 development were to go on ten years perhaps as
10 market forces force it to do, it could go on a
11 period of time?

12 THE WITNESS: They have not placed a limit
13 on it.

14 COMMISSIONER BLOOM: The rules for
15 temporary and permanent pits, do they have
16 instructions on the slope of the sides of the pits?

17 THE WITNESS: I believe they do.

18 COMMISSIONER BLOOM: Do they generally --

19 THE WITNESS: It's generally the angle of
20 repose? It's whatever is stable and that stability
21 is based on soils.

22 COMMISSIONER BLOOM: I believe if we look
23 at the rule we see frequent mention of a two to one
24 and three to one.

25 THE WITNESS: Correct.

1 COMMISSIONER BLOOM: Do you know why we
2 have those suggested slopes?

3 THE WITNESS: They are convenient and it's
4 a general design criteria.

5 COMMISSIONER BLOOM: Convenient. Do they
6 also help the sides of the pit from collapsing?

7 THE WITNESS: They can, yes.

8 COMMISSIONER BLOOM: What would happen if
9 the side of a pit collapsed? How would that affect
10 the liner?

11 THE WITNESS: If you are talking a
12 vertical wall, obviously it would stress the liner.
13 But from the design of essentially almost any pit,
14 you are going to have some slope to those sides.

15 COMMISSIONER BLOOM: Do you think it would
16 make sense to add a stipulation here that we
17 regulate the sides of the slopes of these multi-well
18 pits as we do temporary pits and permanent pits?
19 I'm looking at -- I think it's Page 19, Design.

20 THE WITNESS: The sides of the pit are
21 specified in J-2. "The operator shall construct a
22 pit so that the slope does not place undue stress
23 upon the liner and is consistent with the angle of
24 repose." The angle of repose is dictated by the
25 soils.

1 COMMISSIONER BLOOM: The liners, we are
2 looking at a 20 mil string reinforced LLDPE or
3 equivalent liner material here?

4 THE WITNESS: Yes.

5 COMMISSIONER BLOOM: What do we use for
6 the permanent pits? Is that 30?

7 THE WITNESS: Honestly, I will have to go
8 back. It's 30 or 60 HDPE.

9 COMMISSIONER BLOOM: Do you know if other
10 states that are using multi-well pits, what their
11 liners are?

12 THE WITNESS: I honestly have not looked
13 at their liner designs. I think it's comparable to
14 what we are using certainly, but I don't know that.
15 I have not looked at the specific liner design.

16 COMMISSIONER BLOOM: Madam Chair, can I
17 reference an article from May 6th out of a Midland
18 newspaper? It talks a little bit about large frac
19 pits. I would like to read a little bit of the
20 article.

21 "West Texas is known for its wide open
22 spaces and Permian Basin oil fields are becoming
23 home to wide open frac pits. At 400 feet wide and
24 800 feet long, these pits are more akin to small
25 lakes but Nick Tomlin, vice president for Big D

1 Companies, still prefers the term frac pits.
2 Midland-based Big D builds the pits and then lines
3 them with 30-mil HDPE and two separate layers of
4 eight-ounce geotextile, equipping the pits with leak
5 detection systems and covering them to both prevent
6 evaporation and to protect wildlife, especially
7 migratory birds, attracted to the large body of
8 water.

9 "Tomlin said the linings illustrate how
10 technology has changed in the oil field. 'We're
11 going to heavier liners,' he said. 'We used to use
12 6 or 8-mil, now we're using 30, 40 or even 60-mil
13 liners.'"

14 It goes on to say the ultimate goal of the
15 pits is to allow for more efficient use of water in
16 frac jobs.

17 Twelve million gallons of water
18 corresponds roughly to about a 40 acre foot pit at
19 325,000 gallons per acre foot, right?

20 THE WITNESS: (Witness nods).

21 COMMISSIONER BLOOM: So from that we can
22 see that at least in Texas some folks are using a
23 more robust liner?

24 THE WITNESS: If one is to believe that
25 article, yes.

1 COMMISSIONER BLOOM: I will make that
2 available to anybody that would like it. Does risk
3 increase when volume increases?

4 THE WITNESS: I believe one of the other
5 experts will deal with risk.

6 COMMISSIONER BLOOM: Is there more -- can
7 you say if there's more forces bearing on a -- I
8 will leave that question for a subsequent witness.
9 Finally, I would like to talk about impact. I think
10 this is an interesting point about the multi-well
11 pit. The surface disturbance you showed us here is
12 about a couple acres, Exhibit 7-1. The lake is a
13 couple acres?

14 THE WITNESS: Yeah. That pit there is, if
15 I recall, approximately two acres in surface
16 disturbance.

17 COMMISSIONER BLOOM: And then 7-3, that
18 was 4.5 to five acres?

19 THE WITNESS: That's five acres. It's in
20 that ballpark, yes.

21 COMMISSIONER BLOOM: So in that size pad
22 you could have four or five wells on as you showed
23 in 7-2?

24 THE WITNESS: Actually, currently we are
25 permitted to have as many as ten wells on a

1 two-and-a-half acre pad if we don't have to
2 accommodate all of the stimulation equipment and
3 tankage.

4 COMMISSIONER BLOOM: Is there a limit to
5 the number of pads that one of these multi-well pits
6 can have associated with it?

7 THE WITNESS: No. We have not placed a
8 limit on it.

9 COMMISSIONER BLOOM: Is there anything in
10 current regulation you see that would limit the
11 number of pads?

12 THE WITNESS: Yeah. How many wells you
13 are going to ultimately develop in the play.

14 COMMISSIONER BLOOM: The unit or
15 something?

16 THE WITNESS: The unit or whatever, yeah.

17 COMMISSIONER BLOOM: Could a multi-well
18 pit service multiple units?

19 THE WITNESS: Potentially, if they are
20 under common ownership or common -- under a common
21 operator is what I'm trying to say.

22 COMMISSIONER BLOOM: Is there any limit to
23 distance that you would have between the multi-well
24 pit and the pads?

25 THE WITNESS: I think the limiting

1 distance is more of an engineering issue about your
2 friction losses and everything else associated with
3 moving the fluids from there to stimulate the wells.
4 I can't tell you what that distance is, because if
5 we wanted to move it over greater distances we would
6 have to use larger pipes, more pumps. You know, it
7 becomes a balance between horsepower available or
8 resources available.

9 COMMISSIONER BLOOM: We talked about a
10 couple miles between multi-well pits and the pads?

11 THE WITNESS: I suspect the limit is going
12 to be somewhere -- from what I am told in the
13 Piceance operations up in Colorado, those distances
14 don't get more than about two miles in a radius, if
15 that makes sense.

16 COMMISSIONER BLOOM: Who is in charge of
17 inspecting or making sure that the pipes are in
18 operating condition and operating safely in New
19 Mexico.

20 THE WITNESS: Well, it would be the
21 operations folks, but I don't think -- the
22 inspection that's specified here is related to pits.
23 It has nothing to do with the infrastructure
24 associated with the project.

25 COMMISSIONER BLOOM: So I think we would

1 replace then multiple acres of water tanks with this
2 one multi-well facility as we saw in 7-1, right?

3 THE WITNESS: That's the intent, yeah.

4 COMMISSIONER BLOOM: I think this is my
5 last question. If we can go to 7-2, please. You
6 have trucks there. Would trucks and/or pipes be
7 taking water in and out of the multi-well pit and to
8 the wells?

9 THE WITNESS: Could be either. Something
10 to keep in mind, what's shown up there in that plan
11 of development is a schematic. I'm not aware of a
12 multi-well fluid management pit existing in New
13 Mexico at this time. We certainly, from WPX, we
14 have a project that we are seeking permitting on but
15 we haven't even been able to get to that point. So
16 this is all conceptual at this point. We are trying
17 to provide that mechanism out there.

18 COMMISSIONER BLOOM: Could the multi-well
19 fluid management pit, could that be filled via
20 pipeline from a nearby well?

21 THE WITNESS: Could be, yes.

22 COMMISSIONER BLOOM: You could have pipes
23 going out to the well pads and the return flow would
24 be pipes.

25 THE WITNESS: Yes.

1 COMMISSIONER BLOOM: So you could
2 potentially eliminate trucking in and out?

3 THE WITNESS: That's the intent. That
4 would be the most efficient way. Not only would we
5 be eliminating trucking for hauling water but we're
6 also eliminating all of that move/demove associated
7 with those temporary tanks.

8 COMMISSIONER BLOOM: Is there any -- do
9 you have any information or can you speak to the
10 impact on the environment between having trucks
11 going in and out and having pipe instead? Is that
12 quantifiable? It's probably quantifiable but do you
13 have that data?

14 THE WITNESS: I have not quantified it,
15 no.

16 COMMISSIONER BLOOM: You can see gains for
17 the environment through such a system?

18 THE WITNESS: Yes, I see gains both from
19 an air quality perspective, from a reduction -- if
20 the scenario is elected to use pipes instead of
21 trucks and Williams has built a -- or WPX has built
22 a gathering system for produced water up on another
23 part of our project where we have a unit, we have
24 reduced the traffic which has impacts to wildlife,
25 you know. All of those activities. So there's

1 multiple gains.

2 COMMISSIONER BLOOM: I have one last
3 question. This is my single question. Do you think
4 it makes sense to site a 12, 13 million gallon
5 multi-well pit 100 feet from a sinkhole?

6 THE WITNESS: I certainly wouldn't. But
7 then it depends on what's the cause of the sinkhole.

8 CHAIRWOMAN BAILEY: Commissioner Balch?

9 COMMISSIONER BALCH: Good morning. That
10 was a thorough cross-examination so I only have a
11 couple points to address. The first is more of
12 curiosity. I understand it may not be in your
13 realm. For the San Juan Basin and for your
14 projects, what is the primary source of water for
15 drilling and completions?

16 THE WITNESS: We have used a combination
17 of freshwater where we have gotten water or
18 purchased the right to use water from someone that
19 has water rights, and then also we use our produced
20 water where possible.

21 COMMISSIONER BALCH: What's the ultimate
22 fate of water when you are done with it?

23 THE WITNESS: It's injected for disposal.
24 At least in our operations it's injected for
25 disposal.

1 COMMISSIONER BALCH: Water in New Mexico,
2 of course, is a very important issue and there's a
3 large cost associated with both acquiring it and
4 disposing of it. So besides the economic benefit,
5 being able to reuse the water, could you put some
6 sort of a number on the ability to recycle in a very
7 large multi-year, multi-pad, maybe 40 sets of
8 completions.

9 THE WITNESS: You know, I haven't looked
10 at the economics or been a part of that. I don't
11 think we have even looked at those economics.

12 COMMISSIONER BALCH: Do you think it would
13 be substantial?

14 THE WITNESS: It would be very
15 significant. Freshwater alone, just the purchase of
16 freshwater is a cost that we would not necessarily
17 need to bear.

18 COMMISSIONER BALCH: And the disposal, of
19 course, very expensive?

20 THE WITNESS: Right.

21 COMMISSIONER BALCH: In the current rule
22 and in the proposed modifications, there are two
23 types of pits, temporary and permanent. I think
24 that with multi-well and the number of questions
25 that have arisen for siting size and the protections

1 afforded by them and the environment, do you think
2 it might be appropriate to add a third category that
3 had its own separate criteria from temporary and
4 permanent pits?

5 THE WITNESS: We attempted to do that with
6 the multi-well but trying to -- again, in my
7 thinking it's a temporary pit that has extended life
8 to it, both in size and in life. But the intent is
9 that the pit is not designed for waste disposal as
10 far as permanent disposal of waste.

11 COMMISSIONER BALCH: To me it seems it's
12 not exactly temporary but not permanent. It has a
13 different set of uses than many temporary pits. You
14 are going to have some filtering, maybe salination,
15 maybe chemical additives going into the flow pipes.
16 You have different operations going on there than
17 you would at the temporary pit, yet it's not a
18 permanent pit. So perhaps another set of criteria
19 might make the issue a little easier to resolve.

20 THE WITNESS: We attempted to do that with
21 the way we wrote the rule. It may not have got
22 there, but that's what our intent was.

23 COMMISSIONER BALCH: No further questions.
24 Thank you.

25 CHAIRWOMAN BAILEY: I would like to

1 explore a gray area. If we could all go to Page 38.

2 THE WITNESS: Of the rule?

3 CHAIRWOMAN BAILEY: Yes. No. 8 dealing
4 with the closure of the pit. Are you there?

5 THE WITNESS: Yes, ma'am, I am.

6 CHAIRWOMAN BAILEY: This talks about an
7 operator closing the pit within six months from the
8 date that the operator ceases drilling and
9 stimulation operations on all wells identified in
10 the permit. Could you elaborate on what you mean by
11 the permit?

12 THE WITNESS: The permit for the
13 multi-well fluid management pit, in the application
14 and ultimately in the permit. So if we permit --
15 well, not if. What's proposed in the rule is that
16 this pit would be permitted using a C 144 and that
17 that is an application and ultimately a permit. In
18 there, we would identify those wells or those wells
19 within the plan of development that this particular
20 pit would service. So the permit we are referencing
21 is the pit permit.

22 CHAIRWOMAN BAILEY: Now, the wells on that
23 permit, would they have approved APDs?

24 THE WITNESS: Not necessarily. They
25 wouldn't have all of them.

1 CHAIRWOMAN BAILEY: So they are just
2 future planning reflections of the company's
3 direction?

4 THE WITNESS: We haven't done one of these
5 yet but the intent would be that we would
6 identify -- to design the whole plan of development
7 we would identify the wells that we intend to
8 utilize this pit for.

9 CHAIRWOMAN BAILEY: Okay. Now, you are
10 talking plan of development, which is a term used in
11 unitizations.

12 THE WITNESS: Okay.

13 CHAIRWOMAN BAILEY: Is that the context
14 for your use of the term plan of development?

15 THE WITNESS: I believe it's consistent
16 with -- essentially we have identified all of -- we
17 have identified how we would develop that resource
18 within that plan of development. We have identified
19 a number of wells that we anticipate being required
20 to develop that resource and this would be a
21 component of that entire development.

22 CHAIRWOMAN BAILEY: And we are not talking
23 lease spaces, we are talking unitization is what I'm
24 understanding from you.

25 THE WITNESS: In our scenario it's

1 unitized. Like I said, we haven't done one of these
2 so I'm not sure whether there are other scenarios
3 outside of what Williams and WPX plans that might
4 conceivably be associated with this as well.

5 CHAIRWOMAN BAILEY: And because it is a
6 gray area we need to explore precision in our terms
7 here so that we will all be on the same page several
8 years down the road.

9 THE WITNESS: Yeah.

10 CHAIRWOMAN BAILEY: Plans of development
11 for unitizations can often cover one formation, one
12 development of -- let's just take, for example,
13 shale up in the northwest. And because shale has
14 not been developed on a real common basis up there,
15 units that may encompass those formations for plans
16 of development could last for years and years and
17 years for full development of the unit with plans of
18 development. Hasn't that been your experience?

19 THE WITNESS: It has. I use the term plan
20 of development, but within a plan of development you
21 may identified that within it you're going to need
22 -- let's take the scenario I had up there that you
23 will have 40 wells developed over a particular
24 period of time. This pit may only service a
25 component of that plan of development. Say in the

1 scenario I threw up that actually there's 80 wells
2 and there's actually eight well pads. That
3 multi-well fluid management pit in that scenario is
4 only servicing four of those eight pads, multi-well
5 pads, and only those wells associated with those
6 pads would have been permitted -- conceptually
7 here -- would have been permitted for this pit. So
8 when that part of that plan of development is
9 completed that this pit is identified to service,
10 then the pit would be expected to be closed. So the
11 plan of development may not have been completed.

12 There may be other scenarios where you
13 don't necessarily have a unit but that an operator,
14 instead of having to do the scenario of moving tanks
15 to different areas may want to be able to use this
16 pit conceivably to service a different development
17 where you might have shale development, conventional
18 gas development, even coal development all serviced
19 from this pit. As long as they are identified in
20 the pit permit as those wells to be -- then you
21 establish also -- I think the question is when are
22 we going to close the pit. You can look at that as
23 well.

24 You may not have all the APDs secured at
25 the time, and if we don't secure the APDs, that

1 shortens the life of this particular pit
2 conceivably.

3 CHAIRWOMAN BAILEY: But if the company
4 decides not to drill all wells that are on that
5 permit, at what point does the regulator step in and
6 say, "It's been more than six months since you were
7 drilling the well that used this pit"?

8 THE WITNESS: We did not put in here a
9 temporarily abandoned component or an out of service
10 component time-wise in here. In other words, what
11 you are -- if I understand the question, you are
12 saying should the regulators have the ability to say
13 well, you have stalled your plan of development or
14 at least for the foreseeable future you don't have a
15 need for this pit; therefore, you need to close it.
16 We have not put that component in.

17 CHAIRWOMAN BAILEY: And that's the dilemma
18 of the regulator is when to step in and say this is
19 no longer a multi-well pit, this is a permanent pit?

20 THE WITNESS: Or it's not an active pit,
21 and at that point we are expected to close it. So
22 there may be an inactivation component that needs to
23 be built into this.

24 CHAIRWOMAN BAILEY: Those are all the
25 questions I have. Do you have redirect on the

1 questions that were asked?

2 MR. FELDEWERT: I do.

3 REDIRECT EXAMINATION

4 BY MR. FELDEWERT

5 Q. Mr. Lane, going back to the concerns
6 raised by some of the commissioners, while there is
7 no size or time limit in the current rule, the
8 multi-well fluid management pit at the end of the
9 day will be linked to an approved plan of
10 development, correct?

11 A. That's the intent.

12 Q. So as part of the permitting process under
13 the C 144 and approval of of the development plan,
14 there's going to be opportunities for both the
15 operator and the division to address such things as
16 the scope of the well development plan, in other
17 words how big they are going to allow, correct?

18 A. Correct.

19 Q. There's going to be opportunities to
20 address any concerns over siting?

21 A. Should be, yes.

22 Q. There's going to be an opportunity to
23 address any concerns over the time period for this
24 pit and the size of the pit, correct?

25 A. Correct.

1 Q. And in that circumstance, the way it's
2 structured, those concerns could be addressed on a
3 particular factual scenario that is presented by the
4 operator in the permit?

5 A. Correct.

6 Q. Rather than conceptually?

7 A. At this point it's conceptual.

8 Q. Okay. There was concerns about -- if I
9 look at Page 19 of Attachment A, there was concerns
10 about the reference or having specific words in
11 there stating a double liner. Do you recall that?

12 A. I do.

13 Q. If I look at J-3, and in particular J-9,
14 if an operator is going to design a leak detection
15 system adequate to detect any leak from the primary
16 liner, are you not going to have to have a secondary
17 liner?

18 A. Some type of secondary liner system has to
19 be in place, yes.

20 Q. So while it's not expressed in here,
21 certainly you are going to design one. You are
22 going to have to have an ability to detect any
23 leak --

24 A. That was the intent, yes.

25 Q. Okay. And again, referencing Mr. Neeper's

1 concerns about netting, once you present your C 144
2 here, your proposed permit --

3 A. Our application.

4 Q. That's another issue that can be addressed
5 as part of the permitting process, correct?

6 A. It has to be addressed. We have to make a
7 demonstration that we are protecting public health
8 and the environment.

9 Q. And the same thing -- Commissioner Bloom
10 raised a good question about slope. That's an issue
11 where we have a certain factual scenario, a certain
12 size proposed, a certain depth in which the slope
13 can be addressed as part of the permit process,
14 correct?

15 A. We have to demonstrate that we are meeting
16 the requirement here in J-2.

17 Q. And again, any concerns over the liner, if
18 needed, could be addressed as part of the permit
19 process?

20 A. In the application, yes.

21 Q. Now, there was questions about whether you
22 can -- this is an in between, right? It's in
23 between the temporary pit and the permanent pit?

24 A. It is, yes.

25 Q. In some sense. Is it like a permanent

1 pit, Mr. Lane? I mean, does it serve the same
2 purpose as a permanent pit? What are the
3 differences?

4 A. Probably the biggest fundamental
5 difference between the two is that the multi-well
6 fluid management pit is intended simply to be a
7 storage -- is to provide storage for reuse of
8 stimulation fluids. Permanent pits have a wide
9 range of uses but predominantly they are for the
10 disposal of fluid by evaporation or similar means.

11 Q. And the permanent, it is designed for
12 long-term indefinite storage, correct?

13 A. Indefinite.

14 Q. And it's designed for handling various
15 types of waste, correct?

16 A. There's -- from what I read here, it can
17 handle any type of waste that it's permitted to
18 handle.

19 Q. Okay. So in your opinion, if we are
20 looking at the in-betweeners, is it more akin to a
21 temporary pit or permanent pit, a multi-well fluid
22 management pit?

23 A. As we tried to propose it in the rule,
24 it's more akin to a temporary pit. There again, one
25 of the big fundamental differences is that at the

1 end of its life essentially nothing is to be left
2 behind. We try to minimize its footprint and no
3 waste is to be left in place.

4 Q. And the benefits we get from the
5 multi-well fluid management pit is the reduced truck
6 traffic and the mobilization of equipment, correct?

7 A. Among other things, yes.

8 Q. You have a reduction in the use of water
9 because you are able to recycle water?

10 A. Yes.

11 Q. You have the ability to reduce the total
12 surface footprint?

13 A. Yes.

14 Q. And as you pointed out, at the end of the
15 day nothing is left behind because these are not
16 disposal pits.

17 A. They are not intended to handle any waste
18 disposal, ultimate disposal of waste.

19 Q. Now, you mentioned your problem with
20 the -- or your concerns that you had with the
21 exception process. I just want to clarify a couple
22 things. Number one, that was an effort to get an
23 exception in the way that -- under the terms of the
24 current rule, correct?

25 A. It was under the current rule and I still

1 don't think we needed to go to exception.

2 Q. Okay. But part of the difficulty, if I
3 understand it, Mr. Lane, was that under the current
4 rule the process, and even the ability to obtain an
5 exception or a variance, is really not set forth in
6 any clear fashion.

7 A. It didn't appear clear to me as we went
8 through the process.

9 Q. And the intent of NMOGA's proposed
10 modifications is to clarify the process and clarify
11 essentially the procedures.

12 A. That's what we have intended by the
13 changes in the rule or the proposed changes in the
14 rule.

15 MR. FELDEWERT: That's all the questions I
16 have.

17 CHAIRWOMAN BAILEY: Why don't we take a
18 ten-minute break?

19 (Note: The hearing stood in recess at
20 10:34 to 10:35.)

21 CHAIRWOMAN BAILEY: Mr. Feldewert? You
22 are through with your witness, Mr. Lane?

23 MR. FELDEWERT: I am.

24 CHAIRWOMAN BAILEY: He may be excused.
25 Would you like to call your next witness.

1 MR. CARR: May it please the Commission,
2 I'm going to present our next witness. Yesterday at
3 the beginning of the case I failed to do something
4 that I intended to do. I want to introduce our
5 paralegal, Deb Tupler, who is helping us present the
6 case. Deb is to us like Florene is to you. We've
7 learned if we do what they tell us to do, we get
8 along just fine.

9 We're going to call our last witness --
10 our last witness of the four that is going to
11 explain the text of the rule. We are going to call
12 Jerry Fanning. Jerry, as you will find out, is the
13 chair of the NMOGA committee that developed these
14 changes. He is going to basically identify those
15 matters that have not been addressed by any of our
16 prior witnesses so we will explain all of the
17 proposed changes to the rule. I'm going to be
18 working from some slides and also from Attachment A
19 to our exhibit book which is the red-line copy of
20 the rules so you might want to have that in front of
21 you as well.

22 JERRY D. FANNING, JR.
23 after having been first duly sworn under oath,
24 was questioned and testified as follows:

25 DIRECT EXAMINATION

1 BY MR. CARR

2 Q. Would you state your name for the record,
3 please.

4 A. Jerry D. Fanning, Jr.

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

6 A. Artesia, New Mexico.

7 Q. By whom are you employed?

8 A. Yates Petroleum Corporation.

9 Q. What is your position with Yates Petroleum
10 Corporation?

11 A. I am the environmental coordinator in
12 charge of environmental issues in Texas and New
13 Mexico.

14 Q. As an environmental coordinator, what are
15 your duties?

16 A. I'm to make sure that Yates complies with
17 all state and federal and environmental regulations.
18 I supervise four environmental technicians, field
19 technicians who are basically responsible for their
20 mediation, reclamation of hydrocarbons, chlorides
21 and natural releases.

22 Q. Mr. Fanning, have you previously testified
23 before the New Mexico Oil Conservation Division?

24 A. No, I have not.

25 Q. Could you review your work experience for

1 the Commission?

2 A. From 2001 to the present I worked for
3 Yates Petroleum as environmental coordinator. Prior
4 to that from 1990 to 2001 I worked for the New
5 Mexico Department of Game and Fish as the Pecos
6 Valley Wildlife Area supervisor.

7 Q. Have you received any awards for your
8 environmental work?

9 A. Yes, in 2002 I was awarded the
10 Environmental Merit Award by the New Mexico
11 Department of Energy, Minerals and Natural
12 Resources.

13 Q. Is a copy of your resume included attached
14 behind Tab 8?

15 A. Yes.

16 Q. Are you a member of the industry committee
17 that developed the proposed amendments to the Pit
18 Rule?

19 A. Yes, I was. I served as chair of the
20 NMOGA Pit Rule committee.

21 Q. When was the committee formed?

22 A. We started in 2010 reviewing the
23 recommended modifications to the Pit Rule.

24 Q. Were you also a member of the second
25 committee, the Joint Committee between NMOGA and IPA

1 New Mexico that further proposed revisions to the
2 rule?

3 A. Yes. In 2011 we made a decision to
4 combine some of our forces together with IPANM to
5 look at further concerns that were outside of the
6 NMOGA membership with the IPANM membership and
7 address those also in the rule.

8 Q. Since that time have you been further
9 involved with the development of this proposal?

10 A. Yes, I have.

11 Q. How were you involved?

12 A. We worked on further modifications. We
13 based our comments and recommendations on the
14 various operators and proposed that to OCD in
15 January.

16 Q. As chairman of that committee, are you
17 here to identify and review the remaining revisions
18 that are being proposed to the Pit Rule?

19 A. Yes, I would like to try to do that.

20 Q. Have you prepared exhibits for prepare
21 takings in this hearing?

22 A. Yes.

23 Q. Are they contained in PowerPoint slides?

24 A. Yes, they are.

25 Q. Are hard copies of the exhibits contained

1 in NMOGA's exhibit book?

2 A. Yes, they are.

3 Q. Before we get into the slides, were you
4 present at yesterday's hearing?

5 A. Yes, I was.

6 Q. And were you hearing when it was
7 discovered that there is a discrepancy or a hole in
8 the proposal when we are talking about regulating
9 below-grade tanks and sumps?

10 A. Yes, I was.

11 Q. Could you refer to Page 1 of Exhibit A?
12 Would you review for us -- go to the definition of
13 the below-grade tank and explain how that term is
14 defined?

15 A. Referring to Page 1 under Definition B,
16 "Below-grade tank means a vessel with greater than
17 500 gallon capacity excluding sumps and pressurized
18 pipeline drip traps, installed within an excavation
19 or buried below the surrounding ground surface's
20 elevation. Below-grade tank does not include an
21 above-ground storage tank that is located above or
22 at the surrounding ground surface's elevation as
23 surrounded by berms."

24 Q. This provides the definition of the
25 below-grade tank contains more than 500 gallons; is

1 that right?

2 A. That is correct.

3 Q. What does the definition of sump provide
4 in terms of the capacity? And the definition of
5 sumps is on Page 3.

6 A. If I can I will read the definition. It
7 says, "Sump means a subgrade impermeable vessel that
8 is partially buried in the ground, is in contact
9 with the ground surface or is a collection device
10 incorporated within a secondary containment system
11 with a capacity less than or equal to 500 gallons
12 which remains predominantly empty, serves as a drain
13 or receptacle for de minimis releases on an
14 intermittent basis and is not used to store, treat,
15 dispose of or evaporate products or wastes.
16 Buckets, pails, drip pans or similar vessels that
17 are not in contact with the ground surface are not
18 sumps."

19 Q. When you compare these regulations, is
20 there any regulation under this rule that would be
21 applicable to a below-grade tank that contains less
22 than 500 gallons?

23 A. No, there's not.

24 Q. Have you reviewed the problem with NMOGA?

25 A. Yes, I have.

1 Q. Does NMOGA have a recommended modification
2 to address the problem?

3 A. We believe so. We would like to recommend
4 that the definition of below-grade tank is changed
5 to release the capacity to five barrels.

6 Q. Why did you select five barrels?

7 A. We believe five barrels is addressed under
8 the present NMOGA guidelines for spills and
9 remediation, and five barrels is a minor release
10 under those guidelines.

11 Q. And if you have a spill of less than five
12 barrels, are you required to report that?

13 A. No, you are not.

14 Q. So by changing this definition, would all
15 below-grade tanks be subject to regulation and
16 disclosure of any release in excess of the limits
17 contained in the rules of the Oil Conservation
18 Division?

19 A. We believe that any release above five
20 barrels is a reportable release and we believe this
21 language would solve the issue of not having those
22 regulated vessels with quantities less than that.

23 Q. Would the change you are recommending in
24 the definition result in an overlap or inconsistency
25 with the definition of sump?

1 A. Repeat the question.

2 Q. Does this definition create an overlap or
3 inconsistency with the definition of sump?

4 A. It does, but it differs in the function of
5 a sump.

6 Q. What is the function of the sump?

7 A. It's not intended for permanent storage.

8 Q. Below-grade tank --

9 A. It predominantly stays empty.

10 Q. Could a below-grade tank be used as a
11 sump?

12 A. Yes, it could.

13 Q. Let's go to rest of your testimony.
14 Previous witnesses have discussed permitting,
15 siting, closure, below-grade tanks and multi-well
16 fluid management. What are the topics you plan to
17 discuss today?

18 A. Under which question? I'm sorry?

19 Q. I asked you if you could identify for the
20 Commission the modifications that you are going to
21 cover today.

22 A. I'm sorry, yes. We are going to talk
23 about the permitting and the registration. We are
24 going to talk about design criteria and I'm also
25 going to talk a little bit about operational

1 requirements, about exceptions and variances and
2 permit approval.

3 Q. Let's go to the first slide, which is
4 Slide 9-2. Could you identify this and review it,
5 please?

6 A. Yes. It has to deal with permitting and
7 registration of closed-loop systems and sumps.

8 Q. Are these provisions from the proposed
9 modification to the rule?

10 A. Yes, they are.

11 Q. Would you go to the first slide and review
12 that for the commissioners. Explain what that
13 shows.

14 A. Yes, it shows the excluded from permitting
15 and registration requirements for closed-loop
16 systems. It also talks about the notification or
17 construction or use of closed-loop systems.

18 Q. Now, excluding closed-loop systems from
19 permitting and registration, are we recommending
20 that the OCD not regulate these closed-loop systems?

21 A. No, we are not.

22 Q. What do they require an operator to do if
23 he intends to use a closed-loop system?

24 A. This allows the operators to continue to
25 use the closed-loop systems without obtaining a

1 permit, and we feel like this verbiage also
2 streamlines the process for the operators who are
3 using the closed-loop system. And that permitting
4 at times can be an unnecessary part of paperwork and
5 could also be a stop in the system of getting those
6 systems up and going.

7 Q. Before an operator installs a closed-loop
8 system, are they required to notify the Oil
9 Conservation Division?

10 A. Yes.

11 Q. How do they do that?

12 A. I believe we have a next slide talking
13 about it. We have to do it on a C 101 or C 102 form
14 from the Division or from the BLM.

15 Q. That is the provision set forth on the
16 first slide?

17 A. Yes.

18 Q. Okay. Could you summarize the rules and
19 explain what the rules as modified would require an
20 operator to do who proposes to use a closed-loop
21 system?

22 A. Of course. They have to notify the OCD or
23 BLM. They must use appropriate engineering
24 principles and practices and follow the applicable
25 manufacturer's requirements or equivalent to that.

1 They are not required to stockpile topsoil because
2 no topsoil is being used in a closed-loop system and
3 it's also not subject -- wouldn't be subject to
4 signing requirements.

5 Q. When we come to closure and site
6 reclamation, the requirements for temporary pits, do
7 these also apply to drilling pads and tanks that are
8 used with the closed-loop system?

9 A. As far as closure?

10 Q. Closure and site reclamation?

11 A. Site reclamation? It would not in the
12 case of using a closed-loop system in itself.

13 Q. But when we talk about a temporary pit?

14 A. You would.

15 Q. Do those temporary pits standards also
16 apply when we are enclosing drying pads?

17 A. They do.

18 Q. And these have previously been reviewed by
19 Bruce Gantner; is that correct?

20 A. That is correct.

21 Q. I would like you to go to the definition
22 of temporary pit on Exhibit A, Page 3. Would you
23 read the last sentence for us, please.

24 A. On Page 3 under Temporary Pit, it says,
25 "Temporary pits may be used for one or more wells

1 and located either on-site or off-site of a well
2 drilling location. Any freshwater containment
3 structure such as a pond, pit or other impoundment
4 is not a temporary pit."

5 Q. When we look at the last sentence, there
6 were questions concerning what actually would fall
7 within the purview of that sentence, whether it was
8 treated waters. Is NMOGA prepared to recommend an
9 amendment to that language to hopefully clarify that
10 situation?

11 A. Yes. I think we noted yesterday that
12 Commissioner Bailey had concerns about what kinds of
13 water would be going into those pits, and we felt
14 like it was part of our responsibility to address
15 that and so we tried to do that. How we are doing
16 that is we would like to add language replacing some
17 of that that says so long as it does not include
18 produced water.

19 Q. So at the end of the last sentence you
20 would add the words "so long as it does not include
21 or contain produced water"?

22 A. That's correct.

23 Q. That, you believe, would clarify?

24 A. We believe it would clarify.

25 Q. And produced water is a defined term in

1 the rules?

2 A. It is.

3 Q. Let's go now to temporary pits. I would
4 ask you to turn to Slide 9-3. This slide addresses
5 the determination of groundwater when siting a
6 temporary pit. What is the change?

7 A. What it does change here is in
8 instances -- it says when filing applications for
9 temporary pits we have a determination, a
10 responsibility to determine what the depth the
11 groundwater is based on the data that's generated in
12 several different ways: Through models, cathodic
13 well lithology, published information or other tools
14 as approved by the appropriate division district
15 office. What this is doing is we are trying to
16 address situations where information may not be
17 available, readily available through all of these
18 other examples that we first given. So that's what
19 we are trying to do there, to make sure that we have
20 done everything possible to determine what that
21 depth the groundwater is, because we realize the
22 importance of the siting in relationship to depth of
23 groundwater.

24 Q. When you are trying to determine the depth
25 of groundwater, you may have site-specific data; is

1 that correct?

2 A. Yes.

3 Q. And if you do not, then you would be able
4 to use any of these other methods if approved by the
5 division?

6 A. Yes. And emphasis on those -- that
7 information must be approved by the division
8 district office.

9 Q. Let's go to the next slide, 9-4. What
10 does this change, this recommended change in the
11 rule accomplish?

12 A. Well, the amendment also authorizes the
13 use of standardized plans for pit construction, pit
14 closure, and these plans remain approved until a
15 subsequent plan is required or requested by the OCD
16 office.

17 Q. So that once you have an approved plan, if
18 you are siting another temporary pit you would be
19 able to refer to the plan that's on file instead of
20 developing an individual plan for each individual
21 location?

22 A. That will remain in effect at the district
23 level as an approved plan.

24 Q. If we go to Page 7 of Exhibit A, there are
25 changes that relate to the provisions on how we file

1 closure plans. Could you review the proposed
2 modifications that are set out on that page?

3 A. Sure. The plans submitted with an
4 application or registration are to be filed with
5 appropriate division district office. Not in Santa
6 Fe. This deletes the requirements for filing
7 closure plans under the transitional provisions of
8 the 2008 rule, which has now expired. It also
9 eliminates requirement for filing of other methods
10 for closure on the chance the plan filed does not
11 satisfy the rules' closure standards.

12 The idea we have done for this is that a
13 plan remains in effect until such time that that
14 district division office makes a determination that
15 the plan is no longer an approved closure method,
16 okay? So what we are trying to do then is then we
17 would give the operator the opportunity to submit an
18 alternate appropriate plan to the district division
19 office for approval for that specific site. Before
20 what we had to do is submit a plan along with backup
21 plans, and we felt like this is just unnecessary,
22 which could be not appropriate for the situation at
23 the time the pit is constructed. So we felt like
24 this was a better way to eliminate excess paperwork
25 until the situation arises that requires that type

1 of an action.

2 Q. And the changes here really are just a
3 change in the filing of the closure plan from the
4 Santa Fe office to the district office?

5 A. And also not --

6 Q. An alternative plan --

7 A. Right. Not submitting an alternative plan
8 or plans with the applicant.

9 Q. Let's look at the design criteria and the
10 changes that have not yet been discussed in this
11 section of the proposed rule. I would ask you to
12 refer to what is marked Exhibit 9-5. These are two
13 changes and I think you previously mentioned them,
14 but this is actually the section of the rule that
15 sets them out. Just state what they are.

16 A. Closed-loop system and sumps are not
17 required to stockpile soil because there's not a
18 need. Most of the time the reason for the
19 stockpiled soil is in the instance of a temporary
20 pit. When the pit is removed it's not there
21 permanently, it's removed, then the stockpiled soil
22 is used in the remediation project of the disturbed
23 area.

24 Also the closed-loop systems and sumps are
25 not subject to signing requirements for a couple

1 reasons. For the main reason, closed-loop systems
2 are above-ground systems that would be very
3 difficult for anyone to -- or anything to try to get
4 into that could read a sign, and those are generally
5 manned 24 hours a day during the drilling operation.
6 The sumps, of course, would be considered because
7 they do not hold fluid. They are not designed to
8 hold fluid, and they are also very small in
9 quantity.

10 Q. Let's go to Page 13 of Exhibit A and there
11 are a couple of changes that were not previously
12 discussed in the design specifications. The first
13 is in Section D on Page 13 as relates to fencing.
14 Can you explain that?

15 A. Yes, sir. It changes the wording on
16 below-grade tanks. Fencing shall deter in lieu of
17 the wording that says prevent unauthorized access,
18 and it also states that it requires that fencing
19 requirement apply only to homes, schools and et
20 cetera that are occupied. We feel like this is
21 basically a common sense type verbiage change
22 that -- it's really hard to challenge, I should say,
23 to construct a fence that would prevent anything
24 from getting through it or under it or over it, so
25 we felt like the verbiage of deter was more

1 appropriate for the situation. And also requiring
2 fencing in an area such as homes and schools that
3 are described in the rule, there would not be a need
4 for those types of extensive fencing in areas where
5 there were possibly vacated homes or schools or
6 people would not be present that would present a
7 risk factor there.

8 Q. Now let's move to Page 14. Page 14 we
9 have Temporary Pits, Design and Construction
10 Requirements. Paragraph 2, there's a deletion of
11 the language concerning the slope of the sides of
12 the pits and we have deleted the provision that says
13 two horizontal feet to one vertical foot and
14 replaced it with additional language. Would you
15 explain that?

16 A. Yes. It's a true standard. This is an
17 effort to achieve in the construction of the pit,
18 which Mr. Lane referred to a little bit earlier in
19 his testimony. I just heard that the main idea here
20 is to construct a pit in a manner and also the
21 slopes, to not place any undue stress upon the
22 liner. That's the main focus is we want to do that.
23 So this is an attempt to reach that standard, and we
24 feel like there's a better way to address this.

25 Q. The standard is avoiding undue stress?

1 A. Undue stress. The main idea of the rule
2 is to avoid undue stress upon the liner.

3 Q. Two horizontal feet to one vertical foot
4 is simply an attempt to respect that?

5 A. That is true.

6 Q. What we are using is the true standard
7 instead of one method to get to that standard?

8 A. That's correct.

9 Q. Let's go to Page 15. I direct you to
10 Subparagraph 7 at the top of the page talking about
11 anchoring the edges of liners and it provides "The
12 liner trench shall be at least 18 inches deep" and
13 we are proposing that the language be provided that
14 provides "unless bedrock provides equivalent
15 anchoring." Can you explain that please?

16 A. I think in a situation where you would not
17 be able to go 18 inches per se below the grade to
18 anchor your liner and you did happen to encounter
19 bedrock, the option would be that you could use
20 various methods of anchoring to the bedrock that
21 would provide an equivalent or up to the standard
22 required for anchoring that liner actually to the
23 bedrock itself.

24 Q. When you do that, you could achieve the
25 objective that's properly anchoring the liner by

1 anchoring into the rock itself?

2 A. Exactly.

3 Q. Let's go to Page 17. Mr. Fanning, on Page
4 17, Section H there are changes to the title and
5 some deletions. Could you explain those?

6 A. The title emphasizes the drying pads and
7 we deleted what we did to try to remove some of the
8 redundant language.

9 Q. This is a wording change?

10 A. Just a wording change, no substantive.

11 Q. Let's go to operational requirements, and
12 I would ask you to refer to Slide 9-6.

13 A. This slide speaks to operational
14 requirements, notification of penetration or
15 compromise of the liner integrity pertaining to the
16 notice of leaks or penetration of the pit liners,
17 and that's how that's required pursuant to the
18 release to notify the division office.

19 Q. Changes require that an operator not just
20 notify the division but also initiate a repair?

21 A. That's correct. It requires us to
22 initiate that repair and liner replacement if
23 necessary within 48 hours of the time we notify the
24 district. It also amends the notice requirements in
25 this rule.

1 Q. The amendment to the notice requirement
2 refers to and makes this rule subject to the general
3 requirements of OCD notification rules; is that
4 correct?

5 A. That is exactly why we did that, yes.

6 Q. Would you refer to Slide 9-7 and explain
7 what those notification rules actually are.

8 A. They require immediate verbal notice and
9 timely written notice of a major release and a
10 timely written notice of a minor release in a
11 situation where there's five to 25 barrels or
12 greater than 50 MCF but less than 500 MCF, and these
13 are in accordance also with the present OCD
14 guidelines pertaining to spills, releases.

15 Q. So basically we are making these rules
16 subject to the general release notification rules?

17 A. Right. That's our intention, to conform
18 to all of the notice requirements throughout the
19 rule. We have tried to do that in compliance with
20 general OCD rules to bring that consistency
21 together. Also the notice will be provided in
22 accordance with what SOPA also sets forth in that
23 rule.

24 Q. Now, if we go to Page 22. There is a
25 provision that deletes the requirement in the

1 existing rule to maintain an oil-absorbent boom on
2 the site. That's the deleted Subparagraph 8 towards
3 the bottom of the page. Why is that change
4 recommended?

5 A. The way the rule is written, if in this
6 situation there happens to be a quantity of oil
7 which would occur on the surface of a temporary pit
8 or a multi-use pit, it's required that we
9 immediately remove those quantities and also a boom
10 provides challenges from time to time, as far as
11 being the correct device to use to remove those
12 quantities and there's better ways to do that, such
13 as with a truck, a vacuum truck to suck that
14 quantity off and things like that. Immediately a
15 device that could remove those quantities of oil
16 from the surface and take them properly to dispose
17 of or disposition of those quantities of oil instead
18 of having a boom that has to be handled by other
19 folks that could possibly pose some type of a hazard
20 or a risk to those folks having to do that. It's
21 just there are better ways in the oil field that we
22 remove oil from the surface of water and
23 impoundments. We do it in other situations where we
24 have releases that we do those kinds of things.

25 Q. Is an oil-absorbent boom, in your opinion,

1 unnecessary?

2 A. It's unnecessary. If there's noted
3 visible hydrocarbons on there, the boom would not do
4 anything but just, in my opinion, hamper the process
5 of removing the oil properly and taking it to a
6 proper disposal or disposition site.

7 Q. Let's look at Slide 9-8. This sets out
8 operational requirements for temporary pits. There
9 was a question yesterday about whether or not only
10 fluids would go into one of these pits. Is that
11 addressed by the first sentence here?

12 A. "Disposal of Solids and Completion Fluid
13 in Drilling Pits. Deletion of Requirement for Steel
14 Tank for Hydrocarbon-based Drilling Fluids." That's
15 what the section pertains to.

16 Q. So the rule has been -- the proposed
17 amendment recognizes there will be solids and
18 completion fluids that get into these pits?

19 A. Into temporarily drilling pits, yes.

20 Q. And then explain the reason for deleting
21 the requirement for requiring the completion fluids
22 be in steel tanks, oil-based.

23 A. We believe that the occurrence of a
24 completion fluids in the pits do not pose a risk. A
25 pit, a temporary pit is a short-term residency in

1 the pit, and if it doesn't meet the closure
2 standards once those contents are sampled of the pit
3 before closure, then the closure requirements that
4 pertain to temporary pits, if there's anything there
5 such as high levels of hydrocarbons, then those
6 materials would have to be removed and disposed of
7 at an alternative site. That's the reason we
8 changed it.

9 Q. These fluids, oil-based fluids would have
10 a short-term residency in the pit?

11 A. Yes, they would.

12 Q. And they are going to be removed if the
13 standards are not met in a short period of time?

14 A. If the standards are not met for the
15 siting criteria in the contents of the pits, those
16 contents would have to be removed and disposed of at
17 an alternative site.

18 Q. If the closure requirements are met do you
19 see any risk to human health, the environment or --

20 A. No, I do not.

21 Q. If we look at Page 23 of the proposed
22 revisions, NMOGA has maybe recommended under
23 Subparagraph 2 at the top of the page the
24 phrase "under normal operating circumstances." The
25 proposal would read, "Under normal operating

1 circumstances, the operator shall maintain at least
2 two feet of freeboard for a temporary pit." Maybe
3 the question should be what is an abnormal operating
4 circumstance to which this would apply?

5 A. From time to time in a drilling process,
6 as much technology is applied and as hard as we try
7 to see and plan for unexpected events, there
8 possibly could be what we refer to in the oil field
9 as a kick, which means that we would encounter an
10 unknown section of higher pressures than we
11 anticipated or fluid flows. And that is one of the
12 reasons that a temporary pit is highly important to
13 an operation in the oil field in drilling a well is
14 this would allow a place with a two-foot of
15 freeboard for the fluids to return to. In the
16 situation of a kick, it would refer to something
17 that would be an abnormal situation, a situation
18 that we had not planned for or expected.

19 Q. Let's go to the next subparagraph,
20 Subparagraph 3. Now, there are two changes that are
21 being proposed. First is that the inspection of
22 temporary pits shall no longer be required weekly
23 but monthly. Why is that?

24 A. What we are trying to do here is to make
25 sure that we are being reasonable in the

1 expectations and the operations of what we are doing
2 in the field. There are areas in the northwest due
3 to weather situations that we may not be able to get
4 to in that time. And also we have heard from
5 previous testimony that when we ask for a variance
6 or an exception, sometimes that can take an extended
7 period of time. So with the idea that we recommend
8 monthly inspections, it means that the industry is
9 trying to be more realistic in what we do on a
10 day-to-day basis out there, but at the same time
11 provide a time frame that we feel like still
12 provides protection.

13 Q. Will other witnesses testify to the impact
14 on risk that this change might have?

15 A. Yes.

16 Q. This provision also provides -- or this
17 change in this paragraph, Paragraph 3 on Page 23 --
18 also provides that the operator -- it deletes the
19 requirements that the operator file a copy of the
20 log with the appropriate district office when they
21 close the temporary pit. This is the log that
22 evidences inspection. Why is that change?

23 A. Just another chain of unnecessary
24 paperwork that we feel like if it's required by the
25 division that it's upon the operator's

1 responsibility to produce that documentation so it
2 doesn't keep the operator from having the
3 responsibility of looking after the pit or also
4 documenting what they find at the pit. It just
5 deletes the one step of having to produce another
6 piece of paper at the OCD. If there was something
7 that comes up, then they can request that because it
8 is required we keep that on file.

9 Q. So you maintain it still?

10 A. We maintain it still.

11 Q. You keep it still?

12 A. It streamlines the process.

13 Q. If the OCD wants it, it's available for
14 inspection?

15 A. That's correct.

16 Q. Let's go to Slide 9-9. This slide sets
17 forth another change in the operational requirements
18 and it expands the time for free liquids to remain
19 in the pit from 30 days to 60 days. What's the
20 reason behind this change?

21 A. The 60-day requirement?

22 Q. Yes.

23 A. As I said before, there are areas in the
24 northwest that from time to time due to weather, it
25 makes it difficult for them to be able to get into

1 within that short period of time, the 30-day window.
2 We also have issues as far as equipment
3 availability, such as in the southeast it's very
4 busy. From time to time it's hard for us to get
5 folks out there to take those fluids off.

6 Also the time about asking for a variance
7 or exception to this. Most of the producers and
8 operators that we discussed this rule-making with
9 felt comfortable with that time frame and being able
10 to accomplish the goals of removing those fluids
11 within that time but felt like it was too tight of a
12 window at 30 days to do that. It doesn't say that
13 you can't remove those fluids before 60 days; it
14 just says it gives you an opportunity to work up
15 until 60 days to do that.

16 Q. Mr. Fanning, yesterday there was concern
17 during the presentation of confusion about the
18 timing on how long you had to close a temporary pit.
19 Would you look at the definition of temporary pit on
20 Page 3, Exhibit A or Attachment A. That definition
21 deletes the phrase, pursuant to NMOGA's
22 recommendation, that the pit will hold liquids and
23 deletes the provision "for less than six months."
24 Do you see that?

25 A. Yes, I do.

1 Q. Under the definition of temporary pit
2 then, the time for removing fluids from a pit is no
3 longer set forth in the verbiage, correct?

4 A. Correct.

5 Q. Let's go to Page 37 of the draft. I
6 direct your attention to Subparagraph 5 towards the
7 bottom of the page. Do you see that?

8 A. Yes, I do.

9 Q. What does that provide in terms of the
10 time for the closing of the temporary pit? What
11 does it require?

12 A. It says, "An operator shall close any
13 other permitted temporary pit within six months from
14 the date the operator releases the drilling or
15 workover rig. The operator shall note the date of
16 the drilling or workover rig's release on Form C 105
17 or 103 filed with the division upon the well's or
18 workover's completion. The appropriate division
19 district office may grant an extension not to exceed
20 three months."

21 Q. So although this proposal deletes the
22 six-month provision in the definition, you find it
23 again in this section, do you not?

24 A. Yes.

25 Q. If we look down, we get in the next

1 paragraph, we talk about a drying pad used for a
2 closed-loop system. Again, this sets a time frame
3 of six months for closure following the release of
4 the rig; is that right?

5 A. That's correct.

6 Q. If we go to the next page we find in the
7 multi-well fluid management pit there's a provision
8 for removing fluids six months. This one is
9 discussed earlier tied to the use of the wells
10 identified in the pit; is that right?

11 A. That's correct.

12 Q. Each of these three sections we have just
13 looked at also provides that the district office can
14 grant an extension not to exceed either three months
15 in the terms of temporary pits or six months in
16 regard to the other. Do you see those? Does this
17 pose a problem for operators?

18 A. It does.

19 Q. What is the problem posed by the limit on
20 the extension?

21 A. Well, there's a couple problems. The
22 first problem is when does the time start? The
23 second thing is it may be too short even with an
24 extension.

25 Q. What could cause that? Why might it be

1 too short?

2 A. There's several factors that could pose,
3 as far as the timing, such as stipulations that we
4 have already upon us as an industry as operations in
5 certain areas in compliance with timing steps for
6 wildlife, et cetera, where we are not able to go
7 into an area and do any operations during those
8 periods of time. So what would happen is if
9 something stopped about the same time concurrently
10 with when those stipulations came in, it might make
11 it virtually impossible for us to go in and do that.

12 The other thing is, as I mentioned before,
13 not as much in the southeast as in the northwest,
14 but weather conditions could just be prohibitive to
15 allow an operator to get in and do those kinds of
16 things.

17 Q. Instead of trying in a rule to anticipate
18 every possibility, this rule contains a variance
19 provision, does it not?

20 A. That was the purpose for the variance.

21 Q. How would you recommend that each of these
22 three paragraphs be revised so that they can deal
23 with individual site-specific situations that relate
24 to the closure date?

25 A. Our recommendation would be to delete the

1 language that pertains to anything such as a
2 limitation of six months or three months within the
3 rule and possibly replace that with a variance
4 pursuant to 19.15.17.15 as we describe under the
5 variance system.

6 Q. So how would the last sentence read in
7 each of the rules?

8 A. It would read with the addition of a
9 variance pursuant to that section, 19.15.17.15.

10 Q. So what it would say is the appropriate
11 division district office may grant the variance
12 pursuant to 19.15.17.15?

13 A. That's correct.

14 Q. Would that avoid all of these situations
15 and enable the Oil Conservation Division, if there
16 is weather or closure or something of that nature,
17 to adjust the variance and the time for closure to
18 meet the facts of the situation under the variance
19 provision?

20 A. It would give the operator the opportunity
21 to work with the division, to come up with an
22 agreeable solution to extending the time of removing
23 the fluids.

24 Q. Does NMOGA recommend that the rule be
25 modified in this fashion as to Subparagraphs 5, 6

1 and 8 on Pages 37 and 38 of the draft?

2 A. Yes, we do.

3 Q. Let's go to the next slide, 9-11. Easy
4 slide. What does it provide?

5 A. I don't think that's 9-11.

6 Q. I'm sorry, 9-10?

7 A. No changes in emergency action.

8 Q. Let's go to the next slide. Let's look at
9 Slides 9-11 and 9-12 together, and I would ask you
10 to review for the Commission the proposed exception
11 and variance provisions.

12 A. It actually says, "Exceptions obtained
13 from the Environmental Bureau in Santa Fe. Notice
14 is provided to surface owner and persons who have
15 filed a written request with the division to be
16 notified of the filing of such applications.
17 Variances are obtained from the appropriate division
18 district office and notice is provided to the
19 surface owner."

20 Q. So you have two routes. One is coming to
21 the Santa Fe office for an exception and providing
22 notice to both surface owners and individuals who
23 request to be notified. The variances are at the
24 district level.

25 A. That is correct.

1 Q. And again, notice to the surface owner?

2 A. That's correct.

3 Q. How do you go about obtaining one of
4 these? Let's go to the next slide.

5 A. Okay. As it says in the slide, "the
6 operator may request an exception or variance. If
7 the operator demonstrates that the request provides
8 better or equal protection to the freshwater, public
9 health and safety, livestock and the environment,
10 the Agency shall approve the application within 60
11 days. If there is agency denial or no action in 60
12 days, the operator may request a hearing. The
13 application must meet requirements set out in the
14 modifications concerning notice and contain a
15 written explanation of the needed and justification
16 for the requested variance or modification. If
17 there's an objection to a request for an exception
18 or variance and the director determines the
19 objection has merit, the application may be set for
20 hearing."

21 Q. Has the Oil Conservation Division proposed
22 also a similar section for modification or variance
23 and exception to the rule?

24 A. They are the same.

25 Q. They are exactly the same?

1 A. Yes.

2 Q. Has the Independent Petroleum Association
3 proposed a similar provision concerning exceptions
4 and variances?

5 A. Yes.

6 Q. And are they exactly the same?

7 A. Yes, basically they are the same.

8 Q. Well, do the Independent Petroleum
9 Association proposed modifications address public
10 safety and livestock?

11 A. Well, NMOGA added provisions that require
12 the revised section to also provide that the
13 requested exception is protective of public safety
14 and livestock, and we did this at the request of the
15 cattle growers because that was a concern of theirs.
16 We also provide that when an operator files a
17 request for hearing that the notice be provided to
18 the surface owner of the location of the requested
19 variance.

20 Q. Do you believe that if this provision
21 governing exception to variance is adopted it would
22 avoid some problems like Williams or WPX have
23 experienced in trying to seek an exception?

24 A. Yes, that's our intent.

25 Q. Let's go to Page 47 of Attachment A.

1 There is no slide for this. On this page we have
2 language relating to permit approvals, conditions,
3 denials, revocations, suspensions, modifications of
4 a permit. Would you refer to -- I think we ought to
5 start, Mr. Fanning, with Subpart B. We will go to A
6 afterwards but explain what the proposed changes are
7 intended to do.

8 A. Subpart B, what we are trying to say is
9 within ten business days of receipt of the
10 application, the appropriate division office will
11 rule the application administratively complete or
12 provide written notice of deficiencies to the
13 applicant's signator.

14 Q. What happens if there is no notice of the
15 division within ten business days?

16 A. Then the application will be considered
17 complete.

18 Q. Now, let's go to Part A and see what the
19 second part of this is. Could you review that?

20 A. "The division must act on an
21 administratively complete application within 30 days
22 or application is deemed approved."

23 Q. Now, what is the purpose of this?

24 A. The purpose? The purpose is that we get
25 an answer.

1 Q. Trying to avoid delays?

2 A. Avoid delay.

3 Q. What are you trying to avoid with all of
4 this?

5 A. What we are trying to do is avoid
6 instances such as Mr. Lane spoke about where we were
7 hanging in space for a long time without an answer
8 on what we need to do.

9 Q. How does this proposal from NMOGA differ
10 from the modifications and proposals filed by the
11 Oil Conservation Division?

12 A. We believe that this one gives us a time
13 frame in which we would get a definitive answer to
14 the situation.

15 Q. Did the OCD expand the time frame from ten
16 days to 30 days on the rule of completeness?

17 A. Yes.

18 Q. Instead of deeming an application
19 approved, if we don't hear from the OCD they believe
20 it should be denied?

21 A. That's correct.

22 Q. What's the problem it raises?

23 A. The problem is that when we get to hearing
24 there's a possibility that we have no idea why the
25 application has been denied.

1 Q. And you believe if there's a denial you
2 should know why?

3 A. We would like to know why we are being
4 denied so we could possibly correct the situation.

5 Q. Mr. Fanning, you have the task of trying
6 to kind of pick up the loose ends for everybody
7 here. But if the modifications, the revisions that
8 you have been discussing here today are adopted, do
9 you believe it will make the Pit Rule easier for
10 operators to comply with?

11 A. I sincerely believe that, that that was
12 the underlying reason why we took on this great task
13 is to make it easier for not only the operator and
14 the OCD itself but also to provide an economical
15 benefit to the industry.

16 Q. Would amendment of the rule as proposed
17 result in a more efficient process managing these
18 pits?

19 A. That's our intent and that's what we hope
20 would happen.

21 Q. You're not qualified as an expert?

22 A. No, I'm not.

23 Q. There will be expert witnesses called who
24 can discuss the risk associated with any of the
25 changes?

1 A. That's correct.

2 Q. Your purpose here was to identify the
3 changes?

4 A. That's correct.

5 Q. And speak for NMOGA on the proposed
6 modifications and attempting to address concerns?

7 A. That is correct.

8 Q. Were NMOGA Exhibits 8 and 9 prepared by
9 you or at your direction?

10 A. Yes, they were.

11 MR. CARR: If the please the Commission,
12 at this time we move the admission into evidence of
13 NMOGA Exhibits 8 and 9.

14 MR. JANTZ: No objection.

15 MS. GERHOLT: No objection.

16 MS. FOSTER: No objection.

17 MR. DANGLER: No objection.

18 CHAIRPERSON BAILEY: So admitted.

19 MR. CARR: That concludes my direct
20 examination.

21 (Note: Exhibits 8 and 9 admitted.

22 CHAIRWOMAN BAILEY: I think we should
23 delay cross-examination until after lunch. At this
24 time we will take a break to address any kind of
25 public comments from people who have signed on the

1 sign-in sheet in back so that we are able to have
2 any public comments. No one has signed up for
3 public comments this morning so we will try again
4 this afternoon before we break for the day. We
5 might as well go ahead and have an early lunch and
6 return here by a quarter to 1:00.

7 (Note: The hearing stood in recess at
8 12:40 to 1:45.)

9 CHAIRWOMAN BAILEY: We will go back on the
10 record. Mr. Fanning had just completed his direct
11 testimony and it was time for cross-examination.
12 Ms. Foster, do you have any questions of this
13 witness?

14 MS. FOSTER: I do, Madam Chairwoman.
15 Thank you.

16 CROSS-EXAMINATION

17 BY MS. FOSTER

18 Q. Good afternoon, Mr. Fanning.

19 A. Good afternoon.

20 Q. Just a few quick questions. I would like
21 to direct you to NMOGA Attachment A Page 3, the
22 definition of temporary pit.

23 A. You did say Page 3?

24 Q. Yes, of Attachment A.

25 A. Okay.

1 Q. Looking at that definition, it now has
2 deleted the less than six months and states that it
3 will be closed in less than one year. Do you see
4 that in the definition section there?

5 A. Yes, I do.

6 Q. Could you please give me what would be
7 considered the born-on date for a temporary pit, I
8 guess, for the born-on date? When would your year
9 start effectively?

10 A. That's a good question. We have struggled
11 with that issue on numerous occasions of whether
12 that would be the actual stud date or when the
13 fluids would go in the pit. I'm not sure we have an
14 answer to that.

15 Q. So giving you a hypothetical, if you get
16 your permit, say, January 1, you go out and build
17 the pit location on or about January 1, there is a
18 requirement that you have to get that you basically
19 need to get started before July 1 because you have
20 to close the pit within a year; is that correct?

21 A. Correct.

22 Q. And you also have a six-month provision
23 that's later on in the rule that Mr. Carr pointed
24 to; is that correct?

25 A. That's correct.

1 Q. What was the six-month provision for?

2 A. The six-month provision was for the
3 closure period.

4 Q. Right.

5 A. Yes. Then we also added language that
6 would allow us to ask for a variance to that number.

7 Q. Right. And we will talk about the
8 variance in a second. But the way that the rule now
9 stands, if you start your well, spud your well after
10 June 1, you effectively could put yourself out of
11 that one-year time period, correct?

12 A. That's correct.

13 Q. And what you are saying is you would have
14 to go to the OCD for variance if you are outside of
15 the one-year period?

16 A. The way I understand it.

17 Q. Now, would NMOGA be opposed to adding the
18 language "from the spud date," for example, after
19 the one year, so it would state the pit will be
20 closed in less than one year from the spud date? If
21 you were add that to the definition for clarity?

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

23 Q. Thank you. Now, the variance section,
24 which is Section 17.15 starting on Page 43, I would
25 like to talk to you about that. Now, the language,

1 the definition of exception as variance is new
2 proposed by NMOGA; is that correct?

3 A. That's correct.

4 Q. And a variance means authorization from
5 the appropriate division district office to depart
6 from the requirements of basically the entire Pit
7 Rule, correct?

8 A. That's correct.

9 Q. Now, it also states that -- who has the
10 burden to demonstrate whether a variance is
11 appropriate?

12 A. The operator can apply to the division
13 requesting a variance, okay? It is appropriate that
14 they will approve or disapprove the variance from
15 the district level.

16 Q. So the operator is the one that is
17 applying for the variance?

18 A. That is correct.

19 Q. And, therefore, in Subsection B-2 the
20 operator must demonstrate a list of items there?

21 A. They must show, yes, the reason for
22 requesting the variance. They must demonstrate is
23 that in their request.

24 Q. Now, it states that the operator has the
25 burden of demonstrating the requested variance

1 provides equal or better protection to freshwater,
2 public health and safety, livestock and the
3 environment, correct?

4 A. Correct.

5 Q. Now, where did you get this language, the
6 protection of freshwater, public health and safety,
7 livestock and the environment?

8 A. This is standard language that was used in
9 the prior rule with the exception of livestock. We
10 actually added that upon the request in cooperation
11 with the cattle growers.

12 Q. Now, you do the regulatory work for Yates
13 Corporation, you said?

14 A. Yes.

15 Q. And are you aware of the Oil and Gas Act?

16 A. Yes.

17 Q. And are you aware of the statutory
18 requirements that the OCD has under the Oil and Gas
19 Act?

20 A. Yes.

21 Q. And what is the basic primary statutory
22 responsibility of the OCD?

23 A. Well, I'm not an expert in that but I
24 believe the basis of that is the prevention of
25 waste.

1 Q. And protection of correlative rights?

2 A. And protection of correlative rights.

3 Q. There's also an enumerated section that
4 has, I believe, 22 different authorities of the OCD,
5 correct?

6 A. I'm sorry, but I can't remember all of
7 them.

8 Q. Would reasonable protection of freshwater,
9 would that be one of the responsibilities of the
10 OCD?

11 A. I can't remember that in the Act.

12 Q. How about protection of public health and
13 the environment? Is that one of the requirements?

14 A. I don't remember that in the Act.

15 Q. And are you aware if there's any
16 protection requirements for livestock in the Oil and
17 Gas Act?

18 A. I don't remember that.

19 Q. Now, you said that you were with Game and
20 Fish?

21 A. Yes.

22 Q. If there is a livestock that's hurt out on
23 location, does that come under the jurisdiction of
24 the Game and Fish or the OCD?

25 A. Repeat the question.

1 Q. If there's a complaint about an animal
2 hurt out on the range, does that come out under OCD
3 jurisdiction?

4 A. No.

5 Q. No? Okay. So the word livestock here
6 that you added in B-2 was at the request of the
7 cattle growers, but you don't know if it's an
8 authority given under the Oil and Gas Act?

9 A. That's true.

10 Q. What about public safety?

11 A. I'm not aware of that being in the Act.

12 Q. Demonstration of public safety, what would
13 an operator need to show for a demonstration of
14 public safety?

15 A. In my definition?

16 Q. As you interpret it.

17 A. As I interpret it, I think we would take
18 measures to ensure that the public was given a
19 degree of protection in various ways, depending on
20 the situation and the circumstances.

21 Q. Now, wouldn't that be --

22 A. It's discretionary.

23 Q. Wouldn't that be similar to what would be
24 required by OSHA regs?

25 A. It could be.

1 Q. Now, under section B-3A, the other thing
2 that the operator must do is provide proof of
3 notification to the surface owner of the location,
4 correct?

5 A. That's what it says.

6 Q. Do you know how many times the word
7 "variance" comes up in the proposed NMOGA proposal?

8 A. No, I do not.

9 Q. And are you aware of how many times there
10 is the opportunity for the division to approve an
11 alternative plan?

12 A. No.

13 Q. Which would effectively be a variance,
14 correct?

15 A. I do not.

16 Q. When you say notification to the surface
17 owner, how do you envision notifying the surface
18 owner?

19 A. How do I envision?

20 Q. Yes, under this provision.

21 A. I envision a certified mail possibly.

22 Q. Certified letter?

23 A. Certified letter.

24 Q. So the surface owner?

25 A. Return receipt possibly. Personal contact

1 with documentation.

2 Q. Okay. And what is your time frame in
3 terms of response or notification to that surface
4 owner?

5 A. We don't have that built into that.

6 Q. And which surface owner would you be
7 notifying? Say, for example, you are on BLM land?

8 A. BLM land, we would be notifying the BLM.

9 Q. What about if you were on private land
10 with multiple owners?

11 A. That would be a question that I would have
12 to refer to the Land Department within our own
13 company to answer because we do that on several
14 situations. We have to notify those and I'm not
15 familiar with how we do that process.

16 Q. What about on State Land Office land?

17 A. I would notify the State Land
18 Commissioner's Office.

19 Q. What if there's a grazing in the area you
20 are actually operating on that surface. Would you
21 have to notify that person as well?

22 A. I believe this verbiage says the surface
23 owner of location listed only. It doesn't say
24 anything about the lessee.

25 Q. Now, you spent obviously a lot of time

1 rewriting the rule and working with both IPANM and
2 NMOGA.

3 A. A substantial amount.

4 Q. And wouldn't it be accurate to say that
5 this OCD rule is to establish conduct by an operator
6 as pertains to the OCD in regulating sumps and
7 closed-loop systems?

8 A. Yes.

9 Q. So the relationship that an operator has
10 under this rule is with the OCD; is that correct?

11 A. For the most part, yes.

12 Q. But under this provision, are you not
13 bringing in a surface owner into possible regulatory
14 decision for a variance?

15 A. I don't think it requires approval of the
16 surface owner. I think it only requires
17 notification of the surface owner.

18 Q. Well, what about if the surface owner is
19 notified and they are upset or they want to have
20 some kind of say on what you're asking for in the
21 variance?

22 A. Depends on the situation.

23 Q. So it's a subjective issue?

24 A. Yes.

25 Q. Would that not cause delay to an operator

1 if the surface owner is upset or wants to get
2 involved?

3 A. It has the potential.

4 Q. Now, you are familiar with the Surface
5 Owner's Protection Act?

6 A. Yes.

7 Q. Under the Surface Owner's Protection Act
8 is there not a provision that states that an
9 operator must try to get a surface use agreement
10 with a surface owner?

11 A. That's correct.

12 Q. What happens if they cannot achieve a
13 surface agreement with the surface owner?

14 A. I don't know the details of that.

15 Q. Is there not a bonding provision?

16 A. There a bonding provision.

17 Q. And the bonding provision is in the
18 instance if an agreement cannot be reached between
19 the operator and the surface owner, correct?

20 A. That's what I understand. That's not my
21 expertise. I have limited knowledge of the process
22 but that's what I understand.

23 Q. But getting back to involvement of the
24 surface owner, giving you a hypothetical where you
25 have an operator who has tried to get a surface use

1 agreement with a surface observer, has not been able
2 to do so and had to bond over and has to go ask for
3 a variance, a change in the siting requirement or
4 something under this proposal, do you think that the
5 surface owner would cause any problems for the
6 operator?

7 A. I think it goes back to the same thing I
8 said earlier, that this rule only asks that we
9 notify the surface owner. It doesn't necessarily
10 say we have to have approval, agreement or
11 disagreement with the surface owner.

12 Q. Now, in terms of approval of the variance
13 by your district employee, district office employee,
14 is there a time frame for a response?

15 A. It says they shall approve a variance in
16 60 days under 2.

17 Q. If they don't approve in 60 days what
18 happens to the operator?

19 A. Then the operator may file an application
20 for hearing with the division.

21 Q. How long does it take to get a hearing in
22 front of the division?

23 A. There's not a set time.

24 Q. Not a set time, so there's no end date?

25 A. That's correct.

1 Q. And if you are a small operator, do you
2 have multiple investors generally in your projects?

3 A. We would like to.

4 Q. And wouldn't it be advisable to try to
5 have those multiple investors know when they are
6 going to get the best return on their money?

7 A. We like to do that.

8 Q. Looking at Subsection 17.12, which is
9 under the general specifications, I would like to
10 talk to you about A 4, which is the liner integrity
11 question. Page 22 of NMOGA Attachment A. NMOGA
12 actually changed the language. Previously it stated
13 that the operator shall notify the appropriate
14 division district office within 48 hours of
15 discovery, correct?

16 A. That's correct.

17 Q. And you added the words "shall initiate
18 repair of the damage effectively within 48 hours."

19 A. That's correct.

20 Q. And then you added a provision there to
21 seek a variance.

22 A. Yes.

23 Q. When is it that an operator would be
24 asking for a variance in this provision that you
25 changed?

1 A. I'm not sure.

2 Q. So how is it that an operator would
3 initiate repair? Is that a phone call that you
4 would make to the OCD in notification?

5 A. Generally speaking, just from my
6 experience dealing with spills or releases is that
7 it can be done in a couple of ways: Immediate
8 notification by phone. Also a follow-up with an
9 E-mail or direct conversation with an OCD division
10 representative.

11 Q. So how is that different from just
12 notification the way the rule was previously?

13 A. In saying that to notify the division
14 office within 48 hours of discovery.

15 Q. Versus --

16 A. I think the things that were changed, I
17 think it was just basically a language change where
18 it said that we included the initiate the repair of
19 the damage or the replacement of the liner. All of
20 that in my copy is italicized in blue, within 48
21 hours or seek a variance, and the words "seek a
22 variance" was added to that.

23 Q. Right. I'm asking you why, if initiate
24 repair is basically communicating with the OCD,
25 notifying them under the spill rule if you meet the

1 requirements, why is it that you would need to ask
2 for a variance if you are just initiating repair?

3 A. I'm not sure.

4 Q. Would NMOGA be opposed to taking out "or
5 seek a variance in the appropriate division office"?
6 Let me throw it out and I guess you can think about
7 it.

8 A. I'm not prepared to answer that.

9 Q. Okay. I will talk to counsel afterwards.
10 I have no further questions.

11 CHAIRWOMAN BAILEY: Thank you. Mr. Jantz.

12 CROSS-EXAMINATION

13 BY MR. JANTZ

14 Q. Could I have Slide 9-2? Good afternoon,
15 Mr. Fanning.

16 A. How are you?

17 Q. Well, thank you. So when you are talking
18 about closed-loop systems here, the notification, it
19 says, "Closed-loop systems shall use appropriate
20 engineering principles and practices." Could you
21 tell me what appropriate means? It's not in the
22 definition section, is it?

23 A. I'm sorry, let me ask -- sometimes I have
24 a hard time hearing and I apologize. What was your
25 question about appropriate engineering?

1 Q. In the use of appropriate engineering
2 principles and practices, is appropriate defined in
3 the definition section?

4 A. I do not recall it being defined in there.

5 Q. Could you tell me what appropriate means
6 then?

7 A. The intent of that is that appropriate to
8 the liner manufacturer's specifications.

9 Q. What about for the closed-loop system
10 generally?

11 A. For the closed-loop system?

12 Q. Yes.

13 A. The manufacturer of the closed-loop system
14 would actually have operating standards how to
15 operate that equipment.

16 Q. Basically you go by the user manual
17 essentially?

18 A. That's correct. The way I understand it.

19 Q. Okay.

20 A. I'm not a drilling engineer and I'm not --
21 that's not my expertise but that's the way I
22 understand from just knowing what goes on on the
23 drilling rig.

24 Q. Let's go to the next slide or actually --
25 yeah, the next slide. So this has to do with the

1 information that's put into the permit application
2 for pits. And in lieu of actual site-specific
3 information, this rule would allow for pre-existing
4 information to be used; is that understanding
5 correct?

6 A. Yes.

7 Q. So it could be based on data generated by
8 the models from the operator?

9 A. Yes. It could be from the operator or it
10 could be from a contractor of the operator.

11 Q. Okay.

12 A. But it's provided by the operator, yes.

13 Q. And published information are things like
14 monographs, geological monographs? Is that fair?

15 A. Could be various sources.

16 Q. All you're looking for there is depth of
17 groundwater; is that right?

18 A. That's correct.

19 Q. Doesn't include pre-mining groundwater
20 quality?

21 A. No.

22 Q. Doesn't include pre-mining site-specific
23 soil quality?

24 A. It's possible.

25 Q. If it's already published?

1 A. If it's already published.

2 Q. For that specific site?

3 A. Correct.

4 Q. And for that specific site it doesn't
5 include necessarily information about confining
6 layers or the specific geology of the ground
7 underneath the pit; is that right?

8 A. That would not be specifically -- but it
9 may be part of the information to make that
10 determination.

11 Q. Okay.

12 A. It could be.

13 Q. All right. Next slide, please, 9-4. This
14 has to do with the standardized plan. Is it my
15 understanding that if an operator submits a
16 standardized plan for temporary pits -- for
17 permanent pits, that that plan governs how the
18 operator will build pits throughout that district,
19 assuming he or she sticks to the standardized plan;
20 is that right?

21 A. I do not believe that it applies through
22 the whole district. It would depend on siting
23 qualifications of that particular situation. It
24 possibly could mean that, but it doesn't necessarily
25 mean it would apply through the whole district.

1 There may be different circumstances in different
2 situations where a different type of plan would be
3 required for the construction of that pit, just for
4 general location of where it was.

5 Q. Okay.

6 A. But, you know, for instance if you have
7 hard rock, if you have, you know, just different
8 situations on how you might have to construct the
9 pit differently than what your plant says for that
10 specific site.

11 Q. Is it fair to say that the standardized
12 plan is like the default?

13 A. The standardized plan would be the plan
14 you would use normally in situations unless you had
15 an abstract situation that would require a different
16 plan.

17 Q. So the operator submits a standardized
18 plan to the district. That's the defaults.
19 Anticipating a pit varying from the standardized
20 plan, then you go to the district again?

21 A. Go to the district.

22 Q. What exactly -- how detailed are these
23 plans? What goes into the plan, a standardized
24 plan? Could you give me an example of what a
25 standardized plan might look like?

1 A. I have never done a standardized plan
2 myself so I couldn't answer that question.

3 Q. So going to the next slide, 9-5, the B
4 subsection eliminates the requirement that
5 closed-loop systems are required to stockpile
6 topsoil; is that right?

7 A. That's correct.

8 Q. What happens if you have to level ground
9 to put a closed-loop level on a site? Would you
10 stockpile topsoil in that case for reclamation or
11 not?

12 A. Each individual situation would have its
13 own individual set of circumstances and we would
14 just have to weigh those in the construction of that
15 site.

16 Q. So it would be up to the operator about
17 whether --

18 A. It would be up to the operator whether or
19 not you would utilize the topsoil to do that or not.
20 In reclamation, you would just have to look at all
21 of the different circumstances surrounding that
22 site.

23 Q. Can we go to Slide 9-8, Temporary Pits.
24 Now, I think this is actually in the rules
25 themselves. It talks about undue stress on a liner.

1 The liners are supposed to be installed without
2 putting undue stress on the liner?

3 A. Yes.

4 Q. What does undue stress mean? That's not
5 defined in the definition section, is it?

6 A. Undue stress would be in a situation where
7 you might see protrusions coming from improper
8 installation of having like rocks or other things
9 behind the liner. Also if the liner was not
10 installed correctly it could actually cause a stress
11 on the -- just like you would take a plastic bag or
12 something like that and pull it and see that stress
13 point on it. That's what you want to prevent.

14 Q. So that's sort of a performance standard?

15 A. That's a performance standard, sure.

16 Q. And a lot of these seem to be performance
17 standards like in the fencing section, whatever
18 deters entrance into the pad site, that's a
19 performance standard as well?

20 A. Yes.

21 Q. In terms of anchoring the pit liners, you
22 talk about if you hit bedrock above 18 inches, the
23 liner is supposed to be anchored to the bedrock.

24 A. I believe I stated that it could be.

25 Q. Could be. All right. So let's assume

1 that it is anchored to the bedrock. How are those
2 usually anchored?

3 A. Personally, we have never done that. I
4 have never experienced that. I only know from
5 talking to the liner people how there are
6 possibilities that you could do that.

7 Q. Could you describe what those might be?

8 A. Possibly you could have some type of a
9 rock-type anchor where you would actually bore a
10 hole into the rock and put a device in there that
11 you could actually attach to the liner or put
12 through the liner in some way that would hold that
13 in place. In fact, in operations that would have to
14 go through the liner manufacturer itself and to the
15 standard uses of the liner and how you would install
16 it.

17 Q. So going back to the bedrock situation,
18 assume that you encounter bedrock. Could you even
19 drill a pit in that situation or make a pit?

20 A. It would probably be questionable.

21 Q. That makes sense.

22 A. But I have seen occasions when we did have
23 to do that.

24 Q. How did that work?

25 A. Now, that was under the prior -- that was

1 before Pit Rule 17.

2 Q. That was under old Rule 50?

3 A. Yes, that would before closed-loop systems
4 were thought about in New Mexico.

5 Q. You mentioned in your testimony about the
6 temporary pit closure that the completion fluids in
7 a temporary pit don't pose a risk. How did you
8 arrive at that conclusion? Because you weren't
9 qualified as an expert.

10 A. That's true. The statement made that
11 completion fluids do not pose a risk? The reason I
12 said that was because for the most part, all the
13 fluids will be removed from that pit before closure
14 so they don't pose a risk.

15 Q. Assuming that everything goes as planned?
16 There's no leaks in the liner, the leaks are
17 detected, situations like that?

18 A. That could be a correct assumption.

19 Q. Sure. So let's go to Page 23 of
20 Attachment A in NMOGA Exhibit 1. Subsection 3, you
21 deleted "The operator shall file a copy of the log
22 with the appropriate division district office." You
23 testified that you still have to keep the log; is
24 that right?

25 A. That is correct.

1 Q. You also testified that the purpose of
2 eliminating that provision would be to minimize
3 paperwork? Did I hear that right?

4 A. On the division.

5 Q. On the division. So really wouldn't it be
6 a division thing to testify to?

7 A. They could.

8 Q. Okay. If an operator keeps that
9 information, could somebody from the public get that
10 information?

11 A. No.

12 Q. So I couldn't come to the Yates office and
13 say, "Hey, Jerry, I would love to see your
14 inspection log for your temporary pit such and such
15 well"?

16 A. My suggestion would be for them to go to
17 the district.

18 Q. So the public would have to go to the
19 district to get to you or an operator?

20 A. I'm not an expert but that's the way I see
21 the process working.

22 Q. Okay. So I think that the next line of
23 questioning is going to go to the exceptions and
24 variances. So there's a notice requirement and
25 Ms. Foster talked about this some, a notice

1 requirement to surface owners when an exception is
2 requested; is that right?

3 A. The variance requested -- I believe that's
4 what Ms. Foster asked was in the case of a variance.

5 Q. Is that right that there's notices
6 provided to the surface owner both in terms of
7 exceptions and variances, right?

8 A. Why he.

9 Q. It's my understanding there's not a notice
10 provision for pit closures; is that right? For
11 closure of a pit?

12 A. To who?

13 Q. To a surface owner, I'm sorry.

14 A. Not to the surface owner.

15 Q. So why have the notice to the surface
16 owner in the variance and exceptions section but not
17 the closure section? What's the distinction?

18 A. The distinction is it would be something
19 that would not be a usual practice as described
20 within the rule or possibly within the -- there
21 would be a potential for it to go outside of maybe
22 what the original surface owner agreement was, which
23 might be between the company and the surface owner.
24 There could be. There could be. There are surface
25 agreements between surface owners and companies and

1 for unforeseen circumstances that may happen beyond
2 that. Then it would be behooving to the company to
3 let the surface owner know of that change.

4 Q. Let's go next to Slide 9-12. You say or
5 NMOGA says, "If the operator demonstrates that the
6 request provides equal or better protection for
7 freshwater, public safety, livestock and
8 environment, the Agency shall approve the variance
9 application within 60 days." What's the standard
10 for that? You have to show by what, a preponderance
11 of the evidence, beyond a reasonable doubt? I just
12 want to get a sense of what you envision the
13 standard for providing equal or better protection
14 might be.

15 A. I think it says what it says.

16 Q. How many variances has Yates applied for
17 since the Pit Rule?

18 A. There has not been an opportunity to apply
19 under the present rule.

20 Q. Yates has never done that?

21 A. The present rule doesn't provide for
22 variances. It only provides for exceptions.

23 Q. How many exceptions have you applied for?

24 A. We have not applied for any.

25 Q. You have not applied for any?

1 A. No, we have not.

2 Q. Okay. Let's go to the permit approval
3 information. The Oil Conservation Division proposed
4 changes to the NMOGA amendment; is that right, with
5 respect to Section 16, the permit approval section?

6 A. Yes.

7 Q. And you disagree with those changes; is
8 that right? Is that a fair statement or fair
9 characterization of your testimony?

10 A. May I look at the section?

11 Q. Please.

12 A. What Page are you on?

13 Q. Page 47 of Attachment A, and I believe the
14 OCD's --

15 MS. GERHOLT: On Page 47 of OCD
16 modifications to NMOGA's modifications.

17 A. Do you mind repeating your question?

18 Q. Yes. I wondered if it was a fair
19 characterization of your testimony on direct that
20 you disagreed with the OCD's proposed changes,
21 specifically the change that required an automatic
22 denial if the OCD didn't act on the permit
23 application within 30 days?

24 A. That's correct.

25 Q. The rationale is you wouldn't know why the

1 denial was given?

2 A. That's correct.

3 Q. Couldn't you just ask the OCD to provide a
4 written determination?

5 A. I guess that would be possible.

6 Q. Okay. And if none was given, couldn't you
7 appeal that decision to the Oil Conservation
8 Commission?

9 A. I'm not aware that we could.

10 Q. That is sort of a legal conclusion.

11 A. It is.

12 Q. Regulations will speak for themselves.

13 A. That's not my expertise.

14 Q. Thank you. Appreciate it.

15 CHAIRWOMAN BAILEY: Ms. Gerholt?

16 MS. GERHOLT: May I please sit by
17 Ms. Davidson for this questioning? I have to spread
18 out a little bit.

19 CHAIRWOMAN BAILEY: Yes.

20 CROSS-EXAMINATION

21 BY MS. GERHOLT

22 Q. Good afternoon, Mr. Fanning.

23 A. Good afternoon.

24 Q. How are you doing?

25 A. Fine, thank you.

1 Q. If I could please point you to the OCD
2 witness notebook that I handed you a little bit
3 earlier and draw your attention to OCD Exhibit No. 2
4 and specifically Page 22.

5 A. Okay. I have that page.

6 Q. All right. Drawing your attention to
7 19.15.17.12, Operational Requirements, NMOGA has
8 proposed to initiate repair or replacement of a
9 liner; is that correct?

10 A. That is correct.

11 Q. And according to the exhibit before you,
12 OCD's proposed language requires an operator to
13 repair or replace the liner within 48 hours, does it
14 not?

15 A. I'm sorry, which section are you looking
16 at there in your exhibit?

17 Q. In my exhibit it will be the bubble to the
18 right.

19 A. Okay. That's what I read.

20 Q. Very good, Mr. Fanning. What does NMOGA
21 mean by initiate?

22 A. To begin.

23 Q. Would they begin with a phone call or
24 actually be out on the ground repairing?

25 A. The way I visualize it, it could possibly

1 be both.

2 Q. Would you agree that OCD's language of
3 requiring repair or replacement or seeking a
4 variance if you can't repair or replace within the
5 time frame is clearer?

6 A. Maybe I'm missing something, but I don't
7 see that big a difference.

8 Q. Okay.

9 A. I just don't.

10 Q. If you don't --

11 A. That's just my own observation.

12 Q. Okay. If I could then draw your attention
13 to Page 42 of the Oil Conservation Division
14 exhibits. Page 42 of NMOGA's Attachment A.

15 A. Under Emergency Action?

16 Q. Yes, sir. And specifically Paragraph B.
17 NMOGA has deleted "during an emergency" and has
18 inserted "an emergency pit," is that correct?

19 A. That's correct.

20 Q. And I understand that you are not an
21 attorney and I'm not trying to trick you, but if I
22 could now draw your attention to Paragraph E of the
23 same section.

24 A. Yes.

25 Q. Emergency Pits. And the first sentence

1 states that 19.15.17.14 does not authorize
2 construction or use of an emergency pit as defined,
3 and it should be Subsection G; is that correct? Is
4 that what the sentence states?

5 A. I'm not familiar with Subsection G of
6 Section 14.

7 Q. Of Section 17.7?

8 A. I mean 17.14. I don't have a G on my
9 sheet.

10 Q. That's correct, because it goes on to say
11 Subsection G, 19.15.17.7. Part of what the New
12 Mexico register requires of us is to write things
13 not terribly clear when we are referencing the rule.
14 Nevertheless, I would submit to you that emergency
15 pit is defined in 17.7 G and that definition is "An
16 emergency pit is a pit that is constructed as a
17 precautionary measure to contain the spill in the
18 event of a release."

19 A. Okay.

20 Q. This is one of those odd drafting issues.
21 So within 17.14, Paragraph B NMOGA has inserted the
22 allowance of constructing an emergency pit, but
23 Paragraph E says you can't construct an emergency
24 pit. If I could now have you turn your attention to
25 OCD's exhibit, Page 42, our Paragraph B --

1 A. B as in boy?

2 Q. Yes, sir. You will see that the Oil
3 Conservation Division has reinserted a pit during an
4 emergency. Do you see that?

5 A. I do.

6 Q. Would you agree that by the Oil
7 Conservation Division reinserting that language that
8 it does allow an operator in certain circumstances
9 to actually construct a pit during a course of an
10 emergency, which I would believe is what NMOGA is
11 seeking to do; is that correct?

12 A. That's the way I see that.

13 Q. So just a technical language differential?

14 A. I'm not an attorney. I think that would
15 be between Legal to discuss that language.

16 Q. Very good. Thank you. If I could now
17 draw your attention to Page 43 and it will be Page
18 43 of Attachment A as well as Page had 43 of the
19 OCD's exhibit. They are the same.

20 A. Okay.

21 Q. Specifically drawing your attention to
22 Paragraph B-2, so B as in boy, Paragraph 2. This
23 paragraph requires an operator to make certain
24 demonstrations to the district; is that correct?

25 A. Yes.

1 Q. And one of these demonstrations is that
2 the public is safe; is that correct?

3 A. That is correct.

4 Q. And you have been a member of NMOGA for
5 several years. You have also worked for Yates for
6 several years; is that correct?

7 A. That's correct.

8 Q. Based on your experience, do you know of
9 any operator who does not want the public to be
10 safe?

11 A. No, I do not.

12 Q. Do you believe the inclusion of public
13 safety is a reasonable requirement for the operator
14 to demonstrate?

15 A. The requirement of the operator to provide
16 or to demonstrate?

17 Q. Well, how the language is written is it
18 states that an operator demonstrates to the
19 appropriate division district office. So they would
20 demonstrate that their proposed variance is
21 protective of all of these things, including public
22 safety; that you are not going to be drilling in a
23 schoolyard, for instance.

24 A. You're asking for a personal opinion or
25 industry opinion?

1 Q. Your personal opinion.

2 A. My personal opinion is you are never wrong
3 doing the right thing.

4 Q. And the burden is upon the operator in
5 requesting the variance, correct?

6 A. Yes.

7 Q. If the operator can't prove the variance
8 is protective, the district office won't grant it,
9 yes?

10 A. I would hope the operator had enough sense
11 that if he couldn't do that, he wouldn't even ask.

12 Q. I agree with you.

13 A. Okay.

14 Q. But if the district office denies the
15 variance, the operator has the right to go to
16 hearing, correct?

17 A. That's correct.

18 Q. That's laid out in Paragraph B-3?

19 A. That's correct.

20 Q. Now if I could draw your attention -- just
21 for clarification point, Paragraph B-3, that's the
22 operator's right to hearing for a variance, correct?

23 A. That's correct.

24 Q. And if the operator submits an application
25 for a hearing, they have to follow certain --

1 according to the language of this rule, the last
2 sentence, "In addition to the information required
3 by Subsection A of 19.15.4.8, the application shall
4 also include proof of notification to the surface
5 owner, the location of the requested variance," is
6 that correct?

7 A. That's correct.

8 Q. If I could now draw your attention to Page
9 47. Specifically looking at Paragraphs A and B, and
10 if you have Page 47 in both NMOGA and OCD in front
11 of you.

12 A. I do.

13 Q. I appreciate your patience. If I
14 understood you correctly on direct, you stated
15 NMOGA's purpose in setting forth the time frames was
16 to avoid delays and get answers; is that correct?

17 A. That is correct.

18 Q. Currently Southeast New Mexico is
19 experiencing a boom, is it not?

20 A. Yes, it is.

21 Q. And OCD has two districts in the
22 southeast. We have one in Hobbs and one in Artesia?

23 A. That's correct.

24 Q. Have you had a chance to work with these
25 districts?

1 A. Yes, I have.

2 Q. And in working with these districts and in
3 working with the division generally, have you had
4 the opportunity to submit a C 144?

5 A. No, I do not do that. That's not in my
6 duties.

7 Q. It's not part of your duties?

8 A. Not part of my duties with Yates.

9 Q. Does the current Pit Rule have a provision
10 for multi-well fluid management pits?

11 A. No, it does not.

12 Q. And were you present when Mr. Lane
13 testified there are currently no multi-well fluid
14 management pits within the state of New Mexico?

15 A. I was present when he testified. I don't
16 remember him specifically saying that but I was here
17 when he testified.

18 Q. Do you know of any multi-well fluid
19 management pits within the state?

20 A. No, I do not.

21 Q. And would you say that NMOGA has done its
22 best to set forth your requirements for multi-well
23 pits within its proposed rule? Do you believe that
24 NMOGA has done its best job setting out the
25 requirements?

1 A. Yes, I believe so.

2 Q. But there currently are no multi-well pits
3 in New Mexico so there's no model for the Division
4 to look at currently because there's nothing in the
5 current rule either, correct?

6 A. Model within the State of New Mexico?

7 MR. CARR: I'm going to object. I think
8 we are getting beyond the scope of direct.

9 MS. GERHOLT: I have one follow-up
10 question. It was laying foundation. I will get
11 completely back to the permit rule now.

12 Q. Would it be reasonable that some of these
13 permits might be more complex, that the Division
14 needs additional time to review the permits?

15 A. I do not know.

16 Q. You do not know --

17 A. I do not know.

18 Q. -- if that's reasonable or not?

19 A. I don't know if that's reasonable or not.

20 Q. In addition to the time frames, NMOGA's
21 other change is that they want after a 40-day time
22 period for the application to be approved; is that
23 correct? If there's been no response from the
24 Division?

25 A. Yes.

1 Q. And when Ms. Foster was asking you
2 questions, she spoke of all the duties that the
3 Division has, correct?

4 A. Yes.

5 Q. And one of those is to protect the
6 environment, correct?

7 A. I don't remember that part of it. She
8 said -- as far as the division, as far as the
9 protect correlative rights?

10 Q. Right.

11 A. And prevent waste.

12 Q. And then we have other statutory
13 authorities, correct?

14 A. I think she had 22 of them. I don't
15 remember them.

16 Q. No --

17 A. I think that's what she referred to. I
18 remember her referring to 22.

19 Q. That's correct.

20 A. I do remember that. I'm old but I can
21 remember that.

22 Q. So given that the Division has certain
23 requirements, and if the Division failed to meet the
24 time frames, it would then be the Division who would
25 have to explain to the examiners why they didn't do

1 something as set out in the rule, correct?

2 A. I'm not aware of your process. If you
3 would tell me that was the case, I would assume that
4 would be the case.

5 Q. But given that there's the potential of
6 complexity of permits, that additional time may be
7 necessary?

8 A. That I don't know.

9 Q. And as Mr. Jantz pointed out, there could
10 always be some communication between the districts
11 and the operators?

12 A. There could be.

13 Q. I have no further questions.

14 CHAIRWOMAN BAILEY: Mr. Dangler?

15 CROSS-EXAMINATION

16 BY MR. DANGLER

17 Q. Good afternoon again.

18 A. How are you?

19 Q. Let me just touch the horse that's been
20 beaten a little bit and then get off of it. On Page
21 47, the concept of the 30-day turn-around.

22 A. Yes, sir.

23 Q. Just to take note of some just general
24 facts, you may be aware we have lost something like
25 60,000 State employees and public employees in the

1 last recession, some figure like that. Are you
2 aware of that?

3 A. No, sir, I'm not.

4 Q. And the oil field hasn't been losing
5 people because the oil field is booming but, in
6 fact, state government in New Mexico has shrunk.
7 Are you aware of that?

8 A. Yes. I do not know to what extent but
9 from what I have read, there are less state
10 employees than there were previously.

11 MR. CARR: I don't see how this relates to
12 the direct testimony. Maybe he can connect it for
13 us.

14 MR. DANGLER: May I respond?

15 CHAIRWOMAN BAILEY: Yes.

16 MR. DANGLER: Thank you. I think when a
17 suggestion is made that Administration can turn
18 around a document in 30 days, it does open the
19 question of adequate staffing and that's really what
20 I'm raising.

21 CHAIRWOMAN BAILEY: Objection is
22 overruled.

23 MR. DANGLER: Thank you.

24 Q. So given that there are less staff, is
25 there a suggestion from NMOGA of additional staffing

1 for OCD to try to meet this kind of quick
2 turn-around?

3 A. We are not making that suggestion.

4 Q. Now, if I can go to Page 22, and really
5 this is just one small point, but I was intrigued
6 that NMOGA is suggesting cutting out Point 8, "The
7 operator shall install or maintain on-site an
8 oil-absorbent boom or other device to contain and
9 remove oil from the pit's surface." Do you remember
10 testifying that on direct?

11 A. Yes, sir; I remember that.

12 Q. As I understood your direct testimony, and
13 let me just make sure I understood it, you were
14 saying no, we don't need a boom in a lot of
15 situations. We have other methods of taking care of
16 that problem. Is that fair?

17 A. That is.

18 Q. And I think you mentioned like a truck
19 that might suck the material out. And I have
20 several questions about it just seems like a small
21 thing to eliminate. Do you have any idea what the
22 cost of a boom is?

23 A. No, I do not.

24 Q. Do you know if they can be moved from site
25 to site?

1 A. Yes, they can.

2 Q. Do you have any idea what the transport
3 cost is moving that boom from site to site?

4 A. No, I do not.

5 Q. So you were aware there was kind of a boom
6 shortage in the Gulf accident?

7 A. No, I was not aware of that.

8 Q. Wouldn't surprise you that --

9 A. It would not surprise me considering the
10 magnitude of the release there.

11 Q. In fact, they were working overtime in the
12 companies trying to make booms to supply it?

13 A. I wasn't aware of that.

14 Q. So it might be precautionary -- can you
15 see a precautionary value in having a boom?

16 A. Not really. Different volume.

17 Q. Yes, very definitely different volumes.

18 Are booms at all useful at the site as it is? Are
19 they ever used?

20 A. I do not have permanent knowledge of that.

21 Q. Okay. So it might be that a boom is
22 useful under certain circumstances?

23 A. It was in the situation of the Gulf spill.

24 Q. Besides the question of cost, which I
25 wonder in a cost method analysis how much it cost, I

1 thought the point that you were making is you could
2 do other things besides use a boom to clean this up.

3 A. Yes.

4 Q. And I'm drawing your attention to this
5 language not as a lawyer but just as a regular human
6 being. Doesn't it appear that it says "or other
7 device besides boom" in the language as it's
8 written?

9 A. Yes, it does.

10 Q. Okay. So wouldn't that allow you to have
11 an explanation of another device that you use
12 on-site like a truck?

13 A. I think the key phrase is that it says "a
14 boom or other device that the operator shall
15 install."

16 Q. As I understand it -- again, I'm not
17 messing with you too much -- it says "shall install
18 or maintain on-site," doesn't it? So isn't --

19 A. The deleted language says, "The operator
20 shall install or maintain on-site an oil-absorbent
21 boom or other device to contain and remove oil from
22 the pit's surface," which to me implies that
23 whatever you do, you have to have that on-site at
24 all times.

25 Q. Yes, it does imply there has to be

1 something on-site: A mop, a bucket, some device to
2 contain or maintain that would meet that in at
3 inspection, right?

4 A. I'm not sure a mop or bucket would be
5 appropriate.

6 Q. Might not be to contain that?

7 A. Might not be.

8 Q. But there is a flexibility in this
9 particular wording, is there not, for you to have
10 alternative methods of containing it?

11 A. On-site.

12 Q. On-site. So is the problem that you don't
13 want to have something on-site?

14 A. I think the situation of having something
15 on-site such as that requires other -- there's other
16 aspects to that such as maintenance of that device,
17 whatever it might be. Or just the sheer fact
18 that -- don't take this in any way wrong because I
19 don't want any of my roughneck friends to throw me
20 in the river, but at the same time it's a very
21 complex operation out there, and to keep track of a
22 device like that, to make sure that it's maintained
23 at all times could have a strong potential of --
24 because it's not something that's used in the
25 everyday operation -- of maybe being misplaced, not

1 being properly maintained and things such as that.

2 There's a potential for that.

3 Q. All of that makes perfect sense to me, and
4 that's why I have a concern that there's a potential
5 that when that's being maintained off-site that you
6 lose a lot of time getting it there and you may
7 suffer additional damage in that period of time.
8 The risk of it. For the same reasons you stated,
9 that there's a risk of having it on-site; is that
10 correct?

11 A. That's a potential.

12 Q. You are not here with a risk assessment on
13 this particular issue or any other that you
14 testified to?

15 A. No, sir, I'm not.

16 MR. DANGLER: No further questions. Thank
17 you.

18 CHAIRWOMAN BAILEY: Dr. Neeper?

19 CROSS-EXAMINATION

20 BY MR. NEEPER

21 Q. Good afternoon.

22 A. Good afternoon.

23 Q. You had your slide -- I believe it was
24 Slide 8. This is a very quick question on that. It
25 shows 17.12 B-1, and I know another witness answered

1 this but I think we want to make the point again.
2 Right at the beginning of the paragraph it says,
3 "Only fluids or solids used or generated." Is it
4 acceptable to you as you represent the rule if that
5 said "only fluids or mineral solids"? What this is
6 doing is totally eliminating buckets, tools and
7 things that I have seen in pits.

8 A. I think that would be acceptable.

9 Q. That's acceptable to you? Thank you. You
10 have also testified on variances and exceptions and
11 a question arose through Ms. Foster's questions.
12 Would an exception or variance, as the wording
13 states from the requirements of 19.15.17, does that
14 imply that a variance would apply to the entire rule
15 or does it imply that a variance applies only to the
16 specific conditions the operator requests?

17 A. Can you repeat the question?

18 Q. Sure. Does the rule as written for
19 exception or variance imply that the operator may
20 depart from all of the requirements of the rule or
21 only from those specific requirements that the
22 operator specifies? What I'm getting at is the rule
23 doesn't say either way.

24 A. I think the operator has the opportunity
25 to request the variance for any part of the rule.

1 Q. But he specifically has to state which
2 part?

3 A. He has to state which part and he has the
4 burden of proof in requesting that variance, that it
5 is equal to or provides more protection than the
6 rule as written.

7 Q. So if the language said that the operator
8 may depart from selected requirements of the rule,
9 that will be acceptable language?

10 A. I'm not sure about that.

11 Q. Could depart then from specified
12 requirements or requirements he specified?

13 A. I'm not sure about that either. I think
14 that's a legal definition.

15 Q. That's a legal question?

16 A. Yes.

17 Q. The point has been made and you don't
18 object to the philosophy?

19 A. I don't object to asking the question.

20 Q. You indicated an item had been discussed
21 between the industry but no settled answer had been
22 arrived at, and that was a spud date of dating the
23 beginning of a well or pit or the date when an
24 operator puts fluid in, not when it rains in but
25 when the operator first puts fluid in?

1 A. That was an unanswered question.

2 Q. Yes. So it is still unanswered even if we
3 made it the date when the operator puts fluid in it?

4 A. That's still unanswered question.

5 Q. Thank you. Finally, throughout the rule
6 the term "used spring" is applied in setbacks. That
7 suggests that unused spring has no setback. Is it
8 in any way necessary for the industry that a spring
9 be used before it merits a setback?

10 A. I don't believe that was within the
11 context of my testimony.

12 Q. You testified on siting, and this is
13 within the siting rule.

14 A. Yes, but I don't think that was within the
15 part of the siting that I testified to. I think my
16 testimony was more specific.

17 Q. That question remains unanswered then?

18 A. Yes.

19 Q. Is there a witness who will answer that?

20 A. Not to my direct knowledge there is not,
21 but I'm not saying that there isn't.

22 Q. No further questions.

23 CHAIRWOMAN BAILEY: Mr. Fort?

24 MR. FORT: I have no questions, Madam

25 Chair.

1 EXAMINATION BY THE COMMISSION

2 CHAIRWOMAN BAILEY: Commissioner Balch?

3 COMMISSIONER BALCH: I have a couple
4 questions. Good afternoon.

5 THE WITNESS: Good afternoon.

6 COMMISSIONER BALCH: Referring back to
7 15.17.12 A-4. I guess this is touched on
8 tangentially on A-4 as well. The removal of
9 notification in A-4 for small breaches --

10 THE WITNESS: I'm sorry? If you can refer
11 to that, it would help me a lot to be able to answer
12 your question.

13 COMMISSIONER BALCH: This is 17.12 A-4.
14 "If a pit liner's integrity is compromised, or if
15 any penetration of the liner occurs above the
16 liquid's surface, then the operator shall initiate
17 repair or replacement within 48 hours." It omits
18 the reporting requirement to the division or
19 district office in this version of it. Then in D- 4
20 --

21 THE WITNESS: B-4?

22 COMMISSIONER BALCH: I think it's D 4.
23 No, I'm referring to something else. Let's stick
24 with A-4. Isn't one of the reasons for notification
25 so that if there's a pattern of problems with a

1 particular pit, that they would be able to observe
2 that pattern? If you're repairing the same pit
3 multiple times in one month and you don't have to
4 report it, could that pose a question about the
5 overall integrity of the pit liner?

6 THE WITNESS: I guess I am having a hard
7 time understanding your question. But I think that
8 the reason that -- I guess I am having a hard time
9 understanding the point of your question. Are you
10 looking for a pattern with a problem there? Is that
11 what you are asking?

12 COMMISSIONER BALCH: I think the division
13 would be interested in observing if there was a
14 pattern of problems with a particular pit. If you
15 are not notifying a division, then how would they
16 know if there's a pattern of problems developing?

17 THE WITNESS: Well, first of all, if the
18 leak occurs above the water line, which I believe
19 that's what it states here, I guess I fail to see an
20 issue with a release occurring because of that. And
21 if a release doesn't occur, then is there a threat
22 from that failure?

23 COMMISSIONER BALCH: Your opinion is the
24 deletion of the notification is because there's
25 really no point?

1 THE WITNESS: Because there's no threat.
2 I hope that answered your question.

3 COMMISSIONER BALCH: I think it did. When
4 we were talking about 17.12 B-2. Under normal
5 operating circumstances you gave the example of a
6 kick which would potentially put the pit out of
7 compliance as far as the freeboard of the pit. I
8 never worked on a rig and I imagine I know what a
9 kick is, but how much of a time span do you
10 anticipate you might have a deviation?

11 THE WITNESS: Anybody's guess.

12 COMMISSIONER BALCH: Could be hours,
13 weeks, months?

14 THE WITNESS: I wouldn't say months. In
15 the situation of a blowout, each situation would be
16 of its own merit. It is an unknown time frame.

17 COMMISSIONER BALCH: I would like to go
18 back to the question Mr. Jantz raised on 17.11B,
19 stockpiling of topsoil. This is hopefully something
20 that you can educate me on. For lesser impacts such
21 as leveling the ground to move in your closed-loop
22 system or even building a road or a pad, is there
23 any other protection or any other regulations that
24 already address returning the surface to a natural
25 state and maybe the Surface Owner's Protection Act

1 or another regulation?

2 A. With the BLM there is.

3 Q. How about with the State?

4 A. With the State Land Office, I'm not -- let
5 me qualify that answer. Their standards have been
6 changed and what they have been requesting to be
7 done on-site has been changing as far as reclamation
8 of those sites. So it's an evolving process right
9 now.

10 Q. For private land it would be --

11 A. Private land has to do with the agreement
12 with the surface owner. We also in New Mexico, as
13 you are well aware of, we have a split of state
14 issues where we may have federal minerals and
15 private surface and those become challenging from
16 time to time in reclamation because you may have an
17 agreement with the surface owner and BLM may ask you
18 to do something else, so that requires everybody to
19 kind of come to the table and come to an agreement
20 on that.

21 COMMISSIONER BALCH: Thank you. I think I
22 would like to return, if you don't mind to my first
23 question.

24 THE WITNESS: That's okay.

25 COMMISSIONER BALCH: That was having to do

1 with breaks in the liner above the water line.

2 THE WITNESS: Above the water line. Okay.

3 COMMISSIONER BALCH: Is that above the
4 freeboard line or above any water line that could be
5 in the pit? For example, if the pit was half full,
6 the water line could be seven feet from the top of
7 the line?

8 THE WITNESS: Yes, that's correct.

9 COMMISSIONER BALCH: If it was full it
10 could be two feet?

11 THE WITNESS: That's correct.

12 COMMISSIONER BALCH: So a break in the
13 liner at four feet in a half-full pit could in the
14 future or likely would be in the future underwater?

15 THE WITNESS: There's potential for that
16 to happen. Yes, there is. That's why the
17 requirement that we built into the rule to
18 immediately address and repair, to prevent an
19 unwanted release to happen.

20 COMMISSIONER BALCH: Would you be
21 comfortable notifying the division in cases where a
22 penetration of the liner occurred below the
23 freeboard? Above the water line? Say above the
24 freeboard.

25 THE WITNESS: I'm not prepared to answer

1 that question right now.

2 COMMISSIONER BALCH: Thank you.

3 CHAIRWOMAN BAILEY: Commissioner Bloom?

4 COMMISSIONER BLOOM: I just want to go
5 back and clarify something. On Page 1, Below-grade
6 Tanks, the suggestion there is to change the 500
7 gallon capacity to five barrels?

8 THE WITNESS: That's correct.

9 COMMISSIONER BLOOM: Page 14 of Attachment
10 A, if you would look at the proposed changes here.
11 "The operator shall design and construct a temporary
12 pit with slopes no steeper than two horizontal feet
13 to one vertical feet." We'll change that to read,
14 "do not place undue stress upon the liner and are
15 consistent with the angle of repose." Can you
16 explain to me -- just start from the beginning -- on
17 why you want to change this?

18 THE WITNESS: The main reason for changing
19 it is I think to make sure that we have -- if you
20 don't mind me referring back to my notes, but let me
21 look at that real quick.

22 COMMISSIONER BLOOM: Sure.

23 THE WITNESS: That we maintain the
24 integrity of the liner. And that we have that
25 consistency there. How the liner is anchored.

1 Really what's our goal here? Our goal is to make
2 sure that the liner stays intact. So if there are
3 other ways that we can do that and still accomplish
4 the goal of ensuring the integrity of the liner,
5 then that should be acceptable practice.

6 COMMISSIONER BLOOM: Is it more expensive
7 to have a less steep side? Is it cheaper to have a
8 sheer bank?

9 THE WITNESS: (Witness shakes head.)

10 COMMISSIONER BLOOM: No?

11 THE WITNESS: That I can't -- that I do
12 not know, let me state that.

13 COMMISSIONER BLOOM: Do you think that
14 maintaining the two to one ratio might make it
15 easier if there's ever a disagreement as to whether
16 the liner is properly installed? Somebody can go
17 out and see that there's clearly a two to one ratio
18 and it's not subjective?

19 THE WITNESS: I understand your line of
20 questioning. I think the other part of that is that
21 there could also be a discretion of whether or not
22 is that really two to one or is it one and
23 three-quarters or is it one and a half, and it
24 becomes a discretion when really what we are trying
25 to do is accomplish a goal of maintaining the

1 integrity of the liner where it does not leak. So
2 in different situations, as we have mentioned here,
3 the possibility of alternative ways of doing that,
4 of anchoring that liner, is available to us to do
5 that as long as we know that we are not placing
6 undue stress upon the liner.

7 And I might expound on that slightly. As
8 an operator, we most certainly have a vested
9 interest in making sure that our liners are
10 installed properly for various reasons, and we don't
11 want to expose ourselves that way, so I, as an
12 operator, would not want to go out and install a
13 liner improperly knowing that I would have problems
14 down the road. This gives us the flexibility to do
15 other things outside of a two to one that would also
16 show equal or greater protection as far as the
17 integrity of the liner.

18 COMMISSIONER BLOOM: You don't think it
19 would be easier to figure out the geometry and
20 figure out the two to one slope versus having a
21 disagreement with somebody on whether there's a
22 penetration or there's a rock sticking out too far
23 or roots coming in?

24 THE WITNESS: Like I said, the proper
25 installation is the goal and to not place stress on

1 the liner.

2 COMMISSIONER BLOOM: Okay.

3 THE WITNESS: There may be other ways to
4 do that. That was our goal in putting this language
5 in.

6 COMMISSIONER BLOOM: Okay. Page 15, No. 7
7 up above. It talks about anchoring, and the
8 addition there would be, "Unless encountered bedrock
9 provides equivalent anchoring." When I read that
10 closely, I'm not sure that actually says you have to
11 anchor it into the bedrock. It could just be left
12 there. Do you read it that way?

13 THE WITNESS: The way I read it says
14 unless bedrock provides equivalent anchoring. I
15 think what that means is if that liner can be
16 anchored with that bedrock or in association with
17 the bedrock, it would provide appropriate anchoring
18 that would not put undue stress upon the liner.

19 COMMISSIONER BLOOM: Do you think we could
20 make it clearer by saying the anchor trench shall be
21 at least 18 inches deep or anchored into bedrock
22 that provides equivalent anchoring?

23 THE WITNESS: I think the language that we
24 have addresses it properly.

25 COMMISSIONER BLOOM: I also have some

1 questions related to Page 22 about the absorbent
2 boom. The booms I remember seeing from the
3 Deepwater Horizon spill, certainly I have never seen
4 those. Can you describe what the booms look like
5 that you used?

6 THE WITNESS: I have seen several
7 different kinds of things. They are made of
8 different material, different sized diameter,
9 different materials all the way from something that
10 might look like peat moss to cotton. There's all
11 different things.

12 COMMISSIONER BLOOM: Right. I think I
13 have seen ones that are roundish.

14 THE WITNESS: All the ones I have seen are
15 round.

16 COMMISSIONER BLOOM: How are they
17 deployed?

18 THE WITNESS: I have never deployed one.
19 I only know from watching T.V. probably like you did
20 that they roll them out and floated them around on
21 the surface of the water and pulled them with
22 tugboats. I did see that.

23 COMMISSIONER BLOOM: You mentioned that
24 you could have a truck come out and do cleanup as
25 well, but that would be cleanup. Isn't the point of

1 the boom to actually absorb a flow as it's moving
2 and stop it from moving?

3 THE WITNESS: I think it can be used in
4 both ways. It can be used as an absorbent to take
5 up what fluids are there. It can also be used on
6 the surface of a flowing stream or something else to
7 keep it from moving further down the stream, and I
8 think probably in those situations that might be an
9 appropriate application for a boom in a river or
10 somewhere like that or in a large body of water.

11 COMMISSIONER BLOOM: What kind of
12 maintenance does a boom require? It looked pretty
13 static to me.

14 THE WITNESS: They are pretty static.
15 What I perceive happening is that moving from
16 location to location, every 30 days they are going
17 to become torn, they are going to become dirty,
18 lost, misplaced. That's my perception.

19 COMMISSIONER BLOOM: On Page 23, it's
20 continued over. It's No. 1 continued over from Page
21 22, you line out "The operator shall use a tank made
22 of steel or other material" -- hold on. I'm not
23 sure where it was, but I believe there was a
24 proposal to allow hydrocarbon-based fluids in the
25 pit, correct?

1 THE WITNESS: That's correct.

2 COMMISSIONER BLOOM: Do you know if
3 hydrocarbon-based drilling fluids create any risk or
4 do they attack the liner at all, do you know?

5 THE WITNESS: Not that I'm aware of.

6 COMMISSIONER BLOOM: Because at the same
7 time that we are going to put new things in the pit,
8 you are also asking us to extend the life of the pit
9 as well, correct?

10 THE WITNESS: Yes.

11 COMMISSIONER BLOOM: So Page 23 with the
12 logs, you mentioned that the logs would be kept at
13 company headquarters or company office?

14 THE WITNESS: Correct.

15 COMMISSIONER BLOOM: Have we seen a lot of
16 acquisitions recently in oil and gas?

17 THE WITNESS: Yes.

18 COMMISSIONER BLOOM: Occasional bankruptcy
19 as well?

20 THE WITNESS: Not personally I haven't
21 seen that.

22 COMMISSIONER BLOOM: We get a few at this
23 end. That's why I was asking. But is there a
24 chance that during acquisitions or perhaps
25 bankruptcies that these logs could be lost or just

1 filed away somewhere? Would they always be
2 accessible in the case of acquisition or bankruptcy?

3 THE WITNESS: I think there's always the
4 potential for paper to be lost.

5 COMMISSIONER BLOOM: I want to wind it up
6 here. I have a little bit about exception and
7 variances. You mentioned a couple of times that the
8 exception process is slow, but later on in
9 cross-examination you said that Yates had never
10 applied for an exception.

11 THE WITNESS: That's correct.

12 COMMISSIONER BLOOM: I think we both heard
13 Mr. Lane say that he dealt with an exception that
14 took eight months.

15 THE WITNESS: That's correct.

16 COMMISSIONER BLOOM: Is there any
17 testimony you can think of from the past day and a
18 half, yesterday and today that establishes a pattern
19 of slow exceptions?

20 THE WITNESS: Only in those references
21 that were made.

22 COMMISSIONER BLOOM: Do you know if -- you
23 have been working with NMOGA. Do you know if NMOGA
24 has any data on the time that exceptions take?

25 THE WITNESS: I do not have any firsthand

1 knowledge of NMOGA having that information.

2 COMMISSIONER BLOOM: Do you think such
3 information could be useful to us?

4 THE WITNESS: I do.

5 COMMISSIONER BLOOM: Do you think there's
6 a chance we could be provided that information?

7 THE WITNESS: I think there could be a
8 strong chance of providing you with that
9 information.

10 COMMISSIONER BLOOM: Thank you. Finally,
11 on Page 47 with the permit approvals, I won't repeat
12 Mr. Dangler's line of questioning about shrinking
13 workforce or go into some recent newspaper articles
14 that talked about the limited number of inspectors
15 or OCD staff out in the field, but essentially if
16 permits aren't approved -- was it within 30 days?
17 Then they will be granted automatically? Is that
18 what you are proposing?

19 THE WITNESS: I believe Ms. Gerholt said
20 40 days, and I think that's the addition of the
21 numbers possibly could be 40 days, but I would have
22 to look at the section. It's 30 or 40 days.

23 COMMISSIONER BLOOM: Page 47, yeah. The
24 sentence starts, "If the division does not take
25 action within 30 days of the receipt of the

1 administratively-approved application, the
2 application shall be deemed approved."

3 THE WITNESS: That's correct in that
4 situation, yes.

5 COMMISSIONER BLOOM: Do you have concerns
6 that could ever be abused?

7 THE WITNESS: In what terms?

8 COMMISSIONER BLOOM: Could the company
9 maybe even unintentionally at one point in the year
10 just submit a number of applications?

11 THE WITNESS: To be quite frank with you,
12 I have not thought of that.

13 COMMISSIONER BLOOM: Could a flood of
14 applications put an agency far behind in their
15 workload?

16 THE WITNESS: There's always the
17 possibility of that.

18 COMMISSIONER BLOOM: I think the last
19 thing --

20 THE WITNESS: We experienced that within
21 our last company so that's how I can relate to that.

22 COMMISSIONER BLOOM: Lastly, on Page 44,
23 No. 2 at the top, second sentence says, "The
24 division shall send E-mail notice of the filing of
25 the application for exception to the persons who

1 have filed a written request to be notified." Is
2 that in lieu of the typical certified letter sent
3 out with return receipts?

4 THE WITNESS: I'm sorry, Commissioner,
5 where are you referring to?

6 COMMISSIONER BLOOM: Page 44, No. 2,
7 second sentence. I'm not sure I typically see
8 E-mail as a standard for notification under the New
9 Mexico Code. I maybe mistaken. Is this a departure
10 from return receipt certified mail? I can just
11 continue. Did you ever have something filtered out
12 by your spam filter that you should have gotten?

13 THE WITNESS: Yes.

14 COMMISSIONER BLOOM: Do you think that
15 could be a concern in this situation?

16 THE WITNESS: It's possible.

17 COMMISSIONER BLOOM: Thank you. No
18 further questions.

19 CHAIRWOMAN BAILEY: Most of my questions
20 were taken but I still do have one. You proposed to
21 change to the definition of below-grade tanks to
22 lower that level to the number of barrels instead of
23 500 barrels down to gallons. Should there be an
24 equivalent change in the definition of sump so that
25 it is with the capacity less than or equal to five

1 barrels?

2 THE WITNESS: I believe that we had stated
3 that sump has the capacity of less than or equal to
4 500 gallons which remains predominantly empty. I
5 believe that was what we suggested.

6 CHAIRWOMAN BAILEY: The suggestion was to
7 maintain the 500 gallons for a sump but --

8 THE WITNESS: You are correct.

9 CHAIRWOMAN BAILEY: -- five barrels for
10 below-grade tank.

11 THE WITNESS: You are correct. Because we
12 had no gallons on that because those vessels
13 remained -- and I'm sorry, I didn't clarify the
14 question before I answered. But the reason we put
15 that in there, your request was why would we not put
16 an amount on a sump where we would on a below-grade
17 tank? Because a below-grade tank is primarily used
18 for storage where the sump remains predominantly
19 empty. That was the reason for that, and I
20 apologize for not listening closer to the question.

21 CHAIRWOMAN BAILEY: Those are all the
22 questions I have. Do you have redirect?

23 MR. CARR: Yes, I do.

24 REDIRECT EXAMINATION

25 BY MR. CARR

1 Q. Mr. Fanning, in cross-examination from
2 Ms. Foster there were some questions about the
3 Surface Owner Protection Act and needing to bond
4 onto a property and the suggestion that it might be
5 impacted by the variance and exception provisions of
6 what NMOGA is proposing. Do you recall that?

7 A. I recall something to that effect, yes.

8 Q. And you are familiar with -- generally
9 familiar with SOPA, are you not?

10 A. Yes.

11 Q. That is the statute that governs
12 relationships between operators and landowners?

13 A. That's my understanding.

14 Q. That statute allows for you to enter into
15 agreements with landowners that govern a fairly wide
16 variety of things as a condition?

17 A. In my limited knowledge, yes.

18 Q. Ms. Foster asked you about them perhaps
19 being able to bond on a property?

20 A. She did ask that question.

21 Q. If you file an application as an operator
22 seeking a variance, does that in any way impact your
23 rights under SOPA? Do you know?

24 A. I do not know.

25 Q. If you filed an application for a variance

1 under SOPA and someone objected because they felt it
2 did not provide reasonable protection for
3 groundwater, would you anticipate that matter would
4 be addressed here under the Pit Rule?

5 A. I would be quite sure that would happen.

6 Q. Independent of SOPA?

7 A. Yes.

8 Q. Mr. Jantz asked you questions about
9 language concerning notification when you are using
10 a below-grade tank, and then he pointed to language
11 that said they are under our proposal and under the
12 rule required to be constructed with appropriate
13 engineering standards. Does that language come from
14 the current rule?

15 A. I believe it does.

16 Q. When Mr. Jantz asked you about being able
17 to file standard plans and have them approved by the
18 division, and when he talked about using alternative
19 methods to determine depth to groundwater, each of
20 those things must be approved by the division or
21 they cannot be used?

22 A. That's exactly correct.

23 Q. Both Ms. Gerholt and Mr. Jantz said that
24 if you filed an application and you hadn't heard
25 from the OCD, why don't you call them and ask. Do

1 you know of any better way to ask the OCD for an
2 opinion on what you are proposing by filing a
3 written application?

4 A. I think it provides clarification for both
5 parties in that case to do it that way.

6 Q. Now, in questioning from Ms. Gerholt there
7 were questions about multi-well fluid management
8 pits and what standards might be required. You were
9 here for Mr. Lane's testimony, were you not?

10 A. Yes.

11 Q. Are you aware of any multi-well fluid
12 management pits that have been approved in New
13 Mexico?

14 A. No, I am not.

15 Q. Do you understand that we are probably
16 going to be looking at applications to consider
17 multi-well fluid management pits before the OCD?

18 A. I do believe that.

19 Q. Wouldn't you think it appropriate to have
20 some standards or process in place so that we could
21 have a procedure to follow when going to the body to
22 seek approval?

23 A. I think it would be highly appropriate.

24 Q. Wouldn't you think this would be the
25 appropriate place to make that decision?

1 A. Yes, I do.

2 Q. You had some questions concerning
3 stockpiling top soil with the closed-loop system.
4 When you use the closed-loop system, isn't it
5 usually on the well pad?

6 A. Yes, it is.

7 Q. When you complete drilling the well don't
8 you remediate or claim the well pad?

9 A. We only reclaim the well pad after the
10 life of the well.

11 Q. Wouldn't you anticipate that when you --
12 when are you required to reclaim a well site on
13 state land?

14 A. After the well has been plugged.

15 Q. What about on federal land?

16 A. The same way. Now, we do have interim
17 reclamation which occurs for the unused portion of
18 the pad that may have been utilized during the
19 drilling process on BLM.

20 Q. On BLM?

21 A. Yes, sir.

22 Q. Do you not do that on state land?

23 A. We do from time to time but it's not a
24 required practice.

25 Q. When we talk about using booms on

1 locations, in your opinion would it be better to
2 keep these at a central site than to carry them
3 around from location to location?

4 A. Central site being a relevant term in the
5 oil patch, that could be quite a distance from the
6 location where they might actually be utilized.

7 Q. As you move them around don't they get
8 damaged and break?

9 A. There is a high potential, as I think I
10 mentioned in testimony, for that to happen. That's
11 one of the reasons we addressed it like we did in
12 the rule, to try to prevent that from happening and
13 give us a better method of actually accomplishing
14 our goal, which would be to remove the oil from the
15 surface of the pit.

16 Q. That's all I have.

17 CHAIRWOMAN BAILEY: You may be excused.
18 Let's take a ten-minute break.

19 (Note: The hearing stood in recess at
20 2:22 to 2:38.)

21 CHAIRWOMAN BAILEY: We are trying to work
22 out continuance into next week. The Commission is
23 available Wednesday, Thursday and Friday if we can
24 figure out what to do with the examiner hearings on
25 Thursday. Are any of the attorneys here part of the

1 examiner hearings that are docketed for Thursday?

2 MR. FELDEWERT: I would be happy to speak
3 with my clients to see what the circumstances are
4 with respect to Thursday. I haven't looked at the
5 docket. I think there are a few cases on Thursday's
6 docket.

7 CHAIRWOMAN BAILEY: Quite a few.

8 MR. FELDEWERT: Chances are a number of
9 them will get continued anyway, but with some
10 prodding by the Commission perhaps a number of them
11 can be continued.

12 CHAIRWOMAN BAILEY: And there will not be
13 penalties against the continuance rule. Mr. Jantz,
14 would be available Wednesday, Thursday and Friday of
15 next week?

16 MR. JANTZ: Yes, Madam Chair, I can be
17 here.

18 CHAIRWOMAN BAILEY: Dr. Neeper?

19 MR. NEEPER: Only Monday of next week and
20 then I am absent for two weeks thereafter.

21 CHAIRWOMAN BAILEY: We will just have to
22 continue our cogitations here then. We will have to
23 get back to you.

24 MS. FOSTER: In terms of Dr. Neeper's
25 schedule, it is only Tuesday. I would be willing to

1 delay my opening and putting on my case so
2 Dr. Neeper could get his case on and finished and
3 cross-examined if that would help in terms of
4 scheduling, because I'm available all next week.

5 CHAIRWOMAN BAILEY: The problem is you
6 would not be able to cross-examine.

7 MR. NEEPER: That can happen. I would
8 like at least the opportunity to testify, and Monday
9 would be acceptable.

10 CHAIRWOMAN BAILEY: Wednesday, Thursday
11 and Friday are the days next week that we are all
12 available. Not Monday.

13 COMMISSIONER BALCH: I think you would be
14 able to give your case this week?

15 MR. NEEPER: I could testify on Friday of
16 this week if that fits with the schedule.

17 CHAIRWOMAN BAILEY: Let's see if we can't
18 work this out. Let's proceed.

19 MR. HISER: Thank you, Madam Chair.
20 Members of the commission, I am Eric Hiser. I'm
21 another of the attorneys for the Oil and Gas
22 Association and I will be leading the direct
23 examination of Dr. Ben Thomas.

24 BENJAMIN THOMAS
25 after having been first duly sworn under oath,

1 was questioned and testified as follows:

2 DIRECT EXAMINATION

3 BY MR. HISER

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

6 A. Yes, I'm Forest Benjamin Thomas, III.

7 Q. Where do you reside?

8 A. Houston, Texas.

9 Q. And could you tell us a little bit about
10 your academic training?

11 A. Yes. I have a bachelor's degree in
12 biology with a chemistry minor from Tulane
13 University. I got my master's degree and my Ph.D.
14 degree from the University of Texas Graduate School
15 of Biomedical sciences in the field of pathology,
16 which is a fancy way of saying the study of disease
17 processes.

18 Q. And can you tell us a little bit about
19 your professional background and training?

20 A. Yes. After I completed my doctorate I was
21 named a Rosalie B. Hite fellow at the M.D. Anderson
22 Hospital and Tumor Institute in Houston where I was
23 doing research on mechanisms of toxicity and
24 carcinogenicity. After completing post-doctoral
25 work, my wife suggested I get a real job. I was

1 hired by Shell Oil Company and I worked for 12 and a
2 half years at Shell where I was responsible for
3 providing internal consulting with regard to the
4 health effects of chemicals and products that Shell
5 uses or produces.

6 After twelve and a half years there I was
7 approached by an environmental consulting company to
8 become a regional project manager for toxicology and
9 risk management, and I have been a consultant ever
10 since 1990. Right now I am independent, an
11 independent consultant in Houston and I am kind of
12 toning back the amount of work that I do because of
13 my progressive paralysis here, but in general I am
14 having a good time.

15 Q. Have you had experience working with
16 petroleum waste characterization assessment?

17 A. I have. Once I became a consultant, I
18 found that a variety of different groups started to
19 access my expertise, both governmental groups and
20 industry groups and others. I was named, for
21 example, when Congress created what's called The
22 Clean Air Act Amendments of 1990 they created a
23 thing called the National Urban Air Toxic Research
24 Center and I was asked to become a member of their
25 science advisory panel.

1 The State of Louisiana, the Secretary of
2 Natural Resources retained me to provide them risk
3 assessment guidance with regard to their E & P waste
4 disposal program and so I was the consultant with
5 regard to disposal of waste or treatment of waste
6 for Louisiana's D & R. Did I answer the question?

7 Q. Do you have similar professional
8 experiences in the area of toxicology and risk
9 management?

10 A. I do. In addition to my consulting I'm an
11 adjunct professor at the University of Texas Health
12 Science Center where I teach in pathology,
13 toxicology and risk management.

14 Q. If you look at the NMOGA exhibit book
15 behind Tab 10 there is a document which appears to
16 be a resume. Are you familiar with this document?

17 A. Yes, I am.

18 Q. And did you prepare the information on
19 this?

20 A. Yes, I did.

21 Q. Is it correct?

22 A. It is correct.

23 MR. HISER: I would move the admission
24 then of NMOGA Exhibit No. 10, the resume of Dr. Ben
25 Thomas.

1 MR. JANTZ: No objection.

2 MS. GERHOLT: No objection.

3 MR. FORT: No objection.

4 DR. NEEPER: No objection.

5 CHAIRWOMAN BAILEY: It's admitted.

6 (Note: Exhibit 10 admitted.)

7 MR. HISER: Thank you. We would tender
8 Dr. Thomas as an expert in the areas of petroleum
9 waste characterization, toxicology and risk
10 assessment.

11 MR. JANTZ: No objection.

12 MS. GERHOLT: No objection.

13 MR. NEEPER: No objection.

14 CHAIRWOMAN BAILEY: He is admitted.

15 Q. Dr. Thomas, behind Tab 11 of the NMOGA
16 exhibit book, is there a presentation that you
17 prepared to assist the Commission in understanding
18 some of the issues raised in this rule?

19 A. I did.

20 Q. And are you prepared to discuss this
21 specifically?

22 A. Yes, I am.

23 MR. HISER: If it please the Commission,
24 what we thought to do is part of the exhibit is a
25 discussion of what Dr. Thomas looked at in terms of

1 the materials found in the pits. Rather than me
2 asking a lot of questions that takes a lot of time,
3 if it's okay with the Commission I will just have
4 him sort of go through and talk about the different
5 pieces of information he looked at to characterize
6 the petroleum waste issues here, if that pleases the
7 Commission.

8 CHAIRWOMAN BAILEY: I appreciate the
9 interest in speed.

10 MR. HISER: Thank you very much.

11 Q. Dr. Thomas, if we start with your first
12 slide, which is NMOGA Exhibit 11-2. What was the
13 objective that you had as you were evaluating the
14 revisions to the Pit Rule currently being proposed
15 by NMOGA?

16 A. Well, as you mentioned, I'm an expert in
17 risk assessment/risk management and NMOGA is
18 essentially paying me to give some consideration to
19 the risk issues associated with the proposed
20 provisions of the Pit Rule; in particular, to make
21 sure that they are revisions are reasonable and
22 provide an adequate margin of safety for the public
23 health, the environment and natural resources as
24 stated in the state law.

25 Q. And one of the steps that you took or that

1 you evaluate is you look at risk and appropriate
2 regulatory response to risk?

3 A. There are a couple terms commonly misused
4 and thrown about pretty loosely. One is called risk
5 and the other is hazard. Hazard is defined
6 technically as the ability to cause an adverse
7 effect. Risk is defined technically as the
8 probability of an adverse effect occurring. An
9 example I use when I am giving classes is that you
10 can step out in front of an oncoming bus. That
11 clearly presents the hazard of being injured or
12 killed, but if the bus is five blocks away when you
13 step out in front of it, the risk is small.

14 Similarly with chemicals. You have got to
15 have an exposure in order to have risk. You can
16 have the world's most toxic chemical, but if there
17 is no exposure there is no risk. It becomes
18 important in the regulatory setting because it is
19 the risk that determines whether or not regulation
20 is warranted. It is not hazard, it's risk. Because
21 the terms get thrown about so loosely, I think it's
22 important to make sure we all have a standard
23 vocabulary.

24 Q. So as you started your assessment of
25 hazard and risk, did you look at what was possibly

1 found in the oil and gas pits covered by the
2 proposed revisions of Rule 17, Slide 11-4?

3 A. I did. Essentially what we have here is a
4 situation where we have got potentially hundreds if
5 not thousands of chemicals present in oil and the
6 various additives and fluids used and so on. So the
7 question immediately came up, which of these
8 chemicals should we spend time looking at? Which
9 ones could really have an impact in terms of public
10 health or environment or natural resources?

11 So my recommendation to the industry group
12 was we ought to do some chemical analysis. Let's
13 use standard EPA procedures and look at the broad
14 categories of chemicals that are potentially found
15 in these kinds of pits and start to determine just
16 how much of each chemical is there and which of
17 these chemicals are really present at high enough
18 concentration to perhaps warrant regulatory
19 attention.

20 So there are two analytical programs that
21 were created, one by the industry and one by the
22 OCD. There are significant differences between the
23 two. I'm just briefly going to go through them.

24 The programs that the industry designed
25 essentially said that we want to collect samples in

1 the pits. We want to collect -- what we are most
2 concerned with are the pits being closed so let's
3 take the pits that have dewatered and take samples
4 of the solid in the pits. We want to sample at the
5 surface, but because certain things volatilize off,
6 the surface may not give you an accurate reading of
7 what's in the pit. So let's also sample at depth.
8 So there were samples that were collected beneath
9 the surface and so on.

10 In the OCD program, what they did is they
11 collected surface samples. They collected at the
12 four corners of the pit. My recollection is they
13 then combined those samples together and then
14 analyzed that composite sample there for the
15 chemical analysis. What happened essentially is
16 they now have an average of all the samples. And
17 this one may have been high, this may have been low,
18 this one in between, but by compositing all the
19 samples together, they have essentially gotten an
20 average.

21 In the industry program, our
22 recommendation was let's not deal with average.
23 Let's deal with individual samples. If I see any
24 analyte from any of the testing that's above a
25 criterion, I want to take a look more closely at

1 that particular chemical. If it doesn't exceed
2 regulatory criteria, you know, even simple criteria,
3 then I don't need to spend -- I don't think anybody
4 needs to spend time on that particular chemical.

5 So what we are trying to do is now get
6 some reasonable set of chemicals that gives us a
7 good handle of what's in the pit so if there's any
8 kind of thing, these are the chemicals that we will
9 start to focus our attention on. Make sense?

10 Q. Dr. Thomas, I look at the slides, just the
11 industry sampling program was done in 2006 and the
12 OCD sampling program approximately a year later.
13 There's been some concern discussed in the hearing
14 about evolutions in drilling practices. Has there
15 been a substantial change in the chemical
16 composition of the fluids that you would expect in
17 the pits between these studies and today?

18 A. No.

19 Q. Are the information gathered in the
20 studies in the industry sampling program and what's
21 done in the OCD the type of information that would
22 commonly be relied upon by an expert in the area of
23 waste assessment or toxicology or risk assessment as
24 you're looking at what should be done?

25 A. Yes.

1 Q. Why don't you proceed in detail for us a
2 little bit about what you found when you looked at
3 the studies.

4 A. All right. As I mentioned, the industry
5 program was designed to start to identify either
6 chemicals or classes of chemicals that gave us a way
7 to identify the areas of concern. That's poorly
8 stated, but nonetheless.

9 One of the first things that we found was
10 total petroleum hydrocarbon. There are a number of
11 ways to define TPH and the preferred way that I have
12 is to combine what's called gasoline-range organics
13 and diesel-range organics. The reason for that is
14 just a general terminology, but gasoline-range
15 organics are essentially hydrocarbons that distill
16 in the range of about 120 degrees to 350 degrees.
17 That's gasoline. Diesel-range organics are
18 generally between 350 and 550 degrees up to 750
19 degrees Fahrenheit depending on whether they are
20 kerosene diesel or automotive type diesel. So,
21 therefore, diesel-range organics, 350 to 750.

22 All right. The reason why those are
23 important -- tell you what. Let me tell you that.
24 We have two areas that we were looking at. We had
25 pits in the northwest in the San Juan Basin. Those

1 pits are primarily for natural gas. I'm sorry,
2 those wells out there in the San Juan are primarily
3 natural gas wells. They generally are drilled to
4 depths of about 1,000 feet. We also had three pits
5 in the southeast of New Mexico, and in those cases
6 those are drilled for oil purposes, often at depths
7 of like 7500 feet beneath the surface. So they
8 differ in the types of fluids that are used and they
9 differ in the types of composition that you might
10 find as a result of the natural gas versus oil
11 production.

12 Q. So part of the goal of looking at both the
13 northwest and the southeast was to make sure that
14 you had a broad overview of all of the fluids likely
15 to be found?

16 A. That's correct. Not only that, but you
17 start to realize that things like diesel-range
18 organics are part of the formulation of an oil-based
19 drilling mud; therefore, it's going to be present.
20 Whereas it also could be created from the petroleum
21 that you are extracting from the formation. So,
22 therefore, it may be coming in not as part of the
23 formulation but because you are actually producing
24 oil in the drilling process.

25 In any case, we had the oil range -- we

1 had total petroleum hydrocarbons that were present,
2 and what you will see is the OCD had a criterion of
3 2500 milligrams per kilogram, so I used that as the
4 first screen. Do we have any at all that exceeded
5 that? Sure enough, we found some that exceeded
6 above 2500 milligrams per kilogram. What does that
7 mean? I will talk about that in just a minute.

8 Essentially for screening purposes, the
9 TPH now felt like as one of the issues or one of the
10 chemicals that I would start to take a look at.

11 Q. When we talk about total petroleum
12 hydrocarbons you distinguished between
13 gasoline-range organics and diesel-range organics.
14 Is that the sum total of total petroleum
15 hydrocarbons or are there other hydrocarbons as
16 well?

17 A. There are two other fractions that create
18 the total. There's the oil range organics, which
19 are more like the lubricating oil for automotive
20 type things, and there's the asphaltenes, which you
21 see in asphalt roads and so on. Those tend to be
22 very, very large molecules that don't do anything or
23 go anywhere. So as a result, from what I was seeing
24 here with regard to the industry purposes and OCD's
25 purposes, they really weren't relevant to the

1 concern.

2 Q. So in your professional opinion they don't
3 present a human health concern or freshwater
4 concern?

5 A. Not in any scenarios that I could see in
6 regards to oil type waste.

7 Q. Were there other constituents of concern?

8 A. Yes. We had chloride anion. Once again,
9 we didn't really have a lot of criteria but chloride
10 anion is an important analyte and I will get to that
11 in more detail. As we saw in the southeast, there's
12 a substantial amount of chloride anion seen in the
13 southeast in the pits.

14 Arsenic. Arsenic is not part of an
15 oil-based formulation or drilling E & P formulation
16 but it occurs naturally in the geologic formations
17 being drilled. So arsenic is not uncommon to see.

18 We didn't see high levels, but we did see
19 some that were larger than what was called the Tier
20 1 residential SSL or soil screening level, so
21 arsenic now became something that I wanted to
22 identify.

23 Q. You note here that you didn't believe that
24 it was TCLP hazardous. What does that mean and why
25 is that important for us to understand?

1 A. EPA -- arsenic is determined in our
2 analytical program as total arsenic. What that
3 means is that they take a sample and they dissolve
4 it in a very, very strong acid so we get the total
5 arsenic concentration. But arsenic is a solid in
6 most cases, and the question is could it possibly be
7 either environmentally mobile or is it possibly that
8 it's toxic. In order for it to be toxic it's got to
9 be absorbable into the body.

10 So one of the ways that EPA came up with
11 to evaluate those two issues, environmental mobility
12 and bioavailability, was to define an analytical
13 procedure called the toxicity characteristic
14 leaching procedure where they took a weak acid that
15 you might find in the environment, keep the material
16 solid overnight in that thing and then analyze to
17 see how much of it was actually dissolved in the
18 acid. That's called the TCLP.

19 When we did the analysis on arsenic it was
20 not leachable in the TCLP test. That means it
21 doesn't dissolve in water, even acidic water, and,
22 therefore, it doesn't mobilize in the environment.
23 Likewise, it's not absorbable into the body. So
24 even though arsenic is toxic, it's only toxic if you
25 absorb it into the body.

1 Q. So this is a case where what you were
2 finding in the pits is this particular arsenic we
3 are seeing here is not bioavailable and is not
4 biomobile?

5 A. That's correct. Barium. Barium is part
6 of the formulations of drilling waste. It's a
7 weighting agent and often it's barium sulphate
8 that's used. Barium sulphate, as you may know, is
9 what they use in the barium enema, and again, we see
10 the TCLP here. It was not soluble in the TCLP test.
11 Barium sulphate is used for barium enema because
12 it's a great x-ray contrast agent but not absorbed
13 in the body. If you have a soluble form of barium
14 it can be very toxic and fatal, but barium sulphate
15 itself is not. What we have here showed up as an
16 anolyte that exceeded criteria, but when we take a
17 look at it under the TCLP test, not environmentally
18 mobile, not in the form that's environmentally
19 mobile and it's not in the form that's potentially
20 toxic.

21 Benzene. Benzene is a hydrocarbon that is
22 found in the gas organics. It is of regulatory
23 concern almost always because it is one of the known
24 human carcinogens. As a result, it will normally
25 fall out as that. In the case of Benzene, we had

1 one sample that showed high levels of Benzene, and
2 the problem is that one particular sample was
3 diluted 1,000 fold, which is much higher dilution
4 than normal in all the other samples. It was this
5 one sample that gave us some concern to the point
6 that we also -- I started to think well, what I am
7 really looking at here is an artifact of the
8 analytical procedure, and the problems that they had
9 with this particular sample, rather than real
10 Benzene. However, nonetheless, it exceeded my
11 criterion and, therefore, as a result Benzene is
12 here. It's part of the list of compounds.

13 Q. And when you looked at the OCD data, what
14 was different about the materials that were sampled
15 by OCD and did it cause you to reach any opinions?

16 A. The OCD data are consist with what the
17 industry found. I didn't see any significant
18 differences or new chemicals or anything like that
19 looking at the OCD data. As I mentioned, the OCD
20 data represented an average of the samples that were
21 collected, and I preferred to use the industry data
22 set to make any kind of firm decision rather than
23 OCD. But essentially they were comparable.

24 Q. Now, did the OCD data set also include the
25 samples from pit liquids whereas the industry

1 samples were mostly derived or directed at pit
2 solids? Is that correct?

3 A. Yes, that's correct. It appears that not
4 all the pits that the OCD sampled reached the point
5 of dewatering. They still had some liquids in it,
6 so OCD went out and collected some of the liquids.

7 Q. So your evaluation has, in fact, looked at
8 both liquid and solid fractions, in effect?

9 A. They did, yes.

10 Q. What did you determine were the
11 constituents of concern based upon your review of
12 the data collected both in the industry study and
13 the OCD study? This would be NMOGA Slide 11-11.

14 A. I think that the industry program gave us
15 a pretty good handle on what types of chemicals were
16 present that now exceeded criteria and, you know, of
17 the several hundred or thousands of chemicals
18 present, there were relatively few high enough
19 concentration even to exceed basic, very
20 conservative screening criteria.

21 So of those, the TPH or the total
22 petroleum hydrocarbon which as I defined it is a
23 combination of gasoline-range organics plus
24 diesel-range organics, the chloride anion and then
25 Benzene were the three that I identified as being

1 the ones of concern. I might mention that in the
2 state of Louisiana, it turned out to be Benzene and
3 organic compounds like TRO/DRO that turned out to be
4 the same, so we are getting consistency between the
5 New Mexico data and the Louisiana data.

6 Q. In addition just to the information that
7 was presented in the industry study and the OCD
8 study, did you consult with the information that you
9 had gone through as part of the Louisiana study and
10 current information that's available to experts of
11 your nature about possibly toxic compounds in pits
12 and drilling fluids?

13 A. I have done that, yes.

14 Q. So I believe that your initial testimony
15 was that there are hundreds, if not perhaps
16 thousands of chemicals that are in a pit
17 potentially; is that correct?

18 A. That's correct.

19 Q. So it's your opinion then that out of all
20 those chemicals, that these are the three chemicals
21 that are of greatest concern being chloride anion,
22 Benzene and total petroleum hydrocarbons defined as
23 gasoline-range organics and diesel-range organics?

24 A. From the analytical data we developed,
25 these are the three.

1 Q. Tell us a little bit more about the
2 specific concerns with each of the three and why
3 they should be of concern to the Commission.

4 A. With regard to total petroleum
5 hydrocarbon, I told you a little bit about the
6 gasoline-range organics. The gasoline fraction
7 contains the hydrocarbons that are most water
8 soluble. Of those Benzene, Toluene, Ethylbenzene
9 and Xylene are the light aromatics and they tend to
10 be more water soluble than some of the other
11 compounds. Because they are water soluble, if there
12 were ever a release from the pit, then these would
13 be the ones that could get into the water and
14 migrate and, therefore, they become a concern.

15 The DRO fraction is less water soluble as
16 you can imagine. These are larger molecular weight
17 compounds but they do have some light aromatics.
18 Naphthalene and Methylnaphthalene are diesel-range
19 aromatics that have high water solubility, and
20 because of that, they also are environmentally
21 mobile.

22 The gasoline-range and diesel-range
23 organics are not so much a concern from the toxicity
24 point of view but they are a concern because they
25 affect the odor and taste of water. So I identify

1 the hazard. Its the odor and taste type of property
2 that's a concern.

3 Q. What about for chloride?

4 A. Chloride anion surprises people when I
5 tell them that it's not toxic. It is not considered
6 to be toxic either in animals or in people.
7 Chloride anion, however, is extremely water soluble,
8 and from the petroleum industry environmental
9 perspective it is a great marker for when you've got
10 a release. And not only that, but by looking at
11 chloride you can also determine that this is the
12 boundary of potential impact. I don't know if that
13 makes sense, but essentially this is very early
14 marker of a release and the potential area that
15 might have been impacted.

16 Q. So essentially you can use chloride as a
17 way of saying if there has been a release of pit
18 fluids or well fluids, that the chloride is a
19 distinctive signature of that in many cases?

20 A. That is correct. That is correct. Now, I
21 see in the literature that chloride is often talked
22 about having toxicity to plants, affecting or
23 inhibiting the growth of plants. But when I take a
24 look at the data itself, it's not the chloride per
25 se but it's the salt the chloride form is in.

1 Sodium chloride is different from magnesium chloride
2 is different from all the other types of salt. And
3 as a result, it's not the chloride, to me at least.
4 It appears to be more of the salt form that really
5 is the thing that affects the toxicity.

6 Q. In other words the cation more than the
7 anion?

8 A. That's correct.

9 Q. I believe that brings you to Benzene.

10 A. Benzene. As I mentioned Benzene is a
11 component of the light aromatics. It's the most
12 soluble in water, and as a result it's potentially
13 environmentally mobile. I mentioned before that
14 Benzene is a human carcinogen and as a result
15 there's always a concern, and as a result of that we
16 wanted to make sure that Benzene was included among
17 the analytes that is monitored on a routine basis,
18 and especially if there's a release.

19 Q. So given that these are the materials that
20 are in the pits, do you believe that it's necessary
21 to comprehensively try to sample for all of the
22 thousands of constituents in the pit or can you
23 choose a couple of indicators of the pit as an
24 appropriate way of trying to address the risk that
25 they provide?

1 A. Well, from the analytical data we
2 developed, it appears that the only chemicals we
3 need to monitor on a routine basis would be the
4 three that we talked about here.

5 Q. How does the rule go about trying to
6 address the risks that are presented by these
7 constituents directly and I think indirectly by
8 fluids generally? What steps does it take? How?

9 A. I'm not sure I understand the question.

10 Q. Let me rephrase it. How does the Pit Rule
11 and the proposed revisions to the Pit Rule try to
12 address or manage the risks that are being presented
13 by the chloride anion, the possible presence of
14 Benzene and the total petroleum hydrocarbons?

15 A. You may not like the answer, but I tend to
16 think that both from the industry point of view and
17 OCD's point of view, we are all doing a very poor
18 job of addressing the risks. And that's not to say
19 that the risks are substantial.

20 One of the recommendations that I had in
21 my prior testimony before the Commission was that
22 nobody is talking with a clear understanding of what
23 the issues are. Do we know who we are trying to
24 protect? From what kind of mechanism, what kind of
25 pathway of exposure and so on. As a result --

1 because we do not. And I wasn't able to get a clear
2 answer. What we are left with are a lot of
3 conjectures and, you know, fear-mongering type of
4 things and it doesn't allow for really concrete
5 discussion.

6 The proposed rules from our proposal from
7 NMOGA has a couple of tables that have criteria in
8 there that the industry said we can live with. And
9 I said that's great, but if you really think about
10 it, I was very careful to state that the risk is
11 determined by the potential for exposure. You have
12 got to have a receptor; you have to have a complete
13 pathway for exposure. And the question is, does
14 that exposure result in a level of exposure to a
15 toxicity then high enough to produce an adverse
16 effect? That's the key question from the regulatory
17 point of view. Is the exposure high enough to
18 produce an adverse effect?

19 When I started to look at the E & P type
20 of things and the various pieces of the Pit Rule, I
21 came to the conclusion that in actual fact we don't
22 have complete pathways of exposure. We have -- in
23 most cases. And when I asked for what is the level
24 of concern, what is the receptor and the pathway of
25 concern, I wasn't able to get good answers either

1 from OCD or from the industry.

2 Q. And so if you were to look at this as a
3 risk manager now looking at the pathways of exposure
4 which create the risk, what are the types of
5 pathways that you would be looking at evaluating?

6 A. Let me answer a little bit different way.
7 As I started to think about a pit, the primary
8 constituents of the pit is bentonite clay. And
9 bentonite is a very fine particle. It's so fine
10 that it's easy to suspend it in water and create
11 what's called a drilling mud. And during the use of
12 the drilling mud you form -- you get little rocks
13 that are formed or created by the drilling
14 operation. You get big rocks, as far as that goes.
15 And the drilling mud will bring that up and put it
16 into the pit and so on.

17 So suppose that all the drilling is now
18 completed and they are ready to close the pit. Now
19 you have no more circulation of all this mud and all
20 the other things. So gravity starts to now take
21 effect. You have got pits that are lined with
22 geomembranes, all the leak detection systems and so
23 on. You allow gravity to start to settle things,
24 and these rocks, the big rocks settle first followed
25 by smaller particles of sand and grit and so on, and

1 eventually the bentonite clay particles start to
2 settle out. From the environmental point of view,
3 if you have got a hazardous waste pit, what you do
4 is you create it as build it in clay, because clay
5 doesn't allow anything through. Very low
6 permeability, both water permeability and chemical
7 permeability. So here we have a pit that's now
8 starting to fill with deposits of clay.

9 So as I look at it, the easiest way to see
10 what's happening is imagine you have a container of
11 ping-pong balls, and over that you now pour the
12 bentonite clay which I assume are like little BBs.
13 They go around and they completely seal the space
14 between the ping-pong balls and you now essentially
15 have clay everywhere. Low permeability clay. In
16 that clay these are the samples that we collected in
17 our industry program. These are the chemicals that
18 were present in that clay. When I looked at it,
19 these are chemicals that are not going anywhere.
20 They are entombed in the clay lining.

21 Now the question is what do we do with it?
22 Gee-whiz, we put four feet of clean dirt on top of
23 it and then plant it with plants. As a result, the
24 stuff is not even getting direct contact. So when I
25 take a look at the exposure scenarios, somebody has

1 got to go four feet down before they even contact
2 the clay, and the clay is not going to have a lot of
3 chemicals in it. So as a result, I don't find
4 really compelling argument to say we have got
5 exposure scenarios that are really of concern.

6 Q. So when you say direct exposure risk, does
7 that mean a person would actually contact the clay
8 or the cuttings or stuff like that with their hands
9 and have the possibility of ingesting it or putting
10 it through their skin?

11 A. That is one exposure scenario, and that's
12 the one that EPA uses in their most conservative,
13 protective scenario; that you actually have somebody
14 living and contacting the surface and eating the
15 clay every day, every day for their lifetime, 70
16 years.

17 Q. Now, there might be some folks that are
18 concerned that water is going to pass through this
19 clay and the cuttings and go down to the groundwater
20 and contaminate the drinking water well. Is that a
21 significant concern in this case?

22 A. I don't believe so.

23 Q. Why not?

24 A. Because the clays are not that permeable.
25 The hydraulic conductivity of clay is so low they

1 won't go through. Water will tend to form and go
2 down around the clay.

3 Q. In addition, when you looked at the TCLP
4 test, which I understand is a leaching test, and you
5 combined the effect of the leaching test with the
6 clay with the distance, what does that tell you
7 about what you see in the point of reasonably
8 foreseeable use of the water? Is it going to be a
9 very high concentration of these constituents in
10 there or will it have been reduced from what it
11 would have been when I first disposed of it?

12 A. May I get you to repeat the question?

13 Q. You testified that the constituents have
14 settled in the pit so now we have a mixture of
15 drilling muds and cuttings. And we also have in
16 this case the liner and the pit, because the
17 temporary pits have to have liners. You testified
18 there's a very low permeability. I believe you
19 previously testified that for a number of
20 constituents like arsenic and barium they did not
21 appear to leach when subjected to the TCLP test.

22 A. That's right.

23 Q. So my question was: Would the
24 concentration of any of these chemicals when you
25 look at them in a reasonably foreseeable place of

1 use, draw from a well because there's groundwater,
2 would that be lower than it was when I had disposed
3 of it in the pit itself? In other words, is the
4 concentration of the pit higher or lower than the
5 concentration would be in the water?

6 A. It's going to be higher.

7 Q. And does that provide additional
8 protection for people who might use that water?

9 A. Yes.

10 Q. And what are the steps that the rule has
11 taken as you look at the rule as it stands now and
12 the proposed revisions, to reduce direct exposure
13 risk? Probably the most important one you said was
14 the coverage with the four foot of soil. Are there
15 other steps the rule has taken to deter or prevent
16 direct contact?

17 A. As I recall, there's also in certain cases
18 a geomembrane put over before the cover. But off
19 the top of my head, I don't think so.

20 Q. So in summary, as you look at this as a
21 toxicologist and as a risk assessor, do you believe
22 that the proposed revisions of the Pit Rule as
23 proposed by industry are protective?

24 A. I do.

25 Q. And are they protective of public health?

1 A. I do.

2 Q. What about of the environment?

3 A. Also protective of the environment.

4 Q. There's been some concern in
5 cross-examination about drippage and leakage from
6 the equipment going into pits or potentially into
7 below-grade tanks. Do you believe that would
8 introduce any risk over and above or different from
9 the risk you considered in your analysis?

10 A. No.

11 Q. Would some of the drippage and leakage
12 been included in the studies conducted?

13 A. If it occurred, yes.

14 Q. Even if it had not, would a volume of that
15 in relation to the amounts that we are looking at be
16 of a level that would cause you concern?

17 A. No. I might mention that the same
18 issue came up in the discussions in Louisiana, and
19 it didn't. It wasn't an issue there.

20 Q. If you turn to Page 23 of NMOGA's Exhibit
21 1, which is the text of the proposed revisions,
22 there's been some discussion about a proposed change
23 and allowing of hydrocarbon-based drilling fluids to
24 go into a temporary pit instead of the current rule
25 which is that they have to go into a steel -- a tank

1 made of steel or other material. Does that change
2 cause you any concern?

3 A. No.

4 Q. Why not?

5 A. A couple reasons. One is that -- well,
6 let me have you repeat the question quickly.

7 Q. Okay. Does the allowance of
8 hydrocarbon-based drilling fluids to go into a
9 temporary pit instead of keeping them in a tank
10 cause you additional concern?

11 A. No.

12 Q. Why not? Why does it not cause you
13 concern?

14 A. Again, as long as the tank is not leaking
15 there is no -- really no concern. I mean, there's
16 no exposure.

17 Q. Now, you said tank. We were talking about
18 pits.

19 A. Pit. Whatever. As I'm trying to think of
20 an exposure scenario that's relevant here, I'm not
21 seeing one that gives me concern.

22 Q. And then just to back up to your initial
23 assessment is you looked initially at the pit
24 contents basically in an as-disposed mode before
25 we've taking any closure activities rather than

1 drying. Were the concentrations of the constituents
2 in the pit of such a great height that it gave you
3 significant concern or a little concern about the
4 exposure to it?

5 A. They actually give me very little concern.

6 Q. So if we implement these additional
7 measures that are laid out in the rules, things such
8 as fencing, siting restrictions, the closure with
9 four feet of soil across the top, does that reduce
10 your concerns about the exposure potentials?

11 A. I think so. I think the proposals here
12 are a good balance of function with regard to
13 needing to drill for oil and also protecting the
14 health and safety and environment. I think the
15 requirements as suggested by NMOGA are reasonable.

16 Q. I guess one final substantive question.
17 If we focus on the chloride, the Benzene, the total
18 petroleum hydrocarbons, do we have a high level of
19 confidence that all the constituents of concern
20 likely would be addressed if those are addressed?

21 A. Those are the primary ones. I can foresee
22 there could be exposure scenarios where other
23 chemicals could become an issue, but in general,
24 these are the three that we want to make sure we get
25 addressed.

1 Q. So if you were advising a regulatory body,
2 would you advise them to look for any additional
3 constituents or would these be the three or four
4 that you would recommend?

5 A. These are the three that I would
6 recommend.

7 Q. Dr. Thomas, attached to your exhibit book,
8 and I believe this is behind Tab 12, there is a
9 report. Did you prepare this report?

10 A. I did.

11 Q. Does this summarize the testimony that you
12 have given for the Commission?

13 A. It does.

14 MR. HISER: Madam Chairman, I move to
15 admit Exhibits 11 and 12.

16 CHAIRWOMAN BAILEY: Do you have an
17 objection?

18 MR. JANTZ: I do not.

19 MR. FORT: No.

20 MS. GERHOLT: No objection.

21 MS. FOSTER: No objection.

22 MR. NEEPER: No objection.

23 CHAIRWOMAN BAILEY: It will be admitted.

24 (Note: Exhibits 11 and 12 admitted.)

25 MR. HISER: That completes my

1 cross-examination of Mr. Thomas.

2 CHAIRWOMAN BAILEY: Ms. Foster, any
3 questions?

4 MS. FOSTER: I do not. Thank you.

5 CHAIRWOMAN BAILEY: Mr. Jantz?

6 CROSS-EXAMINATION

7 BY MR. JANTZ

8 Q. Good afternoon, Dr. Thomas. Good to see
9 you again.

10 A. Good afternoon.

11 Q. Let's go back to 2007. You testified in
12 the hearing adopting the Pit Rule; is that correct?

13 A. 2007?

14 Q. 2007/2008.

15 A. Okay.

16 Q. You did, did you not?

17 A. I testified before on this, yes.

18 Q. And you were qualified in that hearing as
19 an expert in toxicology and risk assessment as well?

20 A. Yes.

21 Q. You went through a similar process in your
22 testimony there in evaluating the Pit Rule as you
23 did in evaluating these amendments; is that true?
24 Comparing risk assessment to value judgments?

25 A. The data that I presented here is the same

1 data that was presented at that time.

2 Q. So you looked at the same data here as you
3 did in the Pit Rule; is that correct?

4 A. That's correct.

5 Q. And did your analysis change at all
6 between now and then?

7 A. No.

8 Q. Did your conclusion change at all?

9 A. No.

10 Q. Back in the Pit Rule proceeding back in
11 2007/2008, you essentially testified that all of the
12 constituents of concern that you identified today
13 were constituents of concern then; is that right?

14 A. That's correct.

15 Q. TPH, benzene and chloride; is that
16 correct?

17 A. That's correct.

18 Q. And your reasons for those being of
19 concern are the same as they were in 2007/2008?

20 A. They are.

21 Q. So I guess it's no coincidence then that
22 the Table 1 and Table 2 in the industry's proposed
23 amendments, that's Page 41 of NMOGA's Attachment A,
24 reflect your recommendations?

25 A. Actually, no.

1 Q. I'm sorry, could you clarify?

2 A. The Table 1 and 2 are by the industry
3 group. I was asked to evaluate and determine
4 whether they were reasonable numbers and the answer
5 is yes, they are reasonable.

6 Q. I'm sorry, did you have anything else to
7 say?

8 A. No.

9 Q. I'm sorry, I thought I interrupted you.
10 Back in 2007/2008 did you not recommend that TPH
11 should be a screening constituent for the rules
12 rather than the 3103 standards?

13 A. Repeat that.

14 Q. Sure. Back in 2007/2008 in the Pit Rule
15 hearing, was it your recommendation that TPH be a
16 screening constituent rather than the 3103 standards
17 as proposed by the Oil Conservation Division at that
18 time?

19 A. The answer is yes.

20 Q. And same with beetex?

21 A. In actual fact I didn't recommend beetex.
22 I recommended Benzene.

23 Q. I'm sorry, Benzene. And chloride?

24 A. Correct.

25 Q. Now, looking at your Exhibit 12, you

1 prepared an overview and summary of your testimony
2 in 2007/2008 as well, did you not?

3 A. That's correct.

4 Q. Is this Exhibit 12 substantially the same
5 as that summary of your testimony?

6 A. It should be very similar, yes.

7 Q. Is it fair to summarize the -- let me
8 withdraw that. Let's talk a little bit about some
9 of these other risk assessments that you have done.
10 You said that the solubility of TPH wasn't an issue
11 of concern because it wasn't soluble? Is that
12 right? Let me rephrase. TPH -- people can't get
13 exposed to TPH because it's not soluble. Did I
14 understand that right?

15 A. No.

16 Q. Please explain again.

17 A. TPH has certain constituents that are
18 water soluble. The most water soluble are the light
19 aromatics, benzene, toluene, ethylbenzene and
20 xylene.

21 Q. And so if there's a leak in a liner,
22 people may be exposed to those if they come in
23 contact with groundwater that's been contaminated by
24 the leak, is that right?

25 A. In certain terms, yes.

1 Q. Can TPH solubility be -- the heavier
2 aromatics, can the solubility be affected by the
3 presence of surfactants in flowback fluids?

4 A. By what?

5 Q. Surfactants in flowback fluids?

6 A. The answer is maybe.

7 Q. Maybe?

8 A. But probably not a significant amount.

9 Q. So it is possible?

10 A. Oh, yeah. But even if you don't have
11 surfactants you're going to have beetex that
12 dissolves in water.

13 Q. I think that's all I have. Thank you,
14 Dr. Thomas.

15 CHAIRWOMAN BAILEY: Ms. Gerholt?

16 MS. GERHOLT: No questions for the
17 witness.

18 CHAIRWOMAN BAILEY: Mr. Dangler?

19 CROSS-EXAMINATION

20 BY MR. DANGLER

21 Q. Good afternoon.

22 A. Good afternoon.

23 Q. I want to really understand your
24 testimony. It appears that clay is kind of a
25 magical lockup substance that you are testifying

1 about. Have I missed something about it?

2 A. Well, I guess it could be said that way.

3 Q. In that case is there any limit to what
4 you would be concerned about being in one of these
5 pits? Theoretically under your theory?

6 A. If you've got -- in theory, it's possible
7 to have a contaminant that is so concentrated that
8 you start to disrupt the packing of the clay and you
9 change the permeability of the clay. That would
10 require a huge amount of chemical, but if you give
11 me a hypothetical like that, I have to tell you that
12 it's possible you could have so much oil that you
13 are not getting good settling.

14 Q. Okay. So there is a limit to what this
15 clay can handle, what these clays can handle?

16 A. Yeah, but remember, these are -- you know,
17 when you are looking at oil, you are looking at oil
18 in a transmissive zones bounded by clays and shale,
19 impermeable layers. All I am saying is it creates
20 an impermeable layer for the most part that oil and
21 other chemicals are not going to go through.

22 Q. And you said that Benzene is a concern
23 because it's a carcinogen?

24 A. Benzene is a human carcinogen, correct.

25 Q. So let's just take the numbers with

1 Benzene.

2 A. I'm sorry?

3 Q. Let's just take the numbers with

4 Benzene --

5 A. Okay.

6 Q. -- under the proposed NMOGA change.

7 A. What is that?

8 Q. The number is ten, I believe, if I am

9 remembering it correctly, that's recommended?

10 A. As I recall, that's right.

11 Q. Yeah. Would you be comfortable with 100?

12 A. For a pit?

13 Q. Yes.

14 A. The answer is yes.

15 Q. Would you be comfortable with 1,000?

16 A. Yes.

17 Q. So some very high level carcinogen levels

18 you would be comfortable with?

19 A. That's correct.

20 Q. Let me take you back a little bit in terms

21 of the initial studies that you did to determine

22 what were the chemicals that you were concerned

23 with. How many pits did you guys sample in your

24 study in the NMOGA study?

25 A. As I recall, there were three in the

1 southeast and three in the northwest.

2 Q. So you did like a total of six?

3 A. If I recall.

4 Q. As a scientist, does the sample size
5 concern you at all with being just six?

6 A. It often does. In this particular case we
7 took a fair number of samples in each pit and it was
8 a pretty substantial program. The number of pits is
9 small, but again, the data that we saw were
10 comparable to what we saw in Louisiana.

11 Q. So there was a comparable study in
12 Louisiana?

13 A. Yes.

14 Q. But staying here with the state of New
15 Mexico, how many pits do you think we have?

16 A. I have no idea.

17 Q. Would it be fair to say we might have
18 thousands?

19 A. Wouldn't surprise me.

20 Q. But you are comfortable with six pits
21 being the sample size?

22 A. For the data that we have right now,
23 correct.

24 Q. Are you familiar with land disposal limits
25 set by the EPA under the RCRA hazardous waste

1 regulations --

2 A. Yes.

3 Q. -- for shallow land disposal?

4 A. Yes.

5 Q. Do you know what the EPA requires for the
6 amount of Benzene allowed in a permitted waste dump,
7 serious hazardous waste dump?

8 A. In the dump itself?

9 Q. Yeah. What's the concentration allowed by
10 EPA, do you know?

11 A. I don't recall an upper limit.

12 Q. Do you think it might be the same ten
13 number that we are using here?

14 A. In the dump?

15 Q. Yeah.

16 A. No.

17 Q. Do you think it's a higher number?

18 A. I would assume that it is. I think what
19 you are asking is the screening level, and that is,
20 as I mentioned before, a very health-conservative
21 number that EPA has created as kind of a baseline.
22 They apply the screening level in both RCRA and in
23 these situations.

24 Q. Let me ask you about the chlorides. And I
25 think you said the chloride is a good marker?

1 A. Yes.

2 Q. It's not as big a concern for you in terms
3 of it's not -- I think you said it's not toxic?

4 A. Correct.

5 Q. But it's a good marker?

6 A. That's correct.

7 Q. So do other chemicals then, could you
8 presume other chemicals might be moving with the
9 chlorides?

10 A. Other chemicals can move but probably not
11 as quickly as chloride.

12 Q. But the reason it's important as a marker
13 is because other chemicals might move with it? Is
14 that fair to say?

15 A. No.

16 Q. It's not fair to say?

17 A. No. Chloride gives you an idea how far a
18 water leak has migrated.

19 Q. So it gives you the idea of the distance
20 but doesn't necessarily mean anybody traveled with
21 the chloride?

22 A. That's correct.

23 Q. How would you know where other chemicals
24 have traveled, where Benzene had traveled?

25 A. You would measure it.

1 Q. But the chloride would give you an
2 indication of the zone you might have to measure; is
3 that correct?

4 A. That's correct.

5 Q. So if there were chloride plumes that were
6 fairly large in scope, would that give you any
7 concern about other chemicals moving around?

8 A. I think so.

9 Q. In the course of preparing for the
10 testimony, have you been made aware of at least one
11 chloride plume that's west of Hobbs? Has anyone
12 talked to you about that?

13 A. No.

14 Q. If there were a large chloride plume,
15 would it give you some concern? Because that's part
16 of our clay area, 13 miles west of Hobbs. Isn't
17 that one of the clays that you are saying are
18 impermeable?

19 A. Would you ask the question again?

20 Q. What kind of evidence would give you
21 concern about pits?

22 A. About?

23 Q. About pits. What kind of evidence would
24 give you concern?

25 MR. HISER: Objection. Related to

1 esthetics or the chemical constituents which is what
2 he testified to?

3 CHAIRWOMAN BAILEY: Maybe you could be
4 more specific in your question.

5 Q (By Mr. Dangler) I think you said that
6 you're not too concerned with the levels but at some
7 point the level could interfere -- the level of the
8 chemical mix could interfere with the clay's ability
9 to seal.

10 A. What I said is that in general I'm not
11 concerned because of the impermeability of the clay.
12 However, in an answer to your question, I could see
13 that there may be some massive amount of the
14 material that could affect the ability of the clay
15 to form a seal. But like I said, I think that's a
16 pretty unusual if not almost negligible likelihood.

17 Q. Would the clay, in your opinion, seal in
18 an unlined pit if there was no liner?

19 A. It's commonly used that way.

20 Q. I did hear you saying in answer to a
21 question on direct, and unfortunately I think this
22 is where the confusion of tank came in, "as long as
23 the tank is not leaking" and that was corrected. So
24 was your testimony as long as the pit is not leaking
25 there was no concern about the hydrocarbons, the

1 additional hydrocarbons going into the waste pits?

2 A. That's right.

3 Q. Why would you say as long as the pit is
4 not leaking if the clays don't leak?

5 A. Why would I say that? Maybe you can
6 repeat that question for me.

7 Q. Sounds to me as if your testimony has been
8 that given the quality of the clays, it doesn't need
9 a liner and it doesn't leak. So then why would you
10 say as long as the pit is not leaking?

11 A. I make a distinction between an operating
12 pit and a pit that's being closed, okay? The liner,
13 I think, is when you have got liquids circulating
14 and liquids that are free. The closed pit, you are
15 now taking liquids out and you now have the solids
16 left in the pit. Those are the distinctions. As
17 long as you have liquid there, you need the membrane
18 or a liner of some sort.

19 Q. So you do need a liner?

20 A. Yeah.

21 Q. If there's liquids present?

22 A. Right.

23 Q. And your theories then would require that
24 liner not to be leaking in order for the risk to be,
25 as you stated, no pathway of risk?

1 A. I would assume you would need to have an
2 appropriate engineered barrier of some sort.

3 Q. So there is a risk if the liner leaks; is
4 that fair to say?

5 A. There is a risk if the liner leaks and
6 there's a potential for exposure.

7 Q. That's what I am saying. That creates
8 that pathway to exposure that you said doesn't
9 really exist.

10 A. It has a potential pathway for exposure,
11 correct.

12 Q. So the liners are at issue and that's
13 important in what we are doing?

14 A. Yes, of course.

15 Q. No further questions. Thank you.

16 CHAIRWOMAN BAILEY: Dr. Neeper?

17 CROSS-EXAMINATION

18 BY MR. NEEPER

19 Q. As the others, I wish you good afternoon.
20 It's pleasant to see you here again. You have
21 stated the difference -- clarified the difference
22 between hazard and risk. If I understand you
23 correctly, risk is a combination of hazard plus
24 exposure.

25 A. Correct.

1 Q. The evil substance like the bus, has to
2 get to the person.

3 A. That's correct.

4 Q. You made the statement if I copied it
5 correctly that the concentrations are so low they
6 present no risk. That statement to me identifies
7 the risk with the concentration. Is it that the
8 concentration itself cannot provide a hazard?

9 A. The concentration -- one of the classic
10 statements in toxicology is that it is the dose that
11 determines the poison, and what you're highlighting
12 is that particular statement. You can have exposure
13 to a material that is toxic but if the amount of
14 exposure is low, you generally do not exceed the
15 toxic threshold, and as a result, you see no adverse
16 effect. So it is, in fact, the dose that determines
17 whether or not the material will have an adverse
18 effect.

19 Q. But in this case specific to oil field
20 substances, your statement that the concentrations
21 are so low they present no risk, I take it you mean
22 the concentrations in the pits are so low that that
23 concentration by itself would eliminate the risk?
24 The dose would be low? Is that what you intended?

25 A. Essentially that's what I'm saying, yes.

1 Q. So in that case we wouldn't need to bury
2 the pits or do anything else with them because the
3 concentrations as is would not present a risk even
4 if you were exposed? Did I understand you right?

5 A. The pits that we are talking about, that's
6 right.

7 Q. Aren't the concentrations even of the
8 xylenes much higher than the drinking water
9 standard?

10 A. Say that again because we are talking
11 about solid here.

12 Q. I understand that you are maintaining that
13 what is in the pits cannot get into the water in any
14 way.

15 A. As I look at the way the pit's structure
16 is and the bentonite clay, the likelihood of getting
17 into the water is low.

18 Q. Likelihood is low. Does that mean it can
19 never happen or if you wait long enough it will
20 happen but it takes a long time?

21 A. If it gets in there, it's going to be an
22 extremely low concentration that's leaking out
23 slowly, so for practical purposes it's not leaking.

24 Q. In response to a question you said you
25 felt so comfortable about that, that you could even

1 be comfortable with 1,000 milligrams per kilogram
2 Benzene in this material?

3 A. That's correct.

4 Q. Do you have expertise in beta zone
5 transport?

6 A. Some.

7 Q. Despite the presence of the clays, are you
8 stating that Benzene at that concentration or even
9 at the concentration in the pits could not diffuse
10 to an aquifer at 25 feet below a buried pit or
11 another burial unit?

12 A. What is the source of the Benzene?

13 Q. It's whatever is in the pit or it's your
14 1,000 milligrams per kilogram that you felt
15 comfortable with.

16 A. From the pit?

17 Q. Yes, in the buried material?

18 A. In that case, no, it's not going to
19 diffuse out.

20 Q. Cannot diffuse out?

21 A. That's correct.

22 Q. Are you aware of barometric pumping?

23 A. I am.

24 Q. Would it occur at a 25-foot depth?

25 A. Not the concentrations we are talking

1 about.

2 Q. Have you read any of my papers on
3 barometric pumping?

4 A. No, sir.

5 Q. Thank you. You have acknowledged that we
6 cite the chloride in regulations because it is the
7 tracer so it runs ahead of other things.

8 A. Yes.

9 Q. But you have also said that chloride
10 itself isn't the thing that could be most toxic if
11 it got somewhere?

12 A. That's correct.

13 Q. Particularly, I think you meant in
14 relation to plants.

15 A. I'm sorry, is there a question?

16 Q. Yes, there's a question. I'm trying to
17 put many things together for the question. Are you
18 maintaining then that the chloride will not, by some
19 mechanism, come out of the buried wastes and
20 therefore also sodium will not come out of the
21 buried wastes?

22 A. What I'm suggesting is that the hydraulic
23 conductivity of the clay is so low that you're not
24 going to have significant passage of water through
25 the clay layer, and as a result of that you are not

1 going to have substantial migration of the chloride
2 out of the clay.

3 Q. Is that true for the unsaturated hydraulic
4 conductivity?

5 A. Is that true for the --

6 Q. Isn't that what we are talking about here?
7 The entire rate of unsaturated?

8 A. Yes.

9 Q. So what counts as the unsaturated
10 hydraulic conductivity?

11 A. It should be true. Should be true. I
12 mean, we've got --

13 Q. Should be true?

14 A. I'm sorry?

15 Q. Should be true. Is true?

16 A. I think it probably is true.

17 Q. I will be able to clarify then all of my
18 further questions because I am sitting here in
19 absolute shock. You are maintaining that really no
20 matter how long we wait, and I like to think in
21 terms of centuries because I don't think we should
22 destroy the landscape now --

23 MR. HISER: Is there a question?

24 MR. NEEPER: Yes, there's a question.

25 Q. That the transport rate out of a pit or

1 out of pit material that's been dug with a backhoe
2 and redumped into a trench will be so low that we
3 never need to worry about the ground surface or
4 about an aquifer that could be 25 feet beneath it or
5 about a confined aquifer that could be arbitrarily
6 close to the buried material?

7 A. I'm sorry, that is the question?

8 Q. Do you believe that the rate of transport,
9 whether of vapor contaminants or soluble
10 contaminants out of the pit material, whether that
11 material is as it settled in the pit and was
12 subsequently covered or whether that material was
13 dug out and subsequently reburied in the trench, do
14 you believe that the rate of transport is so low
15 that even if we waited a century we would not have
16 any problem with the transported materials either in
17 an aquifer 25 feet under the burial unit, in a
18 confined aquifer at an arbitrarily close distance to
19 the burial unit or at the ground surface four feet
20 above the burial unit?

21 MR. HISER: Madam Chair, I'm going to
22 object to the compound, compound, compound. Maybe
23 Dr. Neeper could ask the aquifer and the next one
24 and the next one. I think that would be easier for
25 the witness to handle.

1 CHAIRWOMAN BAILEY: I will overrule your
2 objection because he is pulling together several
3 different concepts that I think the doctor is
4 capable of being able to answer.

5 MR. HISER: Thank you.

6 A. All right. Let's deal with a couple of
7 things. First of all, as I mentioned, risk is
8 determined by the magnitude of exposure. We are
9 talking about the -- your questions seem to have
10 more of an area of impact than it possibly has an
11 escape and, therefore, eventually reach groundwater
12 or something of that nature. What I'm saying is
13 that, first of all, the likelihood of a massive
14 escape so you could significantly impact groundwater
15 so that you would have an adverse effect in health
16 or for natural resources and things like that I
17 think is very low. You can have slow, slow leakage,
18 but again, net effect I think is minimal. Does that
19 answer your question? I mean, you could have an
20 impact but, I mean, it's such a small amount of
21 impact after a million years that I don't think
22 there would be any kind of adverse reaction.

23 Q. So after a million years you could not
24 accumulate enough either in the groundwater or in
25 the ground surface to cause a negative impact?

1 A. In general you don't accumulate. You
2 recycle and you redistribute things but you don't
3 accumulate per se.

4 Q. Would the surface of a salt pan be
5 considered as accumulating chlorides?

6 A. The surface of a salt pan?

7 Q. The thing we called a playa or a salt
8 plan?

9 A. Yeah.

10 Q. So in some cases it's possible to
11 accumulate?

12 A. That's right. That's right. Likewise, I
13 mean, the Romans salted Carthage. If you go to
14 Carthage today you will find there's growing plants
15 all over the place because the salt has been washed
16 out of the soil and is redistributed in the soil.
17 Now, a playa is a little bit different in terms of
18 the salt concentration and the ability to
19 redistribute.

20 Q. No further questions.

21 CHAIRWOMAN BAILEY: Commissioner Balch?

22 COMMISSIONER BALCH: I have a couple
23 questions. Unfortunately, I won't be able to argue
24 transport chemistry with you since that's not my
25 area of expertise. However, I am aware of isolation

1 of landfills and other hazardous waste using clay.
2 Typically they will create a clay barrier in between
3 the source of the hazardous material and the
4 material and area that they want to protect.

5 THE WITNESS: Yes.

6 COMMISSIONER BALCH: From several inches
7 to several feet thick either on top or on bottom or
8 on the side as a barrier wall. In regards to
9 isolating material left over from drilling or
10 completions, would it be beneficial to add
11 additional bentonite clay to isolate that material
12 or even adding on to that in the absence of clay so
13 you are not using a bentonite clay for your drilling
14 fluid, do you feel that the risk is substantially
15 increased?

16 THE WITNESS: I don't see any advantage of
17 adding the bentonite clay. I think you have enough
18 clay there to do that. There are other physical
19 phenomena that are occurring. What's called
20 absorption where you have these relatively insoluble
21 chemicals that bind to surfaces of various types.
22 And, you know, part of the struggle that I'm having
23 over here is that some of these things I haven't
24 really done a very good job of describing, you know.
25 But they inhibit further migration of the chemical

1 in the environment. I think that you've got enough
2 binding surfaces in the clay already there that
3 adding additional clay is not going to really give
4 you greater protection.

5 COMMISSIONER BALCH: In regards to the two
6 studies that you cited, the industry study that you
7 went into some detail, had samples from six pits,
8 numerous samples, you said, and then there's an OCD
9 study that had 23 pits plus two closure sites that
10 they took four samples in each of those sites.

11 THE WITNESS: Correct.

12 COMMISSIONER BALCH: How many samples were
13 taken at the industry sites?

14 THE WITNESS: I think eight or -- it's my
15 recollection it was eight per -- eight.

16 COMMISSIONER BALCH: You have somewhere
17 between 70 and 100 full samples.

18 THE WITNESS: Correct.

19 COMMISSIONER BALCH: How were the sample
20 sites selected? Not necessarily within the pit
21 although I would like that as well, but in general
22 were they geographically distributed? Were they
23 volunteered by companies or were they just the next
24 pit to be closed?

25 THE WITNESS: My understanding is they

1 were volunteered by the companies.

2 COMMISSIONER BALCH: How about the OCD
3 standard?

4 THE WITNESS: I don't know.

5 COMMISSIONER BALCH: Do you think that --
6 we have 23 composite samples from the OCD study and
7 you have eight to ten samples for each of six other
8 sites. Were you involved with the collection of the
9 data at the six industry sites?

10 THE WITNESS: I did not collect samples,
11 no.

12 COMMISSIONER BALCH: Were you involved
13 with the design of the study of how they were
14 sampled?

15 THE WITNESS: Yes.

16 COMMISSIONER BALCH: Can you talk about
17 how the pits were sampled?

18 THE WITNESS: They were sampled were a
19 boring tool at specific depths. The soils were
20 collected and then put into -- is that the type of
21 detail you are looking for?

22 COMMISSIONER BALCH: Yes.

23 THE WITNESS: Put in sample jars and sent
24 to a certified laboratory for analysis. We
25 specified -- we had full chain of custody. We

1 specified EPA standard analytical methods for VOCs,
2 SVOCs, metals, and there were several other
3 parameters that were looked at as well. I sent in a
4 quality control quality assurance auditor to make
5 sure that the laboratory followed all the procedures
6 and that all the data were an accurate reflection of
7 the analytical data and the summaries were in fact
8 accurate as well.

9 We did statistical analysis to look at the
10 averages and the ranges. We did comparisons with
11 standard regulatory screening criteria and from that
12 we generated a report.

13 COMMISSIONER BALCH: To the level of your
14 understanding of the OCD study, did they follow
15 similar processes?

16 THE WITNESS: It appears to me. I don't
17 think they had the quality assurance audit or
18 anything of that nature, but in general, I'm sure
19 that they have their laboratory.

20 COMMISSIONER BALCH: So the OCD study you
21 have composite samples for 23 sites and for your
22 study you have individual samples, eight to ten per
23 pit at six sites?

24 THE WITNESS: That's correct.

25 COMMISSIONER BALCH: Three in the

1 northwest and three in the southeast and those
2 studies had similar results irregardless of the fact
3 that they were separate studies?

4 THE WITNESS: They did. I think they were
5 comparable results. As I mentioned before, they
6 were comparable also to the Louisiana results.

7 COMMISSIONER BALCH: Those are my
8 questions. Thank you very much.

9 CHAIRWOMAN BAILEY: Commissioner Bloom?

10 COMMISSIONER BLOOM: Dr. Thomas, my
11 remembrance of my high school science was shaken
12 when you said that arsenic wasn't poison, and I
13 remember my sister having been in a play, Arsenic
14 and Old Lace, and the spinsters were offing people
15 with arsenic in their tea.

16 THE WITNESS: Absolutely.

17 COMMISSIONER BLOOM: Just to make sure I
18 remembered things correctly I pulled out my phone
19 and Googled arsenic poisoning, and 137 million
20 people around the world face arsenic poisoning. It
21 looks pretty ghastly at times. You told us arsenic
22 is not a poison to be concerned with. Can you
23 elaborate on that?

24 THE WITNESS: The form of arsenic that was
25 used for the tea, it was, in fact, a soluble form of

1 arsenic and it is poisonous. It is extremely
2 poisonous.

3 COMMISSIONER BLOOM: It's a different form
4 of arsenic?

5 THE WITNESS: It is. If the arsenic is
6 not a soluble form, it is not poisonous. It goes in
7 one end and out the other.

8 COMMISSIONER BLOOM: I won't take you up
9 on that dare. So what do we call the poisonous form
10 and what do we call the form that we are finding in
11 the OCD sampling and the industry sampling?

12 THE WITNESS: We didn't really
13 characterize the form. For my purposes it was
14 simply adequate to show that it wasn't soluble or
15 leachable in the TCLP procedure. So exactly the
16 typical form, I don't know.

17 COMMISSIONER BLOOM: So it wasn't
18 leachable. All right. Now, is bentonite clay used
19 in all drilling mud?

20 THE WITNESS: That's my understanding.

21 COMMISSIONER BLOOM: Is the ratio of water
22 and other constituents in the bentonite clay always
23 the same or can it vary?

24 THE WITNESS: Vary.

25 COMMISSIONER BLOOM: How thick is the

1 layer that's deposited on top of the pit?

2 THE WITNESS: How thick is the layer?

3 COMMISSIONER BLOOM: Of bentonite clay
4 that ends up being on top of the pit that creates
5 that seal?

6 THE WITNESS: If you were to look back at
7 the photographs that were taken both in the sampling
8 program industry and also the OCD program, what you
9 find out is the entire pit is essentially mud. The
10 OCD staff would be seen walking out onto the mud in
11 order to collect their samples. I didn't see the
12 industry group doing the same thing, but I would
13 assume they did the same. So, I mean, this is a
14 fairly substantial amount of solid.

15 COMMISSIONER BLOOM: How much of that
16 deposit is clay and how much is the other solid that
17 you mentioned, the cuttings that come up?

18 THE WITNESS: I don't know what the
19 relative percentages are. As I mentioned, one way
20 to view what's happening is to take a container of
21 ping-pong balls and pour BBs on top of it. What you
22 discover is the BBs now go around the ping-pong
23 balls and saturate and fill the entire container. I
24 think the clay is probably doing the same sort of
25 thing because the clay particles are so small.

1 COMMISSIONER BLOOM: I didn't have the
2 time to read through -- I will look at it later --
3 the sources you cite in your study. Did you cite
4 any studies that speak to this capping effect, if
5 you will, of the clay?

6 THE WITNESS: You used the term capping
7 and I don't think I used that term. What do you
8 mean capping?

9 COMMISSIONER BLOOM: Essentially you are
10 saying that we have this pit and it's lined and
11 liquids are taken out and evaporate and big pieces
12 fall to the bottom, ping-pong balls fall to the
13 bottom and the BBs fill in, which is the bentonite
14 clay, and it surrounds everything. I guess I
15 imagine it as a cap, but you say it permeates the
16 entire thing, the clay?

17 THE WITNESS: Well, what's happening is
18 the solids are being dewatered and they are just
19 settling down. What I described as the initial
20 things that settle out by gravity are the large
21 chunks, the rocks and things like that. So I am
22 simply trying to give you an idea that gravity is
23 having an effect. Certain things are falling to the
24 bottom of the pit. Other things are going to take a
25 longer time, particularly the very fine particles of

1 bentonite clay will take a while to settle out. But
2 as they settle out they will form essentially a
3 impermeable layer of clay in the bottom of the pit.
4 Just how thick the clay is, I don't know. From the
5 photographs it appears that the entire pit is filled
6 with solid, most of which is bentonite clay.

7 COMMISSIONER BLOOM: Your expertise is
8 toxicology. Am I getting into geology here?

9 THE WITNESS: A little bit of both. And I
10 guess I should explain that. My training is in
11 pathology, which means I did autopsies and all that
12 sort of thing on people. When I started to work in
13 the consulting industry, I became the health and
14 risk management expert for the company. As part of
15 that, I interacted with technical disciplines of all
16 different types, and what I'm telling you now is
17 after the years of experience talking with
18 geologists and trying to figure out what in the
19 world is happening, talking to chemists and trying
20 to figure that out, talking to people and talking
21 about the gravitational sedimentation of particles.
22 All these different things that have been important
23 in different parts of the job that I had to do.

24 COMMISSIONER BLOOM: I don't have any
25 further questions. Thank you.

1 CHAIRWOMAN BAILEY: I have a few. To
2 follow up on Commissioner Bloom's question, what
3 solubilizes arsenic?

4 A. What solubilizes arsenic?

5 Q. Yes.

6 A. You can solubilize it in a number of ways.
7 One is you can combine arsenic with an anion of
8 different types: Sulphate, chloride, all kinds of
9 things. But in order to do that you have to have an
10 anionic form of arsenic. But you can form salts
11 that are soluble in water. Currently the arsenic
12 form that's taken out of the well as part of the
13 drilling process, like I said, it's not part of the
14 formulation. This is part of the natural rock
15 formation being drilled through. It is not soluble
16 and not leachable.

17 CHAIRWOMAN BAILEY: So you are saying
18 during the well drilling we have physical breakdown
19 of the arsenic rock but we don't have chemical
20 breakdown of the arsenic compounds?

21 THE WITNESS: That's correct.

22 CHAIRWOMAN BAILEY: I'm not a drilling
23 engineer.

24 THE WITNESS: Nor am I.

25 CHAIRWOMAN BAILEY: Traditional lore says

1 that you add potassium chloride to drilling muds in
2 order to prevent swelling of the clays down-hole.

3 THE WITNESS: Yes.

4 CHAIRWOMAN BAILEY: So with the addition
5 of the potassium chloride to prevent the swelling of
6 clays, what impact is that going to have on your
7 theory of the clays forming any kind of barrier at
8 all when the chlorides are not allowing those clay
9 particles to swell?

10 THE WITNESS: A lot of potassium chloride
11 is going to be removed with the water. It's highly
12 water soluble. As you start to remove the water you
13 are also removing sodium chloride, potassium
14 chloride. Essentially what you are -- the answer to
15 your question is I don't think it's going to have a
16 substantial change in the overall settling of the
17 clay.

18 CHAIRWOMAN BAILEY: So you think that the
19 prevention of flocculation of the clay particles
20 goes away?

21 THE WITNESS: Yes.

22 CHAIRWOMAN BAILEY: In the bottom of the
23 pit?

24 THE WITNESS: I think what will happen is
25 the gravity will cause it to essentially form that

1 sealing barrier and the sodium chloride and
2 potassium chloride are largely going to be removed
3 with the dewatering process.

4 CHAIRWOMAN BAILEY: I like to see things
5 in relative exposures. Benzene is one of the
6 aromatic hydrocarbons, isn't it?

7 THE WITNESS: Yes.

8 CHAIRWOMAN BAILEY: Highly volatile?

9 THE WITNESS: Yes.

10 CHAIRWOMAN BAILEY: Hasn't it also been
11 used in Glade and Airwick and some of the air
12 fresheners that are advertised so heavily and that
13 people are supposed to be using to keep their houses
14 fresh-smelling?

15 THE WITNESS: I don't think so.

16 CHAIRWOMAN BAILEY: Not anymore?

17 THE WITNESS: Well, at some point in the
18 past it may have been a constituent of a solvent
19 that may have been used, but they didn't add Benzene
20 directly to it.

21 CHAIRWOMAN BAILEY: Do we encounter
22 Benzene in any of our everyday household chemicals?

23 THE WITNESS: They estimate that Benzene
24 may be present in a strawberry at one part per
25 million, just naturally.

1 CHAIRWOMAN BAILEY: But how about our
2 household chemicals? Not necessarily? Our exposure
3 in normal everyday urban living is --

4 THE WITNESS: Gasoline will have 1 percent
5 Benzene in the United States, for example. So any
6 kind of solvent that is a gasoline-range solvent may
7 have an aromatic content.

8 CHAIRWOMAN BAILEY: Have you any number
9 that you can put on the usual exposure that a person
10 filling their gas tank of the car would have for
11 both the time and the dosage that they may encounter
12 there at the gas station?

13 THE WITNESS: There is literature on that.
14 It was estimated that a person filling the
15 automobile gas tank before the advent of some of the
16 cuffs that go on to the gas dispenser these days,
17 before that there was estimates that they could see
18 levels as high as 20 part per million coming out of
19 the gas tank, the Benzene content.

20 CHAIRWOMAN BAILEY: You also early on
21 discussed the liner cover that you believed would be
22 remaining on burial of the pits, the waste pits.

23 THE WITNESS: Yes.

24 CHAIRWOMAN BAILEY: So you advocate
25 keeping that cover between the four feet of soil and

1 the waste material in the pit?

2 THE WITNESS: That's more of an
3 engineering design question. What I was saying is
4 that having a cover gives one more additional
5 barrier for direct exposure, and as a result from
6 the risk point of view any kind of barrier is good.

7 CHAIRWOMAN BAILEY: Those are all the
8 questions I have. Thank you very much. Any
9 redirect?

10 MR. HISER: No, Madam Chair. I do not.

11 CHAIRWOMAN BAILEY: Then you may be
12 excused. It is 4:20. Your next witness?

13 MR. HISER: We have about two hours of
14 direct, and since he is our hydrologist I imagine a
15 fair amount of cross.

16 CHAIRWOMAN BAILEY: Is there a logical
17 breaking point, a half hour into this presentation?

18 MR. HISER: We can certainly make one.

19 CHAIRWOMAN BAILEY: All right. First
20 Theresa, would you check to see if we have any
21 people who have signed up for public comments? We
22 have none, so if you could call your next witness
23 and we will try to break about 5:00 o'clock. Is
24 that possible? Let's take a five-minute break.

25 (Note: The hearing stood in recess at

1 4:21 to 4:26.)

2 CHAIRWOMAN BAILEY: Call your next
3 witness, please.

4 MR. HISER: I would like to call Dan
5 Arthur.

6 JAMES DANIEL ARTHUR
7 after having been first duly sworn under oath,
8 was questioned and testified as follows:

9 DIRECT EXAMINATION

10 BY MR. HISER

11 Q. Mr. Arthur, could you please state your
12 full name for the record?

13 A. James Daniel Arthur.

14 Q. Where do you reside?

15 A. Tulsa, Oklahoma.

16 Q. Tell us your academic background please.

17 A. I earned a bachelor of science degree in
18 petroleum engineering from the University of
19 Missouri-Rolla, and following that I have taken
20 either while at EPA or at other times throughout my
21 career a number of different classes and training
22 classes on a variety of subjects.

23 Q. Can you tell us about your professional
24 experience?

25 A. I started my career with an oil field

1 service company in Oklahoma, worked after that with
2 a small independent oil and gas producer watching
3 the drilling and so forth of rigs, and then due to a
4 downturn in the oil and gas industry I went on to
5 complete a degree in petroleum engineering. I had
6 another downturn in 1986 with a \$6 price of oil and
7 I interviewed for a job is the U.S. Environmental
8 Protection Agency and took a job there as an
9 environmental engineer and enforcement officer in
10 the Underground Injection Control Program.

11 While I was there, for about
12 three-and-a-half years I served as a regional expert
13 in the UIC program. Before I left I was certified
14 as a national expert. I also did some assignments
15 in the RCRA program, the CRCLA program and the water
16 program, and then from there went to work in Tampa,
17 Florida for a large engineering firm, CH2M Hill,
18 where I worked on water and environmental issues so
19 I had the opportunity to work on, for example, the
20 largest -- and managed the largest water reuse
21 system on the planet, one managed by the City of
22 St. Petersburg, Florida, the largest waste disposal
23 system on the planet, Miami Dade, and do a variety
24 of different water and wastewater environmental
25 projects all over the country from landfills to

1 RCRA, CRCLA, Clean Water Act, Safety Drinking Water
2 Act, disposal, site characterization, a variety of
3 different things throughout the country.

4 In 1999 I left CH2M Hill and formed A & L
5 Consulting. Through that I have focused on really
6 water and environmental-related things really around
7 the oil and gas industry doing a lot of research
8 work for federal agencies such as the Department of
9 Energy, the Bureau of Land Management in several
10 states. I have been involved in a lot of data
11 management activities, too. I was actually the lead
12 person developing with GWPC, the risk-based data
13 management system. I started that in about 1990
14 working with Dick Stamos way back in the day.

15 Through that time period, relative to kind
16 of the subject matter here, I have been involved in
17 throughout my career either directly or supervising
18 the design, construction, construction oversight,
19 assessment, closure and so forth of probably -- I
20 was trying to estimate a number earlier, but I would
21 say 6 or 7,000 pits across the United States.

22 I have been involved in -- and I say pits,
23 but that would include to me pits, infiltration
24 impoundments, water storage impoundments, temporary
25 pits, permanent pits, multi-well fluid management

1 pits and really kind of managing water in the life
2 cycle from both freshwater recycling and so forth.
3 And along those lines really managing and directly
4 being involved in the environmental issues that oil
5 and gas companies have to address, including
6 cleaning up old sites. I have done quite a bit of
7 FIDO remediation, bioremediation and so forth using
8 plants and just an assortment of things.

9 Q. So is it fair to say that your experience
10 has encompassed a fair amount of training and
11 professional experience in hydrogeology?

12 A. Yes.

13 Q. And in contaminant transport?

14 A. Yes.

15 Q. If you look at the NMOGA exhibit book
16 behind Tab 13 you have something that appears to be
17 a resume. Is this your resume?

18 A. Yes, sir.

19 Q. Did you prepare this?

20 A. Yes, I did.

21 Q. Does it accurately reflect your
22 experiences and project work?

23 A. As close as I could get.

24 MR. HISER: Madam Chairman, we would move
25 the admission of NMOGA Exhibit 13.

1 MR. JANTZ: No objection.

2 MS. GERHOLT: No objection.

3 MR. NEEPER: No objection.

4 CHAIRWOMAN BAILEY: It is admitted.

5 (Note: Exhibit 13 admitted.)

6 MR. HISER: Madam Chairman, we would
7 tender Mr. Arthur as an expert in petroleum and
8 environmental engineering, hydrogeology and
9 transport.

10 CHAIRWOMAN BAILEY: Any objection?

11 MR. JANTZ: No objection.

12 MS. GERHOLT: No objection.

13 CHAIRWOMAN BAILEY: He is so admitted.

14 MR. HISER: Thank you, Madam Chairman.

15 Q. Mr. Arthur, behind Tab 14 is there a
16 presentation?

17 A. Yes, sir.

18 Q. Did you prepare this presentation?

19 A. I did.

20 Q. Would it be helpful for the Commission in
21 understanding a number of the issues before them?

22 A. I hope so. That was my intent.

23 Q. Why don't we start then with as you were
24 looking at the proposed revisions that the New
25 Mexico Oil and Gas Association was looking at doing

1 to the Pit Rule, what were the issues that to you
2 were important in trying to determine the risk that
3 needed to be addressed and whether the changes that
4 the industry was seeking are protective of public
5 health, freshwater and the environment?

6 A. Well, when I was asked to look at this,
7 the objective that I really had were really trying
8 to look at incidents in pit failures historically.
9 I wanted to look at the current and proposed
10 revisions to Rule 17 in an attempt to evaluate
11 whether the current and proposed rules address the
12 cause of failures and the potential failures and
13 risks that may be faced. And then to provide an
14 opinion on the proposed rules relative to their
15 protectiveness of public health and the environment.

16 Q. And Mr. Arthur, why was it important to
17 you to start by looking at the historic experience
18 with pits when we are look at possible revisions to
19 the Pit Rule 17 that we have in place now?

20 A. In looking at pits especially, and this
21 maybe goes a little bit into everything, but what
22 happens -- and I have seen this happen time and time
23 again over the last 30 years -- is we tend to look
24 at academic solutions to real world problems, and I
25 tend to be more of a realist and experience and

1 seeing things firsthand means a lot to me.

2 I have done a lot of modeling. I use
3 modeling, I condone modeling, but just because a
4 modeling says that something is going to give you a
5 particular result, it doesn't always turn out that
6 way so then you are going back to find out why.

7 Furthermore, we tend to ask questions
8 sometimes that are academic in nature that aren't
9 really applicable. So looking at history and
10 historic events and what happened in the past and
11 how things evolved, how we evolved in the management
12 of pits, the design of pits, how we use pits, all of
13 those sorts of things are important. Because
14 oftentimes if you don't understand the history --
15 this was a big General Patton thing. Read the books
16 so you can understand what happened and figure out
17 how to beat them.

18 By looking at our history and how things
19 evolved, and also knowing when we are going out
20 doing sampling and that, what was the practice that
21 the sampling is applicable to, for instance, but
22 trying to recognize that is an important historical
23 basis that you start drawing conclusions from. So
24 that was real important to me.

25 Q. So there are really two things you are

1 looking at, the positive and negative aspect. On
2 the positive side of that you are looking for where
3 have pit failures occurred and how do we make sure
4 we prevent those from occurring in the future.

5 A. Exactly.

6 Q. On the negative side where have pit
7 failures not occurred, so therefore that may be less
8 of a concern because we haven't seen it over 150
9 years or however long we have had pits.

10 A. I think that's a positive but yet.

11 Q. I said the negatives are --

12 A. You attorneys.

13 Q. And where we haven't seen pit failures.
14 So if we look at the historic state statistics here
15 in New Mexico, what do we see?

16 A. Well, you know, there was a reference to
17 this earlier and there's a lot of things about New
18 Mexico history that I think a lot of people don't
19 know and just how large of oil producing wells New
20 Mexico had in the Permian Basin, for instance. It
21 was amazing the type of wells. They were offshore
22 similar in production.

23 But if you look at the state, the
24 estimates that I have seen put the total number of
25 pits that have been in the state at something like

1 80- to 100,000 pits constructed in the state of New
2 Mexico. A lot. And if we look at, you know, what I
3 could find in looking at the prior proceedings and
4 so forth, it looked like the OCD looked at something
5 like 4- to 500 pits that had caused impacts to
6 groundwater in the state of those pits.

7 So if we look at that on a real simplistic
8 basis, so if we, you know, since we are dealing with
9 80 to 100 and 4- to 500, if we just assume 500 in
10 this case, 500 pits or 0.5 percent of all of the
11 pits that have been suspected of groundwater impact,
12 this means, you know, if you look at it on a
13 positive side, 99 1/2 percent of all the pits in New
14 Mexico hasn't caused or been suspected of causing a
15 groundwater problem. That, to me as a former EPA
16 guy, I have written environmental rules while I was
17 there, and several of my clients are states and I
18 have done a lot of state rule-making, too, but
19 that's a good success rate, I think.

20 The other thing that if I look at that
21 from my perspective as a technical person that, you
22 know, that really has a lot of experience in this, I
23 could look from the history. There's been oil and
24 gas in New Mexico for a long time. And many of
25 these 80 to 100,000 pits were constructed with a lot

1 less stringent standards than the current Rule 17 or
2 the proposed Rule 17. So the fact that we are
3 looking at this kind of success rate without even
4 the new Rule 17 is pretty amazing to me.

5 Furthermore, if we looked at that in going
6 through those 4- to 500 pits, what we could find is
7 ten of those pits being temporary pits. So of the
8 500, out of the 80 to 100,000, ten of them were
9 temporary. So if I looked at the risk, you know,
10 and just the statistical probability or whatever,
11 you know, that represents 0.0125 percent of all the
12 pits constructed in New Mexico or it means 99.98
13 percent of temporary pits are not suspected of
14 causing groundwater contamination which for
15 environmental programs is pretty darn good.

16 The other thing I will note is as I looked
17 at these individually, none of the ten pits that
18 were suspected of causing this were done under the
19 current standards, so they would have either had,
20 you know, no liners or sewn liners. So we are
21 looking at less stringent standards. So when I
22 started just doing some basic math, and I did a lot
23 of that at EPA and we would look at a lot of that
24 now just in success rates, if we look at what we
25 have historically before Rule 17 or before the

1 proposed Rule 17 getting to where we are now, the
2 overall risk issue is very minute.

3 Q. Now, you said that you had looked at the
4 ten pits individually. Did you actually go in and
5 look at the OCD records?

6 A. Yes.

7 Q. Now, back in, I think it was, around 2005,
8 the OCD, actually the Oil Conservation Commission,
9 adopted the order of Rule 50 that started to
10 regulate pits and created basic requirements for how
11 they would be handled. What was the impact on pits
12 and releases from pits, from pits that were
13 constructed in the time frame of roughly 2005 to
14 2007?

15 A. Well, what I could get in looking at the
16 State's data from the 2005 to 2007 time frame, you
17 know, from what I could find, I found 5763 wells
18 were spud during that time period. And, you know,
19 it certainly could be, you know, a little bit
20 different than that. But nonetheless, what I also
21 estimated is based on just my understanding from a
22 number of the operators and practices is that about
23 95 percent of those wells would have used temporary
24 pits as opposed to closed-loop drilling systems.

25 So if I look at that, as of November 2008

1 the OCD listed only six of the pits associated with
2 what would have been the drilling of these wells as
3 being suspected of impacting groundwater. So what
4 that leaves me with is in a pretty rough evaluation,
5 but still I think a very meaningful and effective
6 one, is that of the temporary pits that would have
7 been in place during that time period, and this is
8 before Rule 17, is we had a success rate of 99.89
9 percent of all those pits not causing groundwater
10 contamination.

11 Q. Now, Mr. Arthur, of course, one objection
12 to that statistics might be that we have not had a
13 very long period since 2005 since we are only in
14 2012. But if you look at the previous historic data
15 from prior to Rule 50, were most of the incidents
16 from the closure phase or did they seem to come more
17 from the operating phase?

18 A. 100 percent of the ones that were noted as
19 problems, so this is the six, but also the prior
20 ones that we looked at all were during the operating
21 phase. And this is really, kind of based on my
22 experience, is generally, you know, you see two
23 things that happen over and over. When problems
24 occur, it's during the operating phase, and in
25 general, when there's an issue, a contamination

1 issue or a leak or something happens, it's generally
2 due to a tear, you know. You know, A roughneck
3 loses his job and throws a drill bit and in the pit
4 or whatever.

5 Q. It's when there's actual liquid in the pit
6 and a liner and the liner is compromised?

7 A. And you had head to push it down or
8 whatever, yes.

9 Q. So for you, what does the historic data
10 demonstrate?

11 A. So even if we look at -- through the
12 historic data, even unregulated, unlined pits have
13 historically caused really few cases of alleged
14 groundwater contamination. 99.5 percent not
15 suspected of this over a long period of time. The
16 year came to a close with Rule 50 in 2005, 99.89
17 percent of the temporary pits not suspected. So
18 Rule 17 -- and I think what you will find with the
19 existing rule is, I mean, it's over the top and
20 conservative, in my opinion. So I think what you
21 will see is an even better performance as a result
22 of that and equaled by what we have here.

23 And I also note that when you look at --
24 and this is, you know, based on my experience in a
25 lot of different places -- the one thing I found

1 interesting is that as you look at -- you know, we
2 have got really a lot of pretty exact standards
3 here. I mean, New Mexico is really, I think, a
4 leader when it comes to dealing with pits. And in
5 my experience I have seen people that have done like
6 in closing pits and building pits and dealing with
7 them do an amazing job. And I have seen other
8 people that have done an okay job. What I have seen
9 through both of those is that, you know, you have
10 got such protections and in place, and I think
11 that's a little bit where Ben was drawing his
12 conclusions from in the prior testimony, is that in
13 either case you still don't see problems, which is,
14 I think, a good outcome.

15 Q. Now, as you look at the historical data,
16 in your mind do you begin to split issues into sort
17 of an operational phase and then a post-closure
18 phase?

19 A. How I like to look at it, and especially
20 since the regs are set up that way, is that, you
21 know, to me I look at things in kind of an
22 operational closure phase, and in those things you
23 are looking at spills and overland releases. You
24 are looking at direct contact with pit contents,
25 punctures and so forth with the liner. Post-closure

1 phase you are looking at erosion, exposure at the
2 surface, leaching of liquids from the closed pit.
3 So there are different things you would look at
4 depending on kind of the operational phase and
5 trying to assess if there are going to be problems
6 or what kind of problems you might have.

7 Q. And in terms of the relevant risks
8 presented by those two phases, which one in your
9 mind presents the greater risk?

10 A. Well, really, operational. That's
11 generally where you see the vast majority of
12 activity. And even if you look at some of the very
13 old, old pits, you know, a lot of times the problems
14 that you see are because they were -- I mean, we
15 used to ship oil in trenches. We had a lot of
16 different practices. And you had in New Mexico and
17 Oklahoma and Texas you had pits or impoundments that
18 were really injection wells that were just done via
19 pit.

20 But if you look at, you know, through the
21 time period and even now when you have problems it
22 is generally during that operational phase and to a
23 lesser extent the closure phase when you have people
24 around and you have water on it and you have a head
25 and things are happening. That's generally when you

1 are looking at the greatest risk, in my opinion.

2 MR. HISER: Madam Chairman, I know I am
3 about ten minutes before the hour but this is where
4 we are going to switch from the general overview,
5 the history, what are the areas of risk and
6 mechanisms and dive deep into the text of the rules.
7 This might be a good place to quit.

8 CHAIRWOMAN BAILEY: Thank you very much.
9 We will continue this case until tomorrow morning at
10 9:00 o'clock.

11 (Note: The hearing was adjourned for the
12 day at 4:50).

13

14

15

16

17

18

19

20

21

22

23

24

25

REPORTER'S CERTIFICATE

I, JAN GIBSON, Certified Court Reporter for the State of New Mexico, do hereby certify that I reported the foregoing proceedings in stenographic shorthand and that the foregoing pages are a true and correct transcript of those proceedings and was reduced to printed form under my direct supervision.

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

JAN GIBSON, CCR-RPR-CRR
New Mexico CCR No. 194
License Expires: 12/31/12