

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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THURSDAY

JUNE 10, 2004

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LISLE, ILLINOIS

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The Advisory Committee on Reactor Safeguards  
met at the NRC Region III Office, 2443 Warrenville Road,  
Lisle, Illinois at 8:30 a.m., John D. Sieber, presiding.

PRESENT:

JOHN D. SIEBER, Chairman, ACRS  
JAMES CALDWELL, Regional Administrator,  
NRC Region III

ACRS MEMBERS:

F. PETER FORD  
GRAHM WALLACE  
MAGGALEAN W. WESTON  
MARIO BONACA  
VICTOR H. RANSOM  
STEPHEN ROSEN

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1                   CHAIRMAN SIEBER: Good morning. This is our  
2 annual meeting of the ACRS Sub-Committee on Plant  
3 Operations and each of the Regions. I'm John Sieber,  
4 Chairman of the Plant Operations Sub-Committee. I would  
5 like to thank Jim Caldwell, the Regional Administrator for  
6 having us here. I know these meetings are never easy to  
7 prepare for.

8                   Our ACRS members in attendance are the ACRS  
9 Chairman, Dr. Mario Bonaca, Dr. Peter Ford, Dr. Victor  
10 Ransom, Stephen Rosen and Dr. Grahm Wallace. Back in  
11 attendance are Maggalean Weston and Barbara J. White.

12                   The purpose of this meeting is to hear the  
13 status of regional operations and also provide the ACRS the  
14 opportunity to interact directly with the Regions in its  
15 ongoing efforts to remain knowledgeable about NRC matters.  
16 Maggalean Weston is the cognizant ACRS staff engineer and  
17 the designated federal official for this region.

18                   The rules for participation in today's meeting  
19 have been announced as part of the notice of the meeting  
20 published in the Federal Register on May 27th, 2004. A  
21 transcript of the meeting is being kept and will be made  
22 available as stated in the Federal Register Notice. It is  
23 requested that speakers use one of the microphones  
24 available, identify themselves and speak with clarity and  
25 volume so that they may be readily heard, particularly by

1 the Court Reporter.

2 We have no written comments from members of the  
3 public regarding to today's meeting. And personally, other  
4 than the weather, I think you for your hospitality. As  
5 part of these regional visits we go to a licensee's  
6 facility, a nuclear power plant, and talk with the licensee  
7 and gather their views and also tour their plant. And this  
8 year we went through the D.C. Cook Power Plant and they  
9 were very gracious and prepared well for our visit. So we  
10 did that yesterday.

11 And the last time we were here was on June 8th,  
12 in the year 2000, which was relatively speaking a calm time  
13 in the life of Region 3. And I regret that it's taken us  
14 four years to come back. But there are four regions and we  
15 make one visit a year.

16 With us today is the ACRS Chairman, Dr. Mario  
17 Bonaca, and Dr. Bonaca, do you have any comments? I'm sure  
18 we would like to hear them.

19 DR. BONACA: Well, first of all, I would like  
20 to thank you again for hosting us. I realize we're taking  
21 quite a bit of your time and preparation, but we're looking  
22 forward to the interaction. We already communicated to  
23 you, I believe, on some of the areas of interest on our  
24 part. One is, it is still high on our list of discussion  
25 is the ROP. And particularly the issue of safety culture

1 that, you know, it's really, well, I was just reading the  
2 GEO Report of Davis-Besse and again the recognition about  
3 need for further regulation in the safety culture area.

4           ACRS wrote a letter about a year ago stating  
5 what we felt at the time that there is sufficient  
6 regulatory requirements in place in Appendix B on the ROP  
7 to provide -- framework for assessing safety culture. And  
8 our focus was more on the sophistication of the inspectors  
9 findings and so this report than on the regulatory  
10 framework.

11           Clearly this is an issue that's been debated  
12 widely right now. There are other people that we  
13 interacted with that believe that there should be more  
14 regulation and again the GEO Report. So we appreciate your  
15 views on this issue.

16           Another issue which is specific to the Region  
17 is we are reviewing the license rule present in Quad City.  
18 And what we have been looking at is some of the issues  
19 relating to the power upgrades and the -- on the speed  
20 dryers and whether or not such components should, in fact,  
21 components that may be considered non-safety related. And  
22 yet they make us -- to some impact -- should the impact  
23 within this -- rule.

24           And again, the view of the Regional operation  
25 on this nature, you're interacting with those plants and

1 this is an issue that we'll have to deal with when we  
2 perform the completion of our review in September.

3 With that, that's pretty much my statements. I  
4 think the CRS and I wanted to raise the issues now.

5 CHAIRMAN SIEBER: Thank you, Dr. Bonaca. I  
6 would caution you that the ACRS has a pretty bad habit of  
7 interrupting and asking questions. We have tried to reform  
8 ourselves in vain. And on the other hand, we will be as  
9 courteous as we possibly can be and I consider these free  
10 floating meetings. You're entitled to make comments and  
11 ask questions of us. And we likewise.

12 And so with that introduction and with all of  
13 the official business behind us now, I'd like to call upon  
14 Jim Caldwell to begin the Region's presentation.

15 MR. CALDWELL: Well, good morning. I  
16 appreciate your opening comments. And we hope that we will  
17 answer your questions to the best of our ability. As you  
18 might guess, we work very closely with our Headquarter's  
19 counterpart. So our views may not seem different than what  
20 you may hear from NRR. And a lot of these issues that  
21 you're talking about are NRR Issues. But we have provided  
22 input based on our observations and we'll talk about that  
23 as we go through it.

24 I want to welcome you to Region 3. As you  
25 said, the weather wasn't very accommodating but we haven't

1 had, we had a lot of rain recently so this is kind of  
2 typical. The last couple of days were nice while you were  
3 at Cook. I assume you would bring good weather. So, maybe  
4 it'll clear up a little bit this afternoon for your trip  
5 back.

6 I'm glad that the tour went well yesterday at  
7 DC Cook. That is a facility we'll talk a little bit more  
8 about later. It's a Column 3 Plant. They've been in and  
9 out of the greater cornerstones and their operational  
10 performance hasn't been that good. So it's a good plant to  
11 go visit. We've spent a lot of resources there. That's  
12 one of the places that has caused us to spend a lot of  
13 resources. And I'm not sure exactly what they told you  
14 yesterday, but it's my understanding their management  
15 recognizes that it's an issue of whether or not they've  
16 been able to get the staff to recognize it. So we're still  
17 monitoring their activities. And we'll continue to mentor  
18 through this year.

19 This is a new facility. We just moved in here  
20 in April. And we're pretty proud of how it turned out.  
21 And I hope you'll get a chance to see our Instant Response  
22 Center. We downsized the square footage of it considerably  
23 to make sure we fully utilized all our space. This room  
24 can become part of the Instant Response Center. It's set  
25 up so that these screens, and there's one that comes down

1 here, can be used to bring in URD's Data or plant diagrams,  
2 Plant PMID's. Also Rasco print.

3 All that can come from the Instant Response  
4 Center into here so if we had to expand out and have a  
5 group in here. And they can communicate when they're  
6 giving briefings and plant status during an event. They  
7 will, the briefings will come through here. So we have,  
8 next door's the Executive Conference Room, which is also  
9 set up the same way. So we have a lot of expanded  
10 abilities for Instance Response, as I said, being one of  
11 the rooms. In our design of the building or this facility  
12 we tried to make it as efficient as we could.

13 I looked over the agenda. I believe we will be  
14 giving presentations on most of the things you are  
15 interested in. But if not, like you said, please interrupt  
16 and ask questions. We are use to that. We rarely let  
17 licensees get through their entire presentation without  
18 interrupting them. So it will be good for us to get some  
19 of the same thing, reactions.

20 There was a whole lot of stuff that we have on  
21 here. We compressed it in a very short period of time so  
22 we'll try to scoot through it to get to those things that  
23 you want. But we do have a lot of folks that are prepared  
24 to come in and talk to you. And there's not a whole lot of  
25 time but we'll try to get all that through. We'll have



1 staff come in, we have staff in the audience right now.  
2 There will be people coming in and out to provide  
3 additional information for you, to answer questions as you  
4 ask them.

5 What I'd like to do, my name's Jim Caldwell,  
6 I'm the Regional Administrator. What I'd like to do is go  
7 down the front table here starting with Tom Kozak. I'd  
8 them to introduce themselves.

9 MR. KOZAK: Hi, I'm Tom Kozak. I'm a technical  
10 assistant in Division of Reactor Projects.

11 MR. REYNOLDS: Steve Reynolds. I'm the acting  
12 director of Division of Reactor Projects.

13 MS. PEDERSON: Good morning. I'm Cindy  
14 Pederson. I'm the Director of Division of Reactor Safety.

15 MR. GROBE: Good morning. I'm Jack Grobe. For  
16 the last two and-a-half years I've been assigned full time  
17 to the Davis-Besse Recovery.

18 MR. CALDWELL: Other NRC folks in the audience?  
19 Introduce yourselves.

20 MR. HOUSTON: Sure. I'm Al Houston. I'm in  
21 the Division of Reactor Projects.

22 CHAIRMAN SIEBER: There is a hand held  
23 microphone. That way we can get your name on the record.

24 MR. HOUSTON: I'm Al Houston in the Division of  
25 Reactor Projects.

1                   MR. RING: I'm Mark Ring in the Division of  
2 Reactor Projects and I have responsibility for Quad Cities,  
3 Dresden and --

4                   MR. STODER: I'm Carl Stoder, I'm Senior  
5 Resident Inspector of Quad Cities Station.

6                   MR. SETTLES: My name is Steven Settles. I  
7 represent the State of Illinois, the Division of Nuclear  
8 Safety. I oversee the reactor inspectors at the power  
9 plants.

10                  MR. RABOR: I'm Ted Rabor. I'm Chief of Plants  
11 and Support Branches in the Division of Reactor Safety. In  
12 our branch we have Radiation Protection, Emergency  
13 Preparedness and Incident Response.

14                  MS. RILEY: My name is Jamie Riley, I'm a  
15 student --

16                  MR. BULIK: Good morning, I'm Tom Bulik,  
17 Reactor Engineering, DRS.

18                  MR. LURCH: My name is Robert Lurch. I'm a  
19 Project Engineer for Branch 6 in the Division of Reactor  
20 Projects. We have responsibility for Cook, -- and  
21 Palisades.

22                  MR. WILLIAM: My name is William. I work for  
23 Reactor Engineering in the Division of Reactor Projects.

24                  MR. CALDWELL: Thank you. And as I said, we'll  
25 have additional people coming in and out as it takes to

1 give presentations and answer your questions.

2 I thought I'd spend a few minutes on the  
3 organization. And Region 3 is pretty typical of regional  
4 organizations. But I'll walk through it so you can see  
5 there are differences in how each region does something.  
6 It's kind of based on their personality. I know you were  
7 here about four years ago when we were in the old office.  
8 And as I said, we're in the newer facility now. We have  
9 made some changes.

10 I started as the Regional Administrator just  
11 this past October. I've been here, though, almost nine  
12 years in Region 3. I think the Region 3 people have  
13 claimed me although there's a lot of folks here who have  
14 been here a lot longer than that. I started out in the  
15 Materials Area and then went back to Reactors and then into  
16 the RA's Office.

17 But there's a lot of things that have been said  
18 about Region 3 and I wanted to just do a little bit of  
19 discussion about it. We recently had a management retreat  
20 and we've been using a consultant to help us work, to make  
21 things more effective than they currently are. We're  
22 trying to get better all the time.

23 But one of the comments he made in working with  
24 our management teams was that he was, he was very surprised  
25 by the fact that when he looks at a large group, he comes

1 and works with a lot of big companies to help them work  
2 through problems. And most of the time he sees a couple of  
3 leaders in the group and then the rest of the people are  
4 waiting to find out what to do next.

5 What he found out here when he dealt with the  
6 management team in this region was that everybody on the  
7 team cared and compassionately cared about the issue of  
8 safety. And he recognized that, and everybody in the  
9 group, I'll have to say, because I can be the leader of  
10 this region. So we have a lot of very strong characters in  
11 this place and they're all very passionate about safety.  
12 And that goes even into the staff.

13 So consequently it makes things a little more  
14 complex than complicated. And I wouldn't have it any other  
15 way. I'm very pleased and proud of how good the management  
16 team staff is here at Region 3. Sometimes people look at  
17 things like the NIG Survey and see where we may not fair in  
18 the survey form as well as some other places. But do we  
19 have a lot of good inspectors here. And there's skeptics.  
20 So I think that's reflected in there.

21 And it's also, like I said, everybody really  
22 cares passionately. If you decide to do anything to our  
23 programs that people feel like are reducing our ability to  
24 accomplish our mission, they speak up so we don't have a,  
25 we have a very vocal group of folks that care. And as

1 you'll see as we walk through some of these issues, we have  
2 a lot of findings as a tribute to the leadership and staff  
3 here in this Region. It is a good, a really good group of  
4 folks. Like I said, I've been here about nine years and  
5 I've come to appreciate Region 3 a great deal. I know  
6 there's a lot of things that people talk about. But this  
7 is good place and these people do a great job. So I'm  
8 pretty happy to be the RA of this Region.

9           Again, our organization, like I say, is set up  
10 pretty much like the other three regions but we have some  
11 differences. As you'll notice, as Jack indicated, he's the  
12 Chairman of the Davis-Besse 0350 Panel. And we have under  
13 projects, which I'll walk through each one of these, but  
14 under Projects we have a branch that just has Davis-Besse  
15 in it.

16           Additionally, we have a seventh branch, which  
17 we don't show on here because it's an ad hoc branch that  
18 has joint Point Beaches. Point Beaches are Column 4 plan.  
19 They had some red findings and I think we did a 950003. We  
20 have a cal on that facility. And we continue to have  
21 stated oversight. So we have a dedicated Branch Chief just  
22 for Point Beach, a dedicated Branch Chief just for Davis-  
23 Besse. And the other Branch Chiefs in DRP have taken up  
24 the load that at the plants that were originally in Branch  
25 4.

1           So, although we have six branches, there's  
2 really a seventh and Tom Kozak, who we should thank for all  
3 this, how this was set up. He's spent all his time making  
4 sure that we would be ready today. He's the Director of  
5 the Tech Support Group and a previous Branch Chief. So  
6 they have a lot of talent in the Division of Reactor  
7 Projects.

8           The Division Reactor Safety is our engineering  
9 group. We just recently added a third engineering branch.  
10 Our goal, the two previous engineering branches had a  
11 pretty large band of control. And we're very strong on  
12 engineering. And we wanted to make sure we had the right  
13 engineering management oversight of those groups, making  
14 sure that each individual gets the right attention. So we  
15 split those two into three branches. And it just gotten  
16 started. I know Cindy, who's the Director of Division of  
17 Reactor Safety will talk a little bit more about that  
18 later. But we're very proud of how well we fair in the  
19 engineering areas of this Region.

20           We have a Division of Resource Management,  
21 which is our federal organization. We used to say we had  
22 three technical divisions and an administrative division.  
23 And I now say we have four Technical Divisions because  
24 budget is a big issue at the Agency now and there's a lot  
25 of details that go through the budget process. Also IT is

1 providing the active support for the staff. It's very  
2 important.

3 And that's a pretty technical organization as I  
4 saw last night when I tried to operate this equipment and  
5 it broke. And they had to come in last night to fix  
6 everything, make it work. But we've got a lot of new  
7 equipment that's going to help us be a lot more effective  
8 in the field as we go forward.

9 And you asked about resources in our HR staff.  
10 We have a large one here. Probably the largest of all the  
11 regions. We spend a lot of time with the Branch Chiefs and  
12 Senior Managers and the HR staff. We've been pretty  
13 successful. In fact, in 2001, that was the first year we  
14 ever ended the year at our path. We usually were way low  
15 because we were having a tough time meeting, recruiting as  
16 many people as were leaving this region. So we're getting  
17 better at that.

18 But even at that, just meeting the cap is not  
19 enough to keep from having an impact on the people who are  
20 here. We're really shooting to go over that level so that  
21 we always have enough people through training and being  
22 qualified. And if we're to meet the work load, as you  
23 know, with the ROP, we're baseline loaded now. Each  
24 individual's hours are already allocated to do inspections.  
25 So when we have a lot of people in training that means

1 other people have to pick up the loads. So we're working  
2 on recruiting to make sure we have the right resources.

3 MR. ROSEN: Excuse me, Jim. I would be helpful  
4 if we had a copy of that slide.

5 MR. CALDWELL: Yeah, we can give you a copy of  
6 the workshop.

7 There's another issue, that just escaped me, on  
8 resources. But we've been working really hard to -- oh, a  
9 lot of the people we bring, in fact, recently a lot of  
10 people we've brought in have extensive industry experience.  
11 Not a lot of NRC experience, obviously. And we've also  
12 hired a bunch of folks right out of college with not any  
13 industry type experience.

14 But we're finding we have a, kind of a good mix  
15 of all of that. And even out in the resident branch we  
16 have some folks that we hired in the New Professional  
17 Program. They're residents now. And some that come in  
18 with a lot of experience. So we get a lot of different  
19 looks at the power plants. A lot of different kinds of  
20 questions. So it's all been working out well.

21 The down side of hiring good people, and that's  
22 what we try to do, hire the best folks we can. The down  
23 side of that is a lot of our folks get promoted. And they  
24 get promoted either at the Headquarters or other regions.  
25 So that's part of the turn over that we, I might, suffer in



1 this Region. But we're kind of happy with that approach.  
2 We like seeing Region 3 people move up and out to other  
3 things. And we like making sure that we hire the best  
4 folks. It does mean, though, that we have to spend a lot  
5 of time on recruiting to make sure we cover all of that.

6 And then I know that -- I'm sorry.

7 CHAIRMAN SIEBER: Let me ask a question while  
8 you're on this subject. In the first part of this month  
9 there is the National Annual AMS meeting. The theme of  
10 that meeting is based on the perception that there are an  
11 insufficient long term number of nuclear engineering  
12 graduates and students to support this industry.

13 What impact, have you looked at the longer term  
14 and what impact do you think that will have on the industry  
15 and the Agency?

16 MR. CALDWELL: Do you mean in nuclear  
17 engineering or in engineering?

18 CHAIRMAN SIEBER: Nuclear engineering.

19 MR. CALDWELL: Well, I know the industry has  
20 been looking at this as well as the Agency. And we have a  
21 little, being a government agency, we cannot compete in  
22 some areas for folks. But we don't just look in nuclear  
23 engineering. We look in electrical and mechanical, all the  
24 engineering disciplines. We have not had problems to date  
25 with bringing people in from the university.

1           I don't know what the trickle down will be when  
2 you see, I know that Navy Program has been cutting back in  
3 a lot of the nuclear programs in universities. But I think  
4 there are some that are getting standing. I don't know,  
5 Steve?

6           MR. REYNOLDS: I just wanted to add on we've  
7 had good success recently from Purdue University, getting  
8 nuclear engineers. In fact, a nuclear engineer from Purdue  
9 and we have another individual starting Monday who's a  
10 nuclear engineer graduate from Purdue. Tom Kozak is a  
11 former graduate from Duke. So we've got a relationship  
12 with them.

13           So from that point of view we're getting  
14 nuclear engineers to come in, join us, with a mix of the  
15 others. So.

16           MS. PEDERSON: Additionally, one other; at  
17 University of Missouri, Rala, has a new engineering  
18 program. We, too, have personally reached out to that  
19 school, myself included, to go out on recruiting trips to  
20 try to develop that relationship as well. So we are  
21 connecting to a couple of schools directly to recruit.

22           MR. CALDWELL: And Cindy has been connected  
23 with the Society of Women Engineers. And we've been  
24 successful in recruiting through that program as well. So,  
25 so far we've been in the midwest area and we've gone to the

1 University of Puerto Rico, Florida State. There's a number  
2 in the south we've gone to. We've been relatively  
3 successful.

4 We had not seen the impact so far. But it is,  
5 we are bringing in lots of new folks, some with experience.  
6 And we've been fortunate recently to bring in folks with a  
7 lot of experience.

8 Does anybody else have any comments on  
9 recruiting? These folks handle all the recruiting. They  
10 just let me know how we're doing.

11 CHAIRMAN SIEBER: Well, maybe I'll just comment  
12 and give away my age, but when I graduated from college and  
13 went into the nuclear industry, the core of them were  
14 engineers. So mechanicals, electricals and civils actually  
15 could do the job. So I personally don't have a fear that  
16 there's only maybe 500 nuclear engineering students in the  
17 United States. And most engineers typically are very  
18 versatile. And if they don't learn it in school, they will  
19 learn it very quickly.

20 On the other hand, I think that both the  
21 industry and our Agency needs to support recruiting as a,  
22 as a worthwhile field. So I appreciate all of your  
23 comments as you're aware of what's going on and are  
24 responding to that.

25 MR. CALDWELL: Yes, we're certainly aware and

1 we have made, as managers indicated, we made some  
2 relationships with certain universities and we will  
3 continue to look for other ways of making sure we have  
4 enough staff. But it is a challenge, it continues to be a  
5 challenge, especially as we grow, it continues to be a  
6 challenge.

7 The only division I didn't talk about was the  
8 Division of Nuclear Material Safety. And now that's not  
9 part of the graph or program, but it has an impact on the  
10 Region. That program has been reduced some in size because  
11 of the grievance states and the New Cycle Program going to  
12 Region 2. But there's a number of challenges in there.  
13 And as we all become aware every day, those are real life  
14 and health issue challenges. And people, radar folks that  
15 are getting over exposed, significantly over exposed.

16 We just talked about a Severe Level 2 Violation  
17 and we're getting ready to issue, because of a radiographer  
18 assistant got about 20 Rem because they weren't doing what  
19 they should have been doing. But that program is doing an  
20 exceptionally good job too and it continues to be something  
21 that we focus on from time to time.

22 CHAIRMAN SIEBER: Was this the incident where  
23 the stucco --

24 MR. CALDWELL: I believe so.

25 CHAIRMAN SIEBER: Yes, I heard about that one.

1                   MR. CALDWELL: I'm trying to think of the name  
2 of the --

3                   MS. PEDERSON: Jim?

4                   MR. CALDWELL: No, it's not.

5                   MS. PEDERSON: Being a public meeting, we may  
6 not want to mention a name because we haven't issued it  
7 yet.

8                   MR. CALDWELL: Right, sorry about that.

9                   In the way of discussing a -- are there any  
10 questions on the organization?

11                  MR. ROSEN: One question or comment, probably  
12 just one thing you said. That when people are training to  
13 -- to pick up the load, it's come to my, my experience that  
14 you don't schedule training in terms of man hours. You end  
15 up just exactly there and you end up more than people  
16 having to jump in and pick up the load. But if you take  
17 training as a base task and put it in your overall planning  
18 and budgeting system, then you plan around it. And it  
19 doesn't quite come out to be, of course maybe a figure of  
20 speech, but I would hope that you would put the training  
21 hours, you know, you know when training's coming. You know  
22 when it's needed. So it's not like, training is not a  
23 jumper. It's a lesson, a planned way.

24                  MR. CALDWELL: It is. It's considered, and  
25 when you consider it, and we look at the number of hours

1 that we expect to get out of that training was included in  
2 that. What I'm talking about is if you have a higher loss  
3 than what you expected. I mean, you set up, we know that  
4 we're going to hire, we have to bring in so many new people  
5 and we set our program up based on that. And if you have  
6 more new people coming in than what you anticipated in  
7 particular we're trying to over hire, it just changes  
8 the --

9 MR. ROSEN: I see. So it's the unexpected loss  
10 of people that creates a higher than expected plan training  
11 for --

12 MR. CALDWELL: Right, it is planned for. It is  
13 in our numbers. And, Tom, as a matter of fact, monitors  
14 that activity. And in the folks that we're hiring right  
15 out of college, it takes an additional year over what an  
16 experienced person might have to be fully experienced and  
17 certified to go out and --

18 MR. ROSEN: Well, I'm glad to hear your answer  
19 because it sends a very important message for the staff  
20 that training is not something they do in addition to their  
21 job.

22 MR. CALDWELL: Oh, no.

23 MR. ROSEN: The training is their job, it's  
24 part of a central piece of their job, can qualify to do the  
25 work.

1                   MR. CALDWELL: Yes, and besides just the  
2                   required training, which was what I was talking about, like  
3                   in DTC Training, we have right now the highest training  
4                   budget of all the regions. And we spend that money on our  
5                   staff. We have a training counselor who meets regularly  
6                   and walks through, makes sure that we're getting additional  
7                   training. There are impacts like Davis-Besse and Point  
8                   Beach that cause us to modify that training approach  
9                   because those things were unexpected. And I'll talk a  
10                  little bit about how the impacts have occurred.

11                  But we do consider training as part of our, we  
12                  are aware that it is required and it is part of our  
13                  planning process. It's just that you can't plan for all  
14                  contingencies. Steve, did you have a comment?

15                  MR. REYNOLDS: I was just going to give you  
16                  more specifics on that. In the Reactor Program across the  
17                  four regions and NLR, training budget is estimated at 12  
18                  percent of your time. And what Jim was talking about is  
19                  you get a lot more new people. By the time you spent in  
20                  training, on average per person goes up more than 12  
21                  percent. But we budget on average, an average person, if  
22                  you have an average person you'd spend 12 -- time on  
23                  training. Obviously, a more experienced staff spends less  
24                  time than these people and more time. Such an average is  
25                  12 percent.

1                   MR. GROBE:  As Jim mentioned, Region 3 plays a  
2                   pretty significant role in populating the leadership across  
3                   the Agency.  They've hired new people, trained them well  
4                   and they end up getting promoted.  So we have a high  
5                   turnover.  But in addition, as I think you're aware,  
6                   several years ago the Agency evaluated its employee  
7                   statistics as far as age and found that we had a very  
8                   significant waiting of people that were getting ready to  
9                   retire.  So we've put a tremendous amount of emphasis on  
10                  hiring younger people, especially folks right out of  
11                  college.  And that is an additional training where it is  
12                  recognized in our budget as some additional resources.  But  
13                  it is a little.

14                  CHAIRMAN SIEBER:  I think before we move on,  
15                  I'd just like to ask a question that I hope has a shorter  
16                  answer.  The State of Illinois is an Agreement State.  And  
17                  the Agreement State Program has been going on for 35 years  
18                  or so.  And to my knowledge, the State of Illinois has a  
19                  very strong program.  I'd like to know what function does  
20                  the State perform?  They're part of Title 10 of  
21                  Responsibilities and the Atomic Energy Act responsibilities  
22                  where they perform the functions rather than the federal  
23                  NRC.

24                  And either you folks can answer that or we do  
25                  have a representative from the State of Illinois, if you'd



1 like to address that and I'd be interested in hearing.

2 MS. PEDERSON: Maybe I could start that  
3 discussion. I'll try to keep it short. I used to be the  
4 Director of the Division of Nuclear Material Safety, which  
5 has responsibility for the Agreement State Program.  
6 Illinois is a very large program and they fully execute the  
7 functions of their agreement. And so we do, through our  
8 Impact Program, integrate materials, performance evaluation  
9 process go on a period basis and evaluate their  
10 effectiveness in implementing that program.

11 And so we have had a number of those over time  
12 and they have been successfully performing their functions.  
13 As far as any particular details, we don't have the current  
14 folks with and I know one of the areas that is under  
15 discussion with the states in general is a sub-agreement  
16 for looking at security related inspections. And so I  
17 don't have the information regarding Illinois specific on  
18 that.

19 MR. GROBE: In the reactor arena, though, the  
20 State has resident inspectors at all of our sites. And  
21 Cecil is here today. And those folks work with Cecil. We  
22 have a very close relationship with the State of Illinois  
23 in that regard. They do not replace any of our  
24 responsibilities but we're very closely coordinated and,  
25 excuse me, and their inspectors augment our activities.

1 MR. CALDWELL: Yes, that's not an agreement  
2 state issue. That's something that grew, I guess, out of  
3 their Agreement State Program. The Agreement State  
4 Program, what Cindy is talking about, is the Materials  
5 Program. But as Jack indicated, they have a reactor, a  
6 very strong Reactor Program as well as oversight. They  
7 have their own Instant Response Center. It's pre-filled.  
8 And they have residents at the site that work with us. And  
9 they use our inspection procedures and work with the  
10 resident inspector and inspect on our behalf. But we still  
11 complete our program with our own inspectors. So it's kind  
12 of an augmented effort, as Jack said.

13 CHAIRMAN SIEBER: Well, I'm familiar with the  
14 Commonwealth of Pennsylvania. And there their inspectors  
15 would, if they had findings they would provide those  
16 findings to the NRC and any violations escalated --

17 MR. GROBE: That's the same it works here. Any  
18 state that has a program like that, there's a memorandum of  
19 understanding in the Agency. We have one with Illinois.  
20 And it's structured very similar to that.

21 MS. PEDERSON: For the Reactor side but on the  
22 Material side they independently issue those actions.

23 CHAIRMAN SIEBER: Yes, my personal experience  
24 is the Agreement State Program, where it's been  
25 implemented, has worked well. And if it hasn't, maybe you

1 can tell me. But my experience is that it has.

2 MR. CALDWELL: It's working well in this  
3 region. We had two new Agreement States; Ohio and  
4 Wisconsin. And we're getting ready, I think, is it this  
5 week or next week, to go up and talk to them. They haven't  
6 had their first Impact, but Wisconsin and Ohio has. All of  
7 our states are doing a good job, in particular Illinois, as  
8 far as the Agreement State.

9 MR. REYNOLDS: Illinois is the only state that  
10 has resident inspectors at the reactors.

11 CHAIRMAN SIEBER: Okay, thank you very much. I  
12 appreciate that.

13 MR. CALDWELL: I'm just going, I'm taking up a  
14 little bit too much time. I'm going to turn it back over  
15 to Cindy and Steve here in a minute. But I want to mention  
16 just a couple of challenges that we have.

17 Let me go back a little bit. Like I said, I  
18 came here in '95. In '96, in on time frame we've had,  
19 let's see, we've had five plants and then Davis-Besse that  
20 have been under the 0350 process, the first one being Point  
21 Beach was kind of modeled after 0350. Then we had LaSalle,  
22 Zion, Clinton, DC Cook and now Davis-Besse. That's been  
23 spread over from '96 up till now.

24 Some of those plants were in that process for  
25 over three years or they were shut down for over three

1 years and they got into the process sometime after that  
2 shut down. So we have been challenged in those areas with  
3 the oversight.

4           During that same time period or at the  
5 beginning of that time period, you probably remember  
6 Dresden was a problem plant that stayed on the Problem  
7 Plant List longer than anyone. And they had independent  
8 safety assessment, which is kind of the oversight DDT.  
9 That happened during that same time frame. And Quad Cities  
10 was down for over a year with an 0350 like process. We had  
11 a, I think, Steve, were you the Oversight Manager? We had  
12 a senior executive as an oversight manager. They were down  
13 because of their fire protection risk assessment was pretty  
14 high and they had to make a lot of modifications.

15           So that was all going on in parallel with the  
16 Materials Program. We were certifying the gaseous  
17 diffusion plants as well as, as I said, there were a lot of  
18 other issues that were going on in the Materials Program.  
19 But we took over regulatory authority for the DOE, for the  
20 gaseous diffusion programs. And that was a, that was a  
21 significant undertaking as well. And that was going on in  
22 parallel with all this stuff.

23           CHAIRMAN SIEBER: I take it you also have the  
24 conversion point and --

25           MR. CALDWELL: We did. We have transferred the

1 entire Fuel Cycle Program to Region 2. So they now have  
2 that. They are the ones that are dealing with the current  
3 issues. But we did have the similar type issues when we  
4 had them. So, yes, they were, that's an interesting  
5 facility.

6 DR. FORD: Excuse me. You're talking about  
7 quite a list of pumps here which have nuclear problems. Is  
8 there a common feature as to why those specific pumps have  
9 problems? Lack of investment in terms in instrumentation  
10 or maintenance or whatever it might be?

11 MR. CALDWELL: Well, as you might, my guess is  
12 as each plant has its own, it's a case by case basis. But  
13 I would say if there's an element, folks, correct me, but I  
14 would say if you want to look at one thing, it's probably a  
15 corrective action program and approach at the plants where  
16 things weren't getting fixed like they should have. And in  
17 some cases it was during the time when people were looking  
18 at deregulation and they were looking at becoming more  
19 efficient. And certain things were probably not handled  
20 exactly the way, but typically what happened was they were,  
21 as a specific problem had gotten into like one was an  
22 operator who didn't follow a procedure. And then after we  
23 got into that we found other issues.

24 Zion was a similar thing with an operator error  
25 in the Control Room. LaSalle was a maintenance activity.

1 Point Beach was a Control Room type operations and  
2 maintenance type activities. DC Cook was a maintenance of  
3 their equipment in that the containment -- and that type of  
4 stuff and poor material in containment in there.

5 DR. FORD: Yesterday we -- on their program is  
6 developing collective message of managing engineering  
7 situations. I was looking forward to seeing our's are a  
8 more reactor. You've already got it and you're responding  
9 to it.

10 MR. CALDWELL: Right.

11 DR. FORD: Do these parts here, would you say,  
12 reflect a lack of -- I try to foresee where the problem  
13 might occur before it occurs?

14 MR. CALDWELL: I would have to say that goes  
15 without saying otherwise they would have found the problem.

16 DR. FORD: Well, that's right. There are  
17 plants that don't have these problems. I'm trying to look  
18 for a root cause, not a root cause in a scientific sense,  
19 as you may have found at Davis-Besse, but more in terms of  
20 trying to stop the problem before it occurs.

21 MR. CALDWELL: Some of that is the aggressive  
22 nature of this region and causing folks to look. Some are  
23 licensee identified. DC Cook was one of our engineering  
24 inspections that occurred as a result of the 50504 F Letter  
25 we did. We used contractors to go out and look at the

1 design basis and found an issue that still evolved into  
2 other issues.

3 Some of it was, like I say, generated out of  
4 events that occurred. And then when you pull the string on  
5 the events, you find a lot more problems. So, you guys  
6 have a --

7 MR. GROBE: The common theme at these plants is  
8 the effectiveness of the Corrective Action Program. And I  
9 think that goes back to maybe two issues. One is the  
10 question and attitude expected by management and if it's  
11 not continuously reinforced and inspected, it atrophies.  
12 And the second is fixing symptoms rather than finding the  
13 problem and fixing the problem. And over a period of  
14 years, that can result in significant degradation in the  
15 margins of safety. And I think that's a common theme of  
16 each of these sites.

17 CHAIRMAN SIEBER: Could I ask, and you may  
18 know, one of you because it's sort of a vague question that  
19 demands a vague answer. But would you say that, in your  
20 region if your inspector had not found deficiencies there,  
21 that it would have gone on for sometime after that  
22 undetected by the licensee until some problem arose?

23 MR. CALDWELL: There's no way to answer that  
24 question. They easily could have had somebody come along  
25 and do the same thing. All we know is that it took us to

1 identify some problem. But I want to get a point, I think  
2 Jack was eluding to when he talked about the Corrective  
3 Action Program and extended condition.

4 I want to make sure it's clear these plants  
5 were not unsafe at the time these things were identified.  
6 They were far from being unsafe. But they had reduced the  
7 margins to where the original design basis was set. And  
8 some of the activities, like some of the operator actions  
9 were not where we would have expected operators to be based  
10 on the way they were trained.

11 And so these are things, degradations over long  
12 periods of time, either in equipment or people's  
13 understanding of what was required. And as they, as we  
14 either identified them or Vince identified them, it was  
15 dealt with. And then those things were re-addressed and  
16 brought back to where they should be. The plants  
17 themselves would have been able to deal with the events  
18 that might have occurred. It's just they would have been  
19 degraded. The equipment wouldn't have performed exactly  
20 like --

21 MS. WESTON: Jim, I have a question about the  
22 reactor numbers. In the past in the other regions we've  
23 always talked about the challenge to the reactor numbers  
24 with regard to ROP. Is that still an issue here?

25 MR. CALDWELL: You mean, the first time dose?



1 MS. WESTON: Workload and who are the --

2 MS. PEDERSON: We keep them well occupied. And  
3 actually we are considering comp leave and over hire  
4 possibility for additional analysts. We do see the  
5 workload growing in that regards as we change our  
6 inspection programs, such as the Engineering Pilot, some  
7 additional SCP such as Fire Protection and MSPI. And those  
8 kinds of things are on the rise and look to be an expansion  
9 of our need for SRA's.

10 CHAIRMAN SIEBER: Since you mentioned the MSPI,  
11 will that add additional work -- instead of what is the  
12 workload --

13 MS. PEDERSON: The short answer is yes, and  
14 later today in our Round Table discussion we expect to have  
15 a more full discussion. And the key person for that isn't  
16 in the room right now. If it's okay, if we can hold that  
17 until this afternoon on that level of resource commitment,  
18 I'd appreciate that.

19 CHAIRMAN SIEBER: Okay, fine. All right.

20 MR. CALDWELL: We had planned on talking about  
21 that and as Cindy indicated, we are authorized two SRA's  
22 and I've already talked to the folks in Headquarters that  
23 we're looking to having three full time ones in  
24 anticipation of additional work load. The MSPI, when we  
25 talk about resources, it's fairly an estimate based on what

1 we think will occur. But it is clearly going to be numbers  
2 of STD. And the SRA's will be devoted a great deal of  
3 their time to that. And we still have to do our normal STD  
4 duties.

5 So we're trying to anticipate that but when we  
6 get into it is when we'll find out exactly what the impact  
7 is. And we are discussing with Headquarters how to set up  
8 the resources.

9 Currently, and as you might guess, about four  
10 and-a-half years ago we started worrying about our -- so  
11 we've been, that's another challenge that has been working  
12 full times for a number of years to get set up to move into  
13 this new facility as well as the changes in the  
14 consideration for ROP, the budget, IP needs and our  
15 resources. So all those things have had an impact on how  
16 we do conduct our business.

17 Currently, as Cindy and Steve will talk about,  
18 Point Beach is in Column 4. It has a red bonding net  
19 putting in Column 4. And we have Cal on them and a  
20 dedicated Branch Chief. And we have an action matrix that  
21 we will work off to close out the count. And an additional  
22 inspections above the baseline will be conducted over the  
23 next year or so on Point Beach until Cal is closed and we  
24 are confident that they have sustainable proof performance.

25 Davis-Besse's under the 0350 Oversight even

1       though the plant has re-started. It re-started on March  
2       the 8th. We've had oversight stay in place for a  
3       significant period of time until we're, we need to believe  
4       that they are, their performance is sustainable. And we  
5       will be doing a lot of additional inspections at Davis-  
6       Besse until we can bring them back into the ROP and go back  
7       to a routine baseline test.

8                   CHAIRMAN SIEBER: The Davis-Besse 0350  
9       situation, do you know if conformatory action, between the  
10      regions and the First Energy had to do with a culture  
11      survey, you know --

12                   MR. CALDWELL: Right.

13                   CHAIRMAN SIEBER: -- around for several years.

14                   MR. CALDWELL: Yes, Jack will talk about it and  
15      I'll let him speak since he's really the expert. But it is  
16      a conformatory order actually. And there are four items  
17      that have to be independently assessed over the next five  
18      years, annually over the next five years. And part of our  
19      inspection activity will be to inspect against those  
20      assessments and see how well they're doing.

21                   Jack, did you want to add anything?

22                   MR. GROBE: Just that we had an hour set aside  
23      this afternoon to specifically focus on Davis-Besse. We'll  
24      get into a lot more detail.

25                   MR. ROSEN: Will you be giving us a brief about

1 the results and from a point of view on the first 90 days  
2 of operations?

3 MR. GROBE: Yes.

4 CHAIRMAN SIEBER: How about holding off until  
5 that time.

6 MR. GROBE: And we'll write it down.

7 MR. CALDWELL: I'm going to quickly get through  
8 this so these folks can start. But we also have, I had  
9 mentioned before, DC Cook, which is a Column 3 grade  
10 cornerstone. And we have, as I mentioned earlier, the  
11 licensee was very close to going into Column 4. In fact,  
12 so close that we talked to them about it. And the licensee  
13 has, on their own initiative, decided to do an inspection  
14 like 950003 like we would do. And we will then, when  
15 they're done, look at their results of that.

16 But they are a Column 3 plant. They get in and  
17 out of the grade cornerstone. They were in 1, they were  
18 out for a quarter and then back into grade cornerstone.  
19 And so it's an issue we continue to monitor.

20 Gary also is a grade cornerstone. They have  
21 five, currently five white issues. They're not as close as  
22 to going into Column 4 but they can, you know, just take  
23 another white issue in one of the other cornerstones that  
24 would cause that to occur. We, again, are monitoring Gary  
25 as well. We did continue to make plans and take additional

1 resources.

2 Over the last two years, Steve and Cindy are  
3 going to get into the details on this, but we've had five  
4 alerts, ten UE's. We've had 12, 22 special inspections, 14  
5 of them which were at Davis-Besse. But these are  
6 inspections that occur that are outside the normal ROP  
7 process. And we've had 17 greater than green findings and  
8 six greater than green performance indicators across  
9 Regional 3 over the last couple of years.

10 So that's what I was talking about. We have a  
11 very aggressive staff here. And we monitor the licensee's  
12 assessment of their own PI's. We spent a lot of time  
13 making sure that they're doing it correctly and it resulted  
14 in a number of PI's. We've identified greater than 30.

15 The one last thing I would like to point out  
16 that's not necessarily a challenge, but when we changed the  
17 ROP, there were a number of things that no longer rose to a  
18 threshold of going into the report. But they're  
19 observations that the inspectors continue to make and they  
20 do provide those to the licensees because they want to know  
21 what the inspectors see.

22 But some of them identified are inspection  
23 techniques, other things to look for. They're just very  
24 interesting and good findings. And we have a program here  
25 called Valued Added Findings where we write those things

1 up. We send them to the other regions and to Headquarters  
2 as items of interest. And we also send them out to warn  
3 our staff if anything happens. It's a little harder to get  
4 things in the reports and we're trying to make sure they  
5 still can see the results of their hard, their hard efforts  
6 in inspections.

7 So we've looked for creative ways of making  
8 sure that we still get the value out of our inspection  
9 activities. We're still in our --

10 MR. ROSEN: We recanted a story or picture of  
11 this region's plans, that it's a little different than what  
12 you hear from the other regions. I think you attributed  
13 that to the or I got the understanding that you attributed  
14 that to the aggressiveness of this staff. But I think the  
15 other Region's staffs are aggressive too. Have you  
16 compared this Region against the other Regions in terms of  
17 performance of the plants? Would you say it's the same?  
18 Better? Worse?

19 MR. CALDWELL: Well, I'm sure the Agency's  
20 looked to that. You can look at the statistics and be able  
21 to tell. Certainly that's not something we're looking for.  
22 We're not trying to say the other regions aren't  
23 aggressive. I'm sure that they are just as aggressive.  
24 What I was saying a lot of these findings and issues that  
25 come from our inspectors that are out in the field finding

1 these things. I cannot tell you these plants are not in as  
2 good performance as the other regions. I don't know. All  
3 I know is that we stay focused here on safety and that's,  
4 we continue to do that.

5 We kind of have to do what we can do in this  
6 region as opposed to looking around and see where the  
7 differences are.

8 Do you guys have any comments on that?

9 MR. ROSEN: You can look at the statistics and  
10 draw your own conclusions. We have a number of good  
11 licensees here. I mean, the Exelon organization, used to  
12 be Commonwealth. We had lots of problems with the Com Ed  
13 plants and those are some of the better performing plants  
14 now. We still have a few things like the dryer issues in  
15 Quad Cities and those same mag issues at Byron and  
16 Braidwood. But some of the plants, like Clinton, which was  
17 an 0350, it's been a very good performing plant since they  
18 restarted.

19 So we have good performing plants. I think  
20 that industry standards have changed as well. Some of the  
21 plants up in the northern states, some of the better  
22 performing plants and their outages now are longer than  
23 some of the other plants. And they're moving along. I  
24 don't know, I don't think I can answer that question in  
25 terms of why other than we are aggressive and we call as we

1 see it.

2 MR. ROSEN: Well, the implication is the other  
3 regions are not aggressive, they don't call it as they see  
4 it. I know you don't mean to do that.

5 MR. CALDWELL: No, that's right.

6 MR. ROSEN: But it's more the question of why,  
7 why do I perceive that the performance here is not as good  
8 as it is in other regions, on average. And there are good  
9 spots here as well as, lots of them. There seems like  
10 there are more plants that are in trouble here, in  
11 typically the city. I'm just searching for some sort of  
12 causality for that if my perception is correct.

13 MR. CALDWELL: And I don't want you to get the  
14 impression that we're saying that the other regions are not  
15 doing their jobs. It's not the outline I was trying to  
16 point out. Simply stating the facts of what's occurred in  
17 this region and I believe it has to do a lot with our  
18 inspectors.

19 MR. ROSEN: See, I don't agree with that. I  
20 don't think that your inspectors are causing the problem.

21 MR. CALDWELL: Not causing a problem. I won't  
22 say they're causing. They're finding issues.

23 MR. ROSEN: Well, yes, but other inspectors  
24 find issues there too. So the implication is that the  
25 issues aren't there as much as they, in other regions as



1 they are here.

2 MR. CALDWELL: And that may be the case.

3 MR. ROSEN: That's what I'm searching for if  
4 that's so, then what you'll have is a whole series of  
5 questions about why or what can be done about it and all  
6 the rest. But I think it is, unless someone wants to do  
7 divest of my colleagues or anybody here, there does seem to  
8 be the performance of Region 3 is not as good. Not your  
9 performance, but the performance in the plant is not as  
10 good on average. And yet we're still saying there are a  
11 lot of good plants. But there are more plants that are in  
12 trouble than you would typically expect to see in a region.

13 MR. REYNOLDS: When we have residents, I mean  
14 inspectors from other regions come out and do inspections  
15 with us, I mean, you start talking to them about the  
16 problems that we find, they find and how do we compare to  
17 the other sites, a lot of times their views, it's kind of  
18 like we see these problems at our plants but the licensees  
19 response from quicker before they get worse, before it gets  
20 real worse. The standards issue or Corrective Action  
21 Program, you know. When does licensing management get on  
22 top of it to make sure it stops. And it sounds like, to my  
23 knowledge in talking with inspectors from other regions, if  
24 the other regions, the licensees, they get on the issues  
25 quicker before they get worse. It's in the licensees that

1 we had problems in Region 3. They let the issues grow  
2 before they get on top of it.

3 MR. ROSEN: Well, that's a very useful insight.  
4 Maybe we can pull a string on that later today in some of  
5 the discussions of the Corrective Action.

6 MR. REYNOLDS: We've seen that at David-Besse.  
7 We can talk a little bit about it, Point Beach, DC Cook, I  
8 think was --

9 DR. BONACA: I do believe also --

10 MR. REYNOLDS: Those probably have the same  
11 sort of issues where licensee management, you know, let  
12 things go way too long before they react. I mean, the  
13 other regions aren't new to them either. We talk about why  
14 does the licensee get into problems in this region?

15 DR. BONACA: It's a complex issue also because  
16 they -- regions have the oldest plants, as far as radiation  
17 -- the oldest workforce in my experience, they want to keep  
18 them -- because you cannot, I mean -- change -- hasn't  
19 changed the way -- peers. You know, there are issues of  
20 the nature that make the judgment --

21 MR. GROBE: What we're providing is somewhat  
22 anecdotal, I'm not going to say we're given the time to  
23 study this question, so it's, it makes me a little bit  
24 nervous to be, share again total information with you and  
25 this is not something we would study. It's something that

1 the Office of Nuclear Regulation would study. It is clear  
2 that the performance as reflected in our findings and 0350  
3 Programs that had to implemented here is different than the  
4 other regions. But I'm not sure that we know why that is.

5 CHAIRMAN SIEBER: Well, I think there are two  
6 reasons to this. It's sort of an interesting discussion  
7 but I don't think it really means anything. For example,  
8 it seems to me that if each region does its job, high  
9 standards, pays attention to those resources, the problem  
10 will be identified and corrected and compensate being paid.  
11 And that's one thing, and I think, in a way that I think  
12 that, personally, I think is the right way.

13 The other way is to try to figure out what's  
14 different about this region and that region. And if they  
15 try to find some -- there are as many postulants as to what  
16 the symptoms might be as there are people that are  
17 bankrupt. I don't think in, unless you can come up with a  
18 common thing that makes you want to -- last year. But I  
19 agree that trading anecdotal stories about, you know, which  
20 is better, Pennsylvania or Massachusetts or Georgia or  
21 Texas even doesn't count.

22 MR. GROBE: I think what Jim said earlier, and  
23 it's what we're most proud of is the tenacity of our safety  
24 focus and we don't shy away from any of these issues. We  
25 take them head on, deal with them with the licensees and

1 get the results.

2 MR. CALDWELL: Yes, but there's no, I apologize  
3 if you got the impression based on my discussion that I was  
4 saying that comparing us to the other regions. I was not.  
5 I was simply stating the facts that have occurred in the  
6 region and I believe it has a lot to do with our  
7 inspections. That's not a reflection on any other region.  
8 I was just saying that we've had those challenges in this  
9 region. And it raise an interesting question. I don't  
10 have the answer and that's not where we focus on here. We  
11 go out and try to do the inspection every day and whatever  
12 we find we deal with.

13 So, I can't answer the question why the  
14 performance of the licensees in this region seem to be  
15 different from others. Only to say that we, we continue to  
16 do our job to make sure that we have identified --

17 CHAIRMAN SIEBER: I think what you're doing is  
18 the right way to approach this issue. While maybe  
19 interesting, and probably doesn't have a lot of value added  
20 inspections, you can see the difference.

21 MR. ROSEN: With all due respect, I can't leave  
22 it there. I do think it has value and I disagree with  
23 that, in fact. I think that understanding, I think there's  
24 substance to the fact of this issue is in this region.  
25 They have some useful -- licensing agency in this region.

1 And we can disagree without be disagreeable, of course. We  
2 do that all the time.

3 CHAIRMAN SIEBER: Well, I just --

4 MR. ROSEN: I think the, you know, we'll come  
5 back to it again.

6 MR. GROBE: I think the most --

7 MR. CALDWELL: Yes, I want to make sure -- I'm  
8 sorry, Jack. Go ahead.

9 MR. GROBE: I wanted to say I think the most  
10 fertile ground in that arena would be division Inspection  
11 Program management, NRR and IMPO or NEI, to get their  
12 perspectives.

13 CHAIRMAN SIEBER: I would caution that you're  
14 falling behind --

15 MR. CALDWELL: Yes.

16 CHAIRMAN SIEBER: Yes, ours might be due to our  
17 fault. Nevertheless, I encourage that we --

18 MR. CALDWELL: Yes, one last statement. Some  
19 of the data I gave you over the last six or so years, and  
20 so it's more than that, and it's historical. So, a lot of  
21 the facilities where these problems have been identified  
22 have been fixed. And are running considerably better. So,  
23 it's a stand from '96 till now.

24 So that's part of the equation. I know other  
25 regions have probably gone through that. I know Region 2

1 some years ago had a number of plants that were in problems  
2 like Brunswick in terms of -- and, you know, they got  
3 through those areas. So it may not be that the regions are  
4 all that different. It's just the time in which the  
5 problems are identified and dealt with.

6 So, but you can look at that and expand over  
7 history and look and see how each of the regions have a  
8 goal. But all I was trying to do is give you a sense of  
9 what we've been doing over the last eight or so years.  
10 Thank you.

11 I'm going to turn it over to Cindy and Steve  
12 and ask them to get us back on schedule.

13 MS. PEDERSON: We'll try our best.

14 I wish we had more time because we have a  
15 tremendous number of things going on in the Reactor  
16 Program. Many things we're very proud of what we're doing  
17 here. We'd like to have some time to share with you. But  
18 we also recognize a number of your particular interests and  
19 do want to have the opportunity to have staff interaction  
20 on some of those particular technical issues.

21 So Steve and I will abbreviate ourselves here.  
22 What we've got is a display, it's simply a sampling of the  
23 many areas that the Reactor Program is focusing on here in  
24 the Region 3. And I would offer that there's no better  
25 place to be than be in a Regional Office when you look at

1 the triad of what the Agency's focused on; safety, security  
2 and emergency preparedness. That all happens in the  
3 Region.

4 We have an integration function. We touch all  
5 of those things. So we're real happy that you're here  
6 today and we can share some of those things with you.

7 And then I'll turn it to Steve to talk about a  
8 few of the particulars and then I'll come back at the end.

9 MR. REYNOLDS: What I was going to cover here  
10 is just what's been going on in the Region last and this  
11 year that's keeping us very, very busy. Five alerts  
12 includes loss of outside power and loss of shut down  
13 crewing, power saves includes step open power -- Quad  
14 Cities, hydrigation levels and a, you know, handling  
15 buildings due to a damaged fuel pin. They broke it open.  
16 Other alerts.

17 Ten Unusual Events. In fact, we just had one a  
18 couple of weeks ago at Dresden. Lost outside power. We  
19 got to try out our new Response Center. Had unusual events  
20 at Dresden and DC Cook. Several at DC Cook, Palisades --  
21 if you look at our Unusual Events and alerts and you can  
22 compare them to the plants that are in Column 3, you see  
23 here Gary and DC Cook had several event alerts and unusual  
24 events last year. And they are now in Column 3 based on  
25 their performance.

1           Also in the region we've had quite a few gray  
2 and green findings. Last year it was at 17 greater than  
3 green findings. I think the Agency, in the last two years,  
4 had about, well, last year I think they had like 18, 19  
5 greater than green findings. We had over half of those. A  
6 large number of supplemental inspections in 95001, 002's  
7 inspections.

8           We've had a large number of greater than green  
9 performance indicators. Again, performance indicators  
10 changed in Perry and DC Cook, again you see here in Column  
11 3. We also had greater than green performance indicators  
12 at Dresden, Birmingham and Braidwood. If you look at the  
13 consistence, you started here in the diesel, off speed  
14 water and chemical log and then scrams. Scrams were --  
15 heat removal has been applied for off sites.

16           Going back to the supplemental inspections.  
17 We've done 14. DC Cook, Point Beach, Palisades, Perry,  
18 Dresden -- move over against the same sort of sites that  
19 currently not performing well but there was inspections.  
20 Special team inspections, we've done eight of them outside  
21 of Davis-Besse, special team inspections.

22           If you run into an event or a problem at a  
23 plant such as twice we've done special inspections at Perry  
24 for the broken loss of their alpha ESW Pump on a coupling  
25 failure. It failed last September and it just failed



1 recently again, the exact same coupling. And we're looking  
2 at the problems with that. And that is a Corrective Action  
3 problem with Perry.

4 The two alerts at Palisades last year, one was  
5 the loss of outside power and the loss of shutdown cooling  
6 when they stuck a parking sign and cut 17 cables and they  
7 had a fire, and we went through special inspections there.  
8 And then after the Northern Blackout last year that  
9 affected several plants, Perry had a problem with air  
10 exchange on one of the water link pumps. We did a special  
11 inspection there.

12 And you mentioned earlier, and Mark Green will  
13 talk about later on Quad Cities dryer. We did a special  
14 inspection in Quad Cities dryer. In addition to special  
15 inspections on the dryer, Mark Green and NLR spent a lot of  
16 management time on the Quad Cities.

17 CHAIRMAN SIEBER: That issue is a particular  
18 concern mainly because we were partial to the power upgrade  
19 at Dresden and Quad Cities. And with a subsequent concern  
20 about accelerating materials from upgrades -- the concern  
21 causes us to rethink what our position ought to be on --  
22 You folks are our eyes and ears as a part of resolving --  
23 rely on -- on your part.

24 MR. REYNOLDS: I think you just had a briefing  
25 a couple of weeks ago, we'll talk more about that later on

1 this morning. I think Mark and Carl are talking about  
2 that.

3 We also used the traditional enforcement of an  
4 non-FDP Enforcement. We've had a few cases there. One  
5 that jumps out at me was the Dresden NC water hammer. And  
6 that's one where the tenacity of our inspectors  
7 demonstrated -- I didn't believe it. We had an inspector  
8 out there. He saw the bay. Two of them went out today.  
9 Saw the swollen concrete. The concrete had no -- it didn't  
10 have a large precious pipe. They thought it was 200 pounds  
11 and it's more 1800, 2000 pounds. And we looked at the PIND  
12 Book of Drawings. Thought he might have some trained area.  
13 I didn't believe it. It's just the fact they had a lot of  
14 errors.

15 MR. REYNOLDS: Water hammer is one of those  
16 things that's still hard to not believe when you hear it.

17 MR. CALDWELL: Right.

18 MR. REYNOLDS: You've seen the pipes in the --  
19 and so much that here you tell me that the licensee didn't  
20 believe it and it was there.

21 MR. CALDWELL: Yeah, I don't think they, these  
22 are indications after the fact. I don't think they heard  
23 or saw the actual water hammer that occurred. This was,  
24 this was as a result of our inspector looking at hangers  
25 that had, appeared to have been displaced and then this

1 ball of concrete.

2 I don't believe, am I correct, that --

3 PARTICIPANT: Nobody was there, Jim. You're  
4 correct. This is in a location that's not --

5 MR. ROSEN: Please the mind.

6 PARTICIPANT: There was nobody present in the  
7 area at the time to hear or see the water hammer. The  
8 location is such that you wouldn't ordinarily have someone  
9 there.

10 DR. BONACA: Earlier had you agreed --  
11 performance indicator so the -- Yesterday when we were at  
12 DC Cook, they showed us what is the result. And they were  
13 showing that for that plant off site power was the most  
14 important system. After that, the generators; after that,  
15 -- water; after that, stationery --

16 The way you look at the importance of systems  
17 -- that's reasonable for that. I just liked to emphasize  
18 that some of this is very important systems -- But of  
19 course, you know, the results would appear in -- from other  
20 important systems that --

21 MR. REYNOLDS: The ROP is a combination of  
22 indicators and inspection. We inspect both risk  
23 significant systems, you can or all the system, so, you  
24 know, if there was an area where the PI's were -- we cover  
25 that inspection.

1 MS. PEDERSON: I need to add to that. The new  
2 engineering -- that is for us may shift insight into how we  
3 look at these items. To be more at a component basis,  
4 potentially including initiating events, not just safety  
5 systems. So we're hopeful that the engineering pilot will  
6 shed some light into this. And we may hopefully find our  
7 processes.

8 MR. ROSEN: I'd like to take a crack on  
9 answering that question, too. I think, Mario, that the new  
10 mitigating systems won't, we'll get into the issue, from  
11 having -- to have having -- We'll take into account the  
12 plant is high, high risk, highly risk -- components, not  
13 just a set list. That will deal with yours -- yeah, that's  
14 what I support MSPI. There was concern when the NRR decided  
15 that that's not something that the folks wanted to do. But  
16 I think the Commission has asked the staff to take a look  
17 at that.

18 DR. BONACA: I mean, yeah, I understand that.  
19 I mean, you recognize with DC Cook that it's important, and  
20 you have good inspections process --

21 MR. REYNOLDS: Right, in fact, at DC Cook's,  
22 one of their problems has been potential service water.  
23 And we've done inspections in that area. They're not  
24 driven. They're driven to it by the PI's or driven away  
25 from it by the PI's, the essential service water. A long

1 term problem at DC Cook and we look at that part of it and  
2 inspections. Continue to have problems there, we continue  
3 to look at it.

4 MR. CALDWELL: Yes, you asked whether the PI's  
5 were causing us to be diverted from looking at the other  
6 safety related or risk significant systems. And we do put  
7 resources on PI's that are greater than green. But that's  
8 in addition to what we would be doing otherwise. So we  
9 don't change the focus as a result. We add additional  
10 focus as a result of the change in the colors of the PI.  
11 And they give us some indications across the board in the  
12 Corrective Action Programs and other programs.

13 DR. BONACA: The reason why I asked these  
14 questions also is because many times a year -- is another  
15 indication too is pretty good -- and I guess the green, you  
16 always have a green -- plant -- all these options. And --  
17 be completely correct about the plant. Now you're saying  
18 that you could probably have --

19 MR. REYNOLDS: It's a service --

20 DR. BONACA: It could have been also --

21 MR. REYNOLDS: -- event, yeah.

22 DR. BONACA: -- and still have a problem with  
23 the -- and it will not be as -- as if that system, the PI,  
24 I'm sure --

25 MR. REYNOLDS: Yes, I think we hit on it but,

1 we don't, -- just on the performance indicator is one --  
2 combination of --

3 And moving on --

4 MR. GROBE: Just quickly; within the inspection  
5 procedures, we utilize the PRA to select what we're going  
6 to look at. So it's risk focused within the inspection  
7 procedures. So we'll take out things on the service water  
8 system component, including water, the higher risk systems  
9 through the inspection procedures.

10 MR. ROSEN: That's a very good practice.

11 MR. REYNOLDS: A couple of issues I wanted to  
12 touch on. We've had a large number of notice of  
13 enforcement discretion. That actually benefitted DC Cook.  
14 I don't know if they mentioned it yesterday, we had an  
15 agreement with them, we had two, at least two notice of  
16 enforcement discretion at DC Cook last year that would have  
17 been unplanned down powers that would have end up costing  
18 another performance indicator. And they would have been in  
19 Column 4 if it wasn't for notice of enforcement discretion.

20 And the other regions, I know, Region 2 and  
21 some of the others, mentioned this. Very concerned for us.  
22 NRR's to reach its inspector programs were actually looking  
23 at whether to grant a Notice of Enforcement Discretion that  
24 she thought wouldn't count any ways to prevent an unplanned  
25 down power with this. It's just interesting how that

1 worked in the ROP.

2 Jim talked briefly about value added findings.  
3 Those are findings that aren't necessarily a current  
4 finding but that we set fresh -- We use that from an  
5 operating experience point of view where we share that  
6 information with other inspectors, not only in the region  
7 but in all three regions and at Headquarters. And either  
8 during the break or during lunch, I'll bring you a couple  
9 of examples of those. You can take a look at them, you  
10 know, how they're used and in what context.

11 And the last thing I want to tell you, Jim  
12 mentioned also a lot of new staff, mostly through  
13 promotions. But with Jack going to Davis-Besse, working on  
14 that as the Chairman. Jim promoted to Regional  
15 Administrative, Jeff Grant, Deputy. I'm an acting Director  
16 and Pat Highland's an acting Deputy Director. We have  
17 three new branch chiefs, three new senior residents in the  
18 past week, excuse me, seven new resident inspectors, three  
19 new reactor engineers, and we have seven Nuclear Safety  
20 Professional Development Focus, folks right out of college  
21 in the past year also. A little bit of turnover and we can  
22 deal with that.

23 Cindy, I'll turn it back over to you and keep  
24 it moving on.

25 MS. PEDERSON: I'll just take a few minutes

1 because we are behind and I know we want to get on to the  
2 next item.

3 Steve mentioned a number of licensee events  
4 that occurred. And one of the things that we do seemingly  
5 well, we believe, in Region 3 is our ability to respond to  
6 events. We may get more challenges at times but we think  
7 we do very well on that. We're really please. We're going  
8 to show you a short tour of our Instance Response Center  
9 right before lunch. And I think we've got some very nice  
10 enhancements we've been able to execute as we moved to this  
11 new building.

12 In the Emergency Preparedness area, as you  
13 know, a 95003 Inspection was conducted at Point Beach. And  
14 we learned a couple of things in the Emergency Preparedness  
15 Area, not just about the licensee's performance but about  
16 our own program. And we're working closely with what was  
17 NRR, now part of the new In-Serve Group to look at  
18 potentially generic issues in the Emergency Action Level  
19 Process and Change Process as well as protective action  
20 requirements or recommendations, excuse me.

21 Security --

22 DR. FORD: Could you be a little bit more  
23 specific about those things?

24 MS. PEDERSON: Certainly. In the Emergency  
25 Action Levels we have observed some inappropriate decreases



1 in effectiveness changes that licensees have done through  
2 their own internal processes when they should have been  
3 submitted to the NRC for approval. And that's an area that  
4 may be beyond just Point Beach. And we're looking at that  
5 for potential generic application.

6 Also, one of the issues that's unresolved at  
7 Point Beach but we are doing some looking elsewhere at  
8 other facilities is in the area of recommending sheltering  
9 as one of the options post-accident. So those are a couple  
10 of topical areas that we're working closely with  
11 Headquarters on. Likely will result in some sort of  
12 generic communication.

13 CHAIRMAN SIEBER: Let me ask a question that  
14 maybe you can answer. Licensees are not allowed to change  
15 various things like the Emergency Planned Action, Security  
16 Plan set forth. And in a way that will reduce the amount  
17 of safety -- If I -- licensees that adhere to that, and on  
18 the other hand, the institute where you cite it where the  
19 reductions things that would otherwise be incurred are  
20 excepted and did not follow the protocol or they clear  
21 reductions that would never have occurred --

22 MS. PEDERSON: I don't know that I can answer  
23 that fully. I think there are some of both, some that we  
24 would have approved and some that we would not have  
25 approved. One of the things that we are observing is that

1 some of the schemes and standards set and the way in which  
2 you would approach an Emergency Plan has degraded such that  
3 they're what we call mixing and matching between two  
4 schemes. You can't do that because it breaks down some of  
5 the inter-relationships.

6 And so some of those may have been approved and  
7 acceptable under one scheme but would not have been under  
8 the scheme they were currently licensed to. So, it's in  
9 those areas, and actually we've observed licensees looking  
10 at themselves because of Point Beach and finding similar  
11 problems.

12 CHAIRMAN SIEBER: Is that the region's job or  
13 our job to approve -- application --

14 MS. PEDERSON: Yes, they approved them however  
15 the regions does have an inspection role and we also  
16 inspect those that the licensee executes under their review  
17 process.

18 CHAIRMAN SIEBER: You have provided any role,  
19 have the project managers in the regions work closely with  
20 you. Thank you.

21 MS. PEDERSON: One other quick item I just want  
22 to touch on is you well know great period of transition in  
23 the securities world. We are actively supporting the  
24 Agency's review of securities land that are all in-house  
25 right now, actually not security team leaders spending two

1 months in Headquarters supporting that review activity. A  
2 lot of things going on. We're communicating with the  
3 licensees about their need to integrate those security  
4 changes with their emergency preparedness and their  
5 operational safety aspects. So, as you go to plants here  
6 on out, I think you'll see some drastic, or dramatic, I should  
7 say, changes in the physical security.

8 One other thing that was mentioned earlier was  
9 engineering and our creation of a third engineering branch.  
10 We are in a stage of re-invigorating and revitalizing some  
11 of our engineering work with the creation of that new  
12 branch. And we're pretty excited. We've got some new  
13 initiatives applying.

14 Something we're doing at Point Beach, as an  
15 example, they are obviously one of our plants of focus and  
16 we are having senior reactor analyst actually lead that  
17 engineering inspection at Point Beach. So we're looking  
18 forward to that yet this year.

19 And I tried to get us almost back on schedule.  
20 I'd be happy to answer anything else --

21 DR. WALLACE: Can you answer a question now?  
22 You've got a big -- about Point Beach about instituting --  
23 If I asked you a question about it are you going to cover  
24 it?

25 MR. REYNOLDS: Sure, I was going to go through

1 that but you can ask the question first.

2 DR. WALLACE: Are you going to cover this part?

3 MR. REYNOLDS: Yes, I was going to go through  
4 that, yes, very quickly.

5 DR. WALLACE: So maybe I'll toss the question  
6 when you get to it?

7 MR. REYNOLDS: You can ask it now.

8 DR. WALLACE: I see you have 12 findings on  
9 human performance. And I wonder what criteria you used?  
10 Human performance being appropriate or inappropriate or  
11 will you have a finding?

12 MR. REYNOLDS: Yes, we had 12 findings.

13 DR. WALLACE: Isn't it rather hard to evaluate  
14 it in a definite way? How do you make a finding? How do  
15 you justify a finding?

16 MR. REYNOLDS: Well, it would be from an  
17 inspection, from an inspection's point of view, it would  
18 be a performance deficiency and we evaluate it from the  
19 risk significant.

20 DR. WALLACE: It's something clearly  
21 inappropriate?

22 MR. REYNOLDS: Right. One of the issues at  
23 Point Beach is they were going to go work on a battery  
24 charger and they went to the wrong train.

25 DR. WALLACE: They went to the wrong place.

1 MR. REYNOLDS: They went to the wrong place.  
2 Another case they were supposed to open, I forget which  
3 valve it was, they opened the wrong valve.

4 DR. WALLACE: It was something clearly wrong.

5 MR. REYNOLDS: Clearly wrong. I look at  
6 performance issues, you know, they have a procedure in  
7 front of them. They're supposed to do Steps 1, 2, 3 and so  
8 on. And they don't follow it, they do the step wrong.

9 DR. WALLACE: When they opened the wrong valve,  
10 how does the inspector know that they opened the wrong  
11 valve?

12 MR. REYNOLDS: A lot of us do our inspection  
13 activity, you go out there, you're watching them do their  
14 work, you're watching doing the surveillance. You find  
15 out.

16 DR. WALLACE: Why doesn't the management do it?

17 MR. REYNOLDS: Why doesn't the licensee  
18 management do it?

19 DR. WALLACE: Right.

20 MR. REYNOLDS: That's a good question.

21 CHAIRMAN SIEBER: Well, maybe I could, I'm not  
22 here to speak for licensees but I used to be one. But  
23 licensees surveil their own people. But like everything  
24 else, it's like the NRC is the same kind of -- is a follow  
25 up or -- setting up a system, putting it into service where

1 an operator does more than other operators -- checks --  
2 person -- So I think both licensees and the staff surveil  
3 when operators make a mistake.

4 On the other hand, if there is a mis-operation  
5 of the valve, there's also a -- plant. Something trip over  
6 -- it's very clear to everybody that something wasn't done  
7 properly. And therefore if you identify part of that where  
8 a procedure wasn't followed or got the wrong place, or one  
9 of many other kinds of things that happens -- Almost all of  
10 these -- very common place --

11 MR. ROSEN: What I think you're saying is that  
12 you observe performance deficiencies.

13 CHAIRMAN SIEBER: Right.

14 MR. ROSEN: And they became your 12 findings.  
15 -- deficiencies; it goes to the standard of performance.  
16 How would those, I'll just use the example that we pressed  
17 on a little bit yesterday at DC Cook, which was a three  
18 way, three part communication. That's just one of the  
19 techniques, standard techniques of operation that helps  
20 prevents communication errors which are the source of a lot  
21 of errors that ultimately show as performance deficiencies.  
22 It's a technique.

23 And if you observe the techniques not being  
24 used correctly, you can be pretty sure that some place down  
25 the road there's going to be problems with communication

1 will lead to one of these observable events. Now, what  
2 you're talking about here is called an observable event.  
3 And I think that would imply that some of the operational  
4 techniques or procedure, following procedures or some of  
5 the other things, that there are many other problems. It's  
6 the old iceberg. You find a lot of those kinds of problems  
7 and you have people perform their jobs and sometimes they  
8 get away with it. And sometimes they don't. And at the  
9 times where they don't, they have an event that's self  
10 revealing.

11 CHAIRMAN SIEBER: Right, and let us check  
12 quickly on Point Beach. First, I'd like information we  
13 have about where it's located -- small --

14 MR. REYNOLDS: Both units have -- water, common  
15 cause, it's common cause there. We did 95003 based on the  
16 areas of concern. We did it in two areas; corrective  
17 action was taken with various engineering. We had  
18 inspectors from all four regions and Headquarters. There  
19 were a number of green findings and violations.

20 The focus area coming out of that was  
21 corrective action weaknesses, emergency preparedness  
22 weaknesses and then interfaced communications with Ops  
23 Engineering.

24 DR. FORD: Just so I can understand this.  
25 Physically, what was wrong with the Ops people?

1 Physically, what was wrong.

2 MR. REYNOLDS: Physically, they had, one  
3 instance they had orifices that could clog if they had to  
4 rely on feed water. Both drains were clogged. Another  
5 one, they had a valve that failed in the wrong direction.  
6 It failed open and closed, but it filled in the wrong  
7 direction.

8 MR. CALDWELL: It failed, actually it failed in  
9 the right direction in order to get flow. It's a re-cert  
10 valve. It failed close so that you would send all of the  
11 Oxy Flow to the steam generators. The problem with that is  
12 there are numbers of times in a situation where Oxy comes  
13 on where you don't need all of that flow. So the operators  
14 would have to cut back on the flow. And if the re-cert  
15 instrument air was lost, which is what keeps that valve or  
16 opens that vale, modulates it open when you need re-cert,  
17 if the instrument air was lost, the valve would go shut.  
18 The operators might not know because there are not good  
19 indications there. They would cut back on flow and caused  
20 the pump to fail because it doesn't have re-cert flow.

21 DR. FORD: So the root cause is that --

22 MR. CALDWELL: No, the root cause is a design  
23 efficiency. In other words, original design was set up  
24 this way that the valve would go shut so that all flow  
25 would go to steam generators.



1 DR. FORD: So this would be a performance --  
2 times zero.

3 MR. GROBE: No, it's been there for a long  
4 time. But I believe there's some modifications in the  
5 speed system that created this about ten years ago or so.

6 DR. FORD: I'm just trying to understand. But  
7 physically, behind all this there is documentation about  
8 what was physically wrong.

9 MR. CALDWELL: Yes, the licensee's view is that  
10 the safety function of the valve was to go shut so the Oxy  
11 Speed water flow would be directed to the steam generators  
12 without the consideration of the potential failure of the  
13 pump on not, you know, if you shut off all flow from the  
14 pump, it would have no re-cert flows pumping over heat and  
15 fail.

16 And there were situations during an event where  
17 you don't need flow to the steam generators because the  
18 level gets high. You would have to cut back. And if you  
19 also had lost instrument air, that valve would be shut.  
20 And if that had not been identified, you could cause  
21 multiple pumps to fail.

22 MR. REYNOLDS: And the last thing I wanted to  
23 say about Point Beach is we issued an Action Letter in  
24 April. And we're in the process of doing follow up  
25 inspections, expanding inspections and hold public

1 meetings. Their get well program has had activities  
2 through the middle of next year we'll be doing inspections  
3 into the next year.

4 And that's it for Cindy's and I presentation.  
5 It's time for a break?

6 MR. KOZAK: Can we limit the break to ten  
7 minutes? So we'll reconvene at 10:20.

8 (Off the record)

9 MR. RING: Okay. I guess I'm on next. My name  
10 is Mark Ring. I'm a Branch Chief for the Division of  
11 Reactor Projects. I have responsibility for oversight at  
12 Dresden, the Quad Cities and Perry, at the moment. And  
13 Quad, as you probably know, is pretty much the focus of  
14 most of these inter power issues.

15 I believe you folks got a briefing from NRR and  
16 Research on May 7th on some of these issues. I'll try not  
17 to be redundant to that. But I thought it would be a  
18 little bit helpful to just give you an idea of the scope of  
19 power uprate in Region 3. We've had six extended power  
20 uprate plants in Region 3. The first of those was Duane  
21 Arnold. That got approved in November of 2001. I believe  
22 that they were the first plant in the country that actually  
23 went greater than ten percent on the extended power uprate.  
24 There were some earlier EPU's granted but they were all  
25 less than ten percent.

1                   CHAIRMAN SIEBER: That's correct.

2                   MR. RING: Next was Dresden and Quad Cities.  
3 That was a dual submittal. That was approved in December  
4 of 2001. But the actual modifications for Unit 2 at  
5 Dresden were put in in their October, November outage. But  
6 shortly after approval for Unit 2 at Dresden, it went up to  
7 full EPU power December 30th, I believe is noted there.

8                   Next was Quad Cities Unit 2. And they achieved  
9 fully used power following the March outage in 2002. And  
10 then the, it's a little incorrect here. It's Dresden Unit  
11 3 and Quad Cities Unit 1 were both implemented in the fall  
12 of 2002. Clinton was also approved for an extended power  
13 uprate in April of 2002.

14                  And I want to skip the next slide, if you  
15 would, Tom. It's a little bit out of order and let's go to  
16 this one. We have had several complications with the  
17 extended power uprate in Region 3. In fact, most of them  
18 have been in Region 3. The first and probably the most  
19 dramatic initially was the lower cover plate on the dryer  
20 in Quad Cities Unit 2, which failed in the May, June time  
21 frame of 2002.

22                  So that was some three or four months after  
23 implementing power uprate and going up fully to the power.  
24 As a result of that failure there were some modifications  
25 made to some of the other units.

1 DR. WALLACE: Does any of these failures lead  
2 to loose parts?

3 MR. RING: In this particular case, yes. In  
4 this particular case there were a couple sets of parts, the  
5 biggest one was the main lower cover plate area itself.  
6 There were some smaller ones that dropped down onto the  
7 separator or the rest of the dryer and they were captured  
8 there. There were some smaller parts that went down the  
9 main steam line. One was wedged in the main steam line  
10 Venturi. And then a few small parts accumulated in the  
11 strainers for the Turbine stop valves. It was a little  
12 difficult to make sure what part came from the dryer and  
13 which parts were from something else.

14 DR. WALLACE: This is not just a dryer problem.  
15 It has potential for a failure, quite a few other problems  
16 as well.

17 MR. RING: It does. To date there have been no  
18 safety significant impacts of loose parts from the dryers.  
19 A little later on there was a failure on the Quad Cities  
20 Unit 1 as of November 2003 upper outer hood failure that  
21 produced a six inch by nine inch irregularly shaped, kind  
22 of trapezoidal shape, loose part. They have believed to  
23 have migrated through the jet pumps. And the spots reside  
24 in the lower head area at this point.

25 DR. WALLACE: I'm surprised it made it through

1 the jet pumps.

2 MR. RING: We were all surprised that it made  
3 through the jet pumps. And that's not been confirmed but  
4 there were some scratches on the impeller for the re-cert  
5 pump that give you an indication that it may have. And  
6 there's also been a little bit of an impact on lower head  
7 temperature and flow indications that indicated it might be  
8 residing in that area.

9 Even so, as far as we can tell, there was no  
10 safety impact out of that part passing through. The  
11 licensee has done an analysis along with general electric  
12 to indicate that there won't be. That's an area of concern  
13 for us. We looked at it in the moment. I haven't been  
14 able to say that there wouldn't but I think probably when  
15 you talk to NRR and Research, it's still a big area of  
16 concern. And hopefully they give you a little bit more of  
17 the details of why they think so.

18 DR. FORD: At this point, before I ask a  
19 question I should declare that I'm an X General Electric  
20 employee, being a retiree. But this is a point of fact.  
21 What if the industry that is -- report. And yet we keep  
22 questioning as to whether they should not respond to safety  
23 related because it could impact for instance the isolation  
24 and operations and -- At what point do you question the  
25 appropriateness of the steam dryer that is not a steam

1 dryer.

2 MR. RING: Well, that's been questioned by  
3 ourselves and by NRR. The statement, as I recall it out of  
4 FSAR's is that they're not safety related but they have the  
5 assumption that affects safety and maintain their own  
6 integrity. And when they're not doing that, such as  
7 releases and sparks, you can have impacts on safety related  
8 equipment. The dryers themselves, if they maintain  
9 themselves intact, have no real safety function.

10 DR. FORD: -- But aren't you waiting for an  
11 accident to happen. And then you say, oh, dear, it does  
12 affect the operation and steam dryer.

13 MR. RING: I think that's a question that we've  
14 all had that got emphasis put on it when the first  
15 significant dryer failures started occurring.

16 DR. FORD: But you're thinking about it. Is  
17 there an action?

18 MR. RING: Don't know that answer. Our  
19 research folks and our NRR folks have been debating a lot.  
20 As far as I know there hasn't been a change in  
21 classification at this point but it is of concern to a lot  
22 of people and continuing to evaluate. Quad Cities is  
23 essentially serving in a test vat, I guess you would say,  
24 at this point of what kinds of things could happen under  
25 these circumstances.

1 DR. BONACA: Yes, I would like to add that -- I  
2 think we -- you know, when we had some breaks, there were  
3 two concerns that we were talking about, one was the  
4 operational challenge to set the components, like the  
5 dryers. That's okay. We have concern too. But those  
6 challenges will not adjust themselves because you go to  
7 power uprate and unfortunately fall apart, -- power uprate  
8 but it modifies itself under normal operations.

9 The other issue we kept pressing along was  
10 those accident challenges that don't manifest themselves  
11 until you have an accident, and by not doing, for example  
12 -- go down -- you know, for those, the applicants showed --  
13 go down forces at a high power level versus the design  
14 characteristics of criteria for something plain and  
15 components. And they always refer the comparisons to the  
16 original design body to this component. And we question  
17 why do you have design bodies given that some of these  
18 components have been found already cracked everywhere.

19 So there's a history of degradation that comes  
20 naturally. And we were never satisfied by that because we  
21 were so by research and NRR that this components were as  
22 good as new. I mean, you know, that -- for me and for the  
23 rest of my concern because, and unfortunately, again, for  
24 those components inside the vessel, you will not know if  
25 you had a problem until you have an accident. Hopefully

1 that will never happen. I wonder if you have any thoughts  
2 on this issue, you know.

3 MR. RING: Yes, I'd like to introduce Carla  
4 Stoder. She's the Quad Cities Senior Resident Inspector.  
5 I asked her to come to this meeting today because she has  
6 probably some firsthand thoughts.

7 MS. STODER: I'd just like to add that you may  
8 not aware of. Both the Agency, Quad Cities and Exelon  
9 specifically and the industry are working together with the  
10 BWRVIT to re-look at inspection criteria specifically  
11 related to the dryer and other internals. As I'm sure you  
12 may know, the inspection requirements for dryers have  
13 increased significantly because of Quad Cities event. It  
14 was originally a very gross visual inspection. Now we're  
15 getting into seeing more details, filming of dryer  
16 surfaces.

17 I think one thing that the industry is troubled  
18 with right now and we struggle a little bit also with this  
19 is the cracks that are seen, how do you know what was there  
20 before versus what was new. And I think that's the issue  
21 or question that really needs to be answered going forward.  
22 I think the new recommendations or requirements on a dryer  
23 inspections are good. But utilities are very much  
24 struggling with old versus new and how do we tell the  
25 difference.



1                   MR. ROSEN: Why is that material? Why does  
2 that even matter?

3                   PARTICIPANT: Why does that matter?

4                   MR. ROSEN: We know there are cracks. These  
5 components are cracked, whether they occurred yesterday, in  
6 the sense that two years ago or five years ago, we know  
7 they're cracked. So why would when they occurred matter?

8                   MS. STODER: Well, I think the why is they want  
9 or they would like to have a baseline of what their dryer  
10 was or would have been before.

11                  MR. ROSEN: Well, I know what the baseline is.  
12 The baseline is the way they were put in. They weren't  
13 cracked when they were put in, were they?

14                  MS. STODER: No.

15                  MR. ROSEN: All right, there's your baseline.  
16 So what's this issue about? I'm always puzzled, I'm  
17 puzzled by this discussion.

18                  MR. RING: Well, I think that there is a piece  
19 of it that's of value there in order to try and figure out  
20 what you're going to do to fix the problem and method of  
21 generation of the cracks in the larger cracks. There have  
22 been cracks in dryers fairly insignificant in locations  
23 that were not such to generate loose parts, for example, or  
24 cause any problems. There have been cracks in dryers for  
25 years, like in the lower drain channels and --

1 DR. ROSEN: See, that's a question in  
2 standards. I don't think that cracking of an internal  
3 component in a reactor vessel is insignificant unless the  
4 cracking itself is very, very minor in a sense that maybe  
5 it's just haze cracking on the surface. But if you have a  
6 substantial crack in a component in a reactor, well, then  
7 that's to know about that and take corrective action not  
8 only on the condition you find but on the cause of the  
9 condition.

10 MR. RING: Well, I think that's exactly the  
11 point. The cracks historically have been small and not  
12 particularly significant at all. And the step change  
13 occurred with Quad Cities primarily in the wake of power  
14 uprate. Part of the question goes to how much of the  
15 contribution to the cracking is the increase in power and  
16 how much of it has been something that has been generated  
17 over time that is being exasperated by the increase in  
18 power. In order to --

19 MR. ROSEN: Well, one of the possible  
20 conclusions is we can separate that for the licensees  
21 simply by not letting them run at the increased power level  
22 and requiring inspections till they're proved that there's  
23 no cracking going on at full power at the old license power  
24 on.

25 Now, that's why I have a direct codian but it

1       may be --

2                   MR. RING:  It's actually what happened, right,  
3       after Quad Cities?  Both Quad Cities units are operating at  
4       their pre-EPU 100 percent power, which is approximately 85  
5       percent and they're being --

6                   MR. ROSEN:  They will stay there, I assume,  
7       until they can show they can run without cracking the  
8       dryers at an existing 100 percent power.

9                   MR. RING:  Yes, pretty much.  Now, they've  
10       undertaken a test part ring to try to gain additional  
11       information on the dryers, on the other components that  
12       might be impacted.  They took one of their units up in the  
13       April, May time frame for a short period of time to take  
14       data.  There's further instrumented.  Their commitment to  
15       us is that they won't operate at fully power level until  
16       they better understand the forcing functions, the  
17       mechanisms that are causing this and put in place actions  
18       to try to prevent it.

19                   Now, that's a commitment.  It's not a  
20       regulation at this point.  It's not a licensing action.  
21       But currently, for Quad Cities, any way, they are operating  
22       at their old 100 percent power level.  And it doesn't look  
23       like there's going to be any interim changes of that at  
24       this point.  Dresden is still operating at full EPU power.

25                   MR. BONACA:  -- go to where I was interested in

1 what the inspector for Quad Cities would say. -- to look  
2 at those issues because, I mean, we were told, you know,  
3 don't worry. And the reason why I worry is that some  
4 components have been replaced because of cracking. So, for  
5 example, one thought I have was maybe one would inspect, a  
6 detailed inspections of the -- so that you find that you  
7 have no cracks before you make an assumption that, in fact,  
8 the original criteria should be the one you should compare  
9 to rather than some -- I mean, this is, power plants are  
10 getting a lot of power out of that. And where this -- it  
11 leads to, I'm just saying that, and hopefully that problem  
12 will bring some of this actions, inspections, I imagine?

13 MS. STODER: Right.

14 DR. WALLACE: With respect to Duane Arnold, do  
15 they have full power uprate?

16 MR. RING: Yes, Duane Arnold has a full power  
17 uprate. The values are different. For example, Clinton, I  
18 think, is 20 percent, Quad is 17. And I forget the number  
19 for --

20 DR. WALLACE: They are more than 20 percent,  
21 though.

22 MR. RING: I'm sorry?

23 DR. WALLACE: They are over 20 percent. It's  
24 something like 20.

25 MR. RING: Yes, between 15 and 20.

1 DR. WALLACE: Oh, so you're running essentially  
2 experiments. That's what's going on? -- make decisions  
3 about the --

4 MR. RING: At Duane Arnold there haven't been  
5 any significant --

6 DR. WALLACE: Nothing happened.

7 MR. RING: -- problems with -- there is a  
8 difference on the configuration of the dryers, for example,  
9 in the physical configurations within the plant. Those  
10 difference are thought to be a part of what's resulting in  
11 the more significant damage in Quad Cities. The  
12 arrangements of the main steam lines, as you go down from  
13 the stop valve, they have what's known as the D-Ring where  
14 they come together. They have some more main steam lines  
15 than most of the plants.

16 The thought process is is that's a part of what  
17 may be causing these problems. The other, the other part  
18 is that dryers are physically configured a little bit  
19 different across the industry. Those plants that are  
20 thought to be most susceptible to flow induced vibrations  
21 by the higher close is a result of power uprate or the  
22 plants with squared off dryers. There's a small number of  
23 those. Quad Cities and Dresden happen to be two of them  
24 and, I think, from what somebody mentioned I believe is one  
25 of the other ones.

1 DR. BONACA: Could I hear the end to this? I  
2 would like to hear the completion of the answer from the  
3 inspector for Quad Cities.

4 MR. RING: Sure.

5 DR. BONACA: You were telling me about  
6 what you were going to do --

7 MS. PETERSON: The only other thing I wanted to  
8 mention or talk about was with the DE Fills that have been  
9 coming out from this issue, we have seen recommendations  
10 and the utilities implement more detailed inspections. In  
11 fact, during the most recent Quad Cities Unit 2 reviewing  
12 outage, they did their detailed visual inspections on the  
13 dryers and identified afterwards that they had missed a  
14 section. And went back in and that's when they found  
15 cracks near the newly installed --

16 So, they're taking the steps that they need to  
17 take, it appears to us. To get involved with the industry  
18 and the Agency to upgrade the recommendations coming out of  
19 WBIC.

20 DR. BONACA: For the dryer installation.

21 MS. STRODER: For the dryer. There are already  
22 inspections on certain portions of the internals which the  
23 licensee does perform. I can't speak to additional  
24 inspections that may be coming out of the VWRIC on other  
25 internals. But I know that dryer is a topic right now

1 within that group.

2 DR. BONACA: I finally understand. But, again,  
3 it would manifest itself under normal operations and that's  
4 why I worry about that -- asking these questions of the  
5 applicant for license renewal before we go ahead and  
6 recommend license renewal.

7 DR. WALLACE: And also just not Quad Cities.  
8 They had a problem. They fixed it by putting in gussets.  
9 And now they look at the gussets, and these new gussets are  
10 cracked or is cracking around. So their fix doesn't seem  
11 to be working. And what confidence does this give us about  
12 the next fix?

13 I'm just asking this because we have to make  
14 decisions about these things. It seems to be a very big  
15 problem here. Things are tried, give assurances and all of  
16 that.

17 DR. BONACA: That's by trial and error.

18 DR. WALLACE: That's no way to do it, is it?  
19 Maybe that's the way this industry works.

20 MR. ROSEN: No, it doesn't. Well, it shouldn't  
21 and part of it is in the knowledge. I was, when I read the  
22 transcript of our meeting, I was alarmed, actually and very  
23 critical for them not being able to show us a drawing of  
24 the darn thing. An engineering drawing that shows the well  
25 detail, size of it, the thickness of the materials. They

1 said they didn't have those drawings. Now, clearly they  
2 have them at the plant or the GE has them. They had to  
3 make them.

4 So, this is why to me a very, very disturbing  
5 problem in the Agency process. And I don't know where it  
6 is but somebody surely needs to drag out the drawings, put  
7 it on the table and understand what's going on and be able  
8 to write down what they don't understand and be able to  
9 tell us.

10 DR. FORD: Well, the question was asked of the  
11 staff several weeks ago, have you seen the drawings and  
12 reviewed the GE vibration analysis for the fortified --

13 MR. RING: Well, I'm not --

14 DR. FORD: How much did you question GE's  
15 approach to the resolution of this problem from an  
16 engineering frame, viewpoint?

17 MR. RING: Well, from an inspector in the  
18 field's viewpoint, which is what we are versus our analysis  
19 folks in Headquarters, we, we questioned our upgrading a  
20 lot of ways from fairly early on. Focus on particular  
21 welds in the dryer was not a focus, from a Regional  
22 inspection review point. Going into this, I think as Carla  
23 mentioned, when power uprates were first being granted,  
24 there was no inspection, for example, of the dryers or the  
25 individual internals components. That has come about as a



1 result of the failures that have occurred.

2 I'm not sure how much detail Research and NRR  
3 got into, but the gusset failures are believed to be due to  
4 the fact that the design of gussets incorrectly. They cut  
5 off the top of --

6 CHAIRMAN SIEBER: Let me jump in a little bit.  
7 We're spending a lot of time discussing what organizations  
8 who weren't here that are supposed to be doing. And the  
9 function of the Region is to do the inspections and not to  
10 do the engineering. And the decision making as to whether  
11 EPU's should be granted or not, including the analysis of  
12 the engineering justification of the stability of the parts  
13 rests with NRR supported by Research, which is at White  
14 Flint Headquarters operations.

15 So we may be more efficient. It's good, I  
16 think, to ask the Region about their observations of what  
17 they see in the plants that are affected, like Quad Cities.  
18 On the other hand, I think it's, it's a stretch to expect  
19 the Region based people to understand what Research and NRR  
20 are thinking and doing.

21 And so I'd sort of like to move on and hold our  
22 discussions to that because we're really asking the wrong  
23 people the questions.

24 DR. FORD: I understand that, Jack. But on this  
25 inspection issue because -- and cracking seems like it's

1       been known for a long time. And it really does -- we saw  
2       cracks during -- vibrations, fatigue cracks, supposedly,  
3       emanating from what safety cracks in the effective zone.  
4       Now, that didn't come out in inspection.

5                   MR. REYNOLDS: Right, but let me try to ask  
6       you, from the Region's point of view, on Quad Cities  
7       dryers. It's been going on for several years. Several  
8       times, no offense to GE, but GE has told us they've got the  
9       pump part. Don't worry about. We've looked at it. We had  
10      special inspections. They had failure several times. Mark  
11      and I spent a lot of time on the phone with Quad Cities.  
12      Said, hey, you know, three or four times now you told us  
13      you knew what the problem was and you didn't. You haven't  
14      fixed it.

15                   How do we have confidence today that you're not  
16      going to have another problem. That's when they made the  
17      commitment to us to not go back up in power until they have  
18      a much better understanding. We have been very aggressive  
19      with Quad Cities to understand what has been going on. In  
20      fact, there was a public meeting that we had last summer,  
21      ACR's Conference Room, but it was with the licensee. It  
22      was very poignant and I was very direct with GE that we  
23      have lost confidence, I have lost confidence in GE in the  
24      dryer issue. And that's why we work with them or talk with  
25      them so much to get this commitment from Quad Cities. If

1 they're not going to do anything until they better  
2 understand it and us, the NRC, better understand what  
3 they're going to do.

4 And so from an inspection point of view, from  
5 the Region's point of view, we have been very aggressive  
6 with Quad Cities and we remain so because we don't like  
7 being told in doing an evaluation that the problem is  
8 solved and we keep seeing it two or three times.

9 DR. WALLACE: Well, they're showing Quad Cities  
10 in April to solve the problem, if it is solved --

11 MR. REYNOLDS: The problem can't be solved --

12 DR. WALLACE: And the engineering talent. I  
13 don't think Quad Cities has the engineering talent to  
14 redesign the dryer.

15 MR. REYNOLDS: And when I speak at Quad Cities,  
16 I mean Quad Cities and whoever they need to help them. I  
17 just wanted to add that with respect to the Region's point  
18 of view taking a very aggressive stand. So we can move on.

19 CHAIRMAN SIEBER: Yes, we appreciate that and  
20 encourage you to continue what it is you're doing. Maybe  
21 we --

22 MR. REYNOLDS: We definitely will.

23 MR. RING: Okay, next slide up. One of the  
24 things I did want to point out to you was some of the  
25 impacts on Region 3 from the dryer issue, power uprates

1 issues. We did participate in reviews of modifications,  
2 power essential and testing at each of these plants prior  
3 to them increasing to full power level.

4 We had an increased number of outages. And the  
5 scope of those outages has gone up quite a bit. They're  
6 listed for you on the slide there. We did conduct a  
7 special inspection following the June 2003 dryer failure.  
8 That crossed several inspection hours. We have supported  
9 the meetings with the industry that Steve was talking  
10 about. Multiple info notices and then briefings.

11 In 2004, an outgrowth with what I think Steve  
12 was saying. We did receive a commitment letter from Exelon  
13 regarding the operations of the Quad Cities units, that  
14 they will stay down at the old power level. They do plan  
15 on replacing the dryers for both of the Quad Cities units.  
16 Part of the problem right now is making sure you understand  
17 the phenomenon so that the new dryers you put in will be  
18 able to function without failures.

19 CHAIRMAN SIEBER: Well, let me ask and ask for  
20 a short answer. Do we know what they would replace it  
21 with? For example, each of the versions, we have the  
22 R1386. Has a different drive and design. This is, Quad  
23 Cities, I think is the DWR3, which is a square shoulder  
24 design. Would they replace that with one that has the  
25 slipping shoulders or somehow or another looks like the

1 dryers that aren't so ready to fail?

2 MR. RING: The direct answer to your question  
3 is probably but we don't know yet. They have not made any  
4 commitments yet.

5 CHAIRMAN SIEBER: Yes, I guess there's no point  
6 in expanding on that. Even though Quad has some unique  
7 engineering creatures that make the call a little more  
8 difficult --

9 MR. RING: They do. And that is likely the  
10 reason you're seeing the most extraordinary problems with  
11 Quad Cities. We have that additional inspection that Quad  
12 Cities and Dresden, for quite alone, has produced 500 some  
13 hours of directing inspection. That doesn't include the  
14 preparation of documentation on that, just for power uprate  
15 related issues.

16 I'd also like to move back a little bit to the,  
17 I think it's two slides back or three slides back.

18 DR. WALLACE: I'm sorry, these inspections --  
19 right?

20 MR. RING: Yes.

21 DR. WALLACE: And it looks as if the failure  
22 proceeds very rapidly. Uprate in power and six months  
23 later there's an event. You don't have enough inspections  
24 -- between us.

25 MR. RING: I'm not sure I understand the

1 question.

2 DR. WALLACE: I'm saying the rate at which the  
3 failure develops assures that it could happen during,  
4 between outages. How can you catch that by your  
5 inspections?

6 MR. RING: It does happen between --

7 DR. WALLACE: Part of that happens --

8 MR. RING: It does happen --

9 DR. WALLACE: -- develops in six months or a  
10 year and you haven't been able to -- you haven't had the  
11 chance to inspect it. So I don't see how the inspections  
12 help.

13 MR. RING: It does happen between the outages.  
14 The inspections are simply, and you can't look at the dryer  
15 when it's operating. There are, as a part of the meetings  
16 and the commitment letters that we've talked about, the  
17 licensee is looking into on line monitoring of the dryer.

18 DR. WALLACE: Okay, that would be a little more  
19 helpful.

20 MR. RING: In direct answer, yes. In fact,  
21 those inspections are after the facts, looks at what  
22 happens.

23 DR. WALLACE: You're so lucky if you catch  
24 something before it develops into something serious.

25 MR. RING: Well, I don't know about that. The

1 indications that you see are when the cracks get to the  
2 point that they start opening up. Before that they're  
3 still together and the structural integrity is still in  
4 tact. You do get indications when the cracks open up some  
5 degree and start changing. Once your carryover, for  
6 example, or steam line flows differentiate.

7 There are symptoms, there are indications that  
8 something's going on.

9 DR. WALLACE: That's something we really need  
10 to keep track on.

11 MR. RING: And we do and they do at this point.  
12 We got involved fairly heavily in the Region in  
13 the original EPU's perspective, in Quad and Dresden anyway.  
14 We did not with Duane Arnold. And that just sort of  
15 happened.

16 With the initial power uprate applications, we  
17 also got heavily involved via guidance that was being  
18 provided to the inspectors on what to look for, how to  
19 monitor power extension and the testing and so forth.  
20 There was very little in the beginning. We now have input,  
21 our experience is back to the Agency, produce some  
22 inspection procedures and some guidance so the other plants  
23 that are going through power uprate. I think we were part  
24 of the Agency's realization that we did need a standard or  
25 a new plan to describe the levels of evaluations and

1       approvals needed for power uprate.

2                   And then I guess, at an on the scene level, the  
3 residents of each of the plants that have had power uprates  
4 occur, as we have been seeing, more and more problems and  
5 communicated directly with their counterparts describing  
6 what's been seen, what's happening. For example, what  
7 parameters start mediating first and when can you expect  
8 that. And what is indicative of the problem of the dryer.

9                   Right now, for example, Carlson communicating  
10 frequently with the Vermont -- a senior resident who used  
11 to work in the Region 3. And so we kind of kept up that  
12 grapevine that communicates a lot of the experiences on how  
13 you handle it from an inspector's level.

14                   CHAIRMAN SIEBER: Refresh my memory. It seems  
15 to me that while you've had cracks in dryers in a variety  
16 of plants in the industry -- is Quad the only that's had  
17 failures --

18                   MR. RING: Yes, as far as I know. I'm trying  
19 to think. There were two other ones within the last six  
20 months that had like 18 inch cracks develop, that kind of  
21 thing.

22                   CHAIRMAN SIEBER: But no --

23                   MR. RING: To my knowledge, no one was --

24                   CHAIRMAN SIEBER: So the most serious situation  
25 with regard to dryers and CWR's is at Quad Cities operating



1 in the ZP --

2 MR. RING: It is not.

3 MR. ROSEN: I would submit, Jack, that an 18  
4 inch crack could pretty soon lead to a loose part.

5 CHAIRMAN SIEBER: It's not as severe as natural  
6 as far as things floating around.

7 MR. RING: In that case, I believe it was 9  
8 month, if I remember. They had not gone through --

9 CHAIRMAN SIEBER: An EPU?

10 MR. RING: No. They had an increase of, I  
11 think, four percent back on '96 or something. But they  
12 haven't had a full EPU yet.

13 CHAIRMAN SIEBER: Thank you.

14 MR. RING: I think next, Laura's going to talk  
15 about some of the interfaces with the license renewal.

16 MS. KOZAK: My name is Laura Kozak. I'm the  
17 lead inspector for license renewal. I came into the ACRS  
18 Sub-Committee in April to talk about the status of Dresden.  
19 I do have one slide here to give an update on the dryer  
20 scoping issue. Really the heart of this is my bullet No. 3  
21 here because Mark has already talked about the current  
22 status of the technical reviews and the commitments that  
23 Exelon has made and the test plan that they submitted.

24 The current approach, in terms of license  
25 renewal, is that this is a current operating issue that

1 needs to be addressed now or in the near future and not  
2 necessarily with license renewal. However, Bullet No. 3,  
3 Exelon sent the NRC a letter on May 27th. And in that  
4 letter they said the issues with the dryer are design  
5 issues. And if the dryer is designed properly, then no  
6 loose parts will be generated and structural integrity will  
7 be maintained.

8           However, if our test plan and our changes that  
9 we plan to make with design, whether that's modifications  
10 or new dryers, we don't know that right now, they have made  
11 a commitment that they will include the dryer within the  
12 scope of license renewal. And so that commitment will be  
13 added to the list of other commitments that will be in the  
14 final FDR that will be issued later this summer.

15           CHAIRMAN SIEBER: And so aging management will  
16 be increased inspections.

17           MS. KOZAK: Right. And I put down there the  
18 10CFR 54 is license renewal and this part specifically  
19 addresses any new items that come up that need to be added  
20 to the scope of license renewal. They need to go back and  
21 do the same aging management review and aging management  
22 program that they would have done up front. And then that  
23 is submitted in the --

24           That's the current status of the dryers and  
25 scope --

1 DR. WALLACE: I would think that depends on the  
2 quality and completeness of this aging management program.  
3 It just sounds correct, from one category to another. The  
4 problem will still be there.

5 MS. KOZAK: Well, it would only go to the aging  
6 management, right, program, if it's included within the  
7 scope. I can tell you that one aging management program  
8 that they're already committed to you is the BWR Vessel  
9 Internal Program, which --

10 DR. WALLACE: Do you folks take a look at these  
11 programs? Like when you get these license renewal things,  
12 all the same thing. It's assurance that everything is fine  
13 because the Aging Management Program for everything that  
14 matters. Now, the key thing is -- program. Do you guys  
15 keep track and inspect the programs?

16 MR. HOLMBERG: Good morning, my name is Mel  
17 Holmberg. Let me try to field that question. I'm with the  
18 Materials Engineering Branch here in the reason. And for  
19 the last ten years or so I've been looking at various  
20 licensee programs responsible for detecting material  
21 degradation. Our routine programs do not look at internals  
22 tracking that's inspected under the BWR owners group  
23 offices. In fact, our baseline procedures does not include  
24 reviews in that area.

25 So at this point the short answer is no, we do

1 not confirm the adequacy of their implementation of their  
2 programs.

3 DR. ROSEN: Does that mean, I mean, Exelon will  
4 be the sole judge of that, if test plan is successful or  
5 not?

6 MS. KOZAK: No, it does not mean that at all.  
7 Let me just add on to what Mel said. Mel's right. Our  
8 routine inspections do not go into that area. But the VWR  
9 Vessel Internal Inspections Program has already been  
10 reviewed by the NRC as an acceptable Aging Management  
11 Program.

12 DR. WALLACE: That's what concerns me. You  
13 just give me the insurance that it's been reviewed, it's  
14 okay. But who is actually checking that it is okay? It  
15 seems to make all the questions and belief. I'd like to  
16 see some evidence that someone has actually looked at it  
17 and have some evidence.

18 DR. BONACA: we want to have P, we have C,  
19 because issues that were not being managed, people -- are  
20 being managed defectively.

21 DR. WALLACE: I think so. I believe that if  
22 the problem hasn't been effective, we would have seen a --

23 MR. RING: If your question involves Bullet 3  
24 on the Test Plan and whether it's successful or not, it's  
25 not just the licensees who look at that. They're going to

1 submit that and the results of it to us and us, the Agency,  
2 will be reviewing the results of the test plan.

3 DR. BONACA: Although, I mean, I think that,  
4 you know, the fielder would have to be no pressures for a  
5 while before we gained the confidence that, you know, there  
6 won't be cracking particles than you would have otherwise  
7 without power -- but I can see how we will ask questions of  
8 the licensees when they come for their license renewal  
9 regarding the test plan. You know, we want to hear about  
10 that.

11 MR. RING: The test plan is before you get the  
12 license renewal. They have to be acceptable with their  
13 results of their test plan, meaning that they know enough  
14 about the dryers so they can modify them such that they'll  
15 be able to operate it fully themselves in attempt of a  
16 license renewal.

17 DR. BONACA: I understand that. What I'm  
18 saying that there is a level of -- and so, you know, they  
19 can show you whatever they want, I still want to see, and  
20 maybe two or three years earlier, how the whole thing comes  
21 apart because we were told those are important -- the  
22 problem. But it didn't. And it's very embarrassing. I  
23 mean, at the last meeting that we had, we had a lot of the  
24 public there. I mean, from the -- and everybody else. And  
25 they're paying attention because we want -- very equally

1 sensitive to the issue of the capability of what was being  
2 presented to us and what we agreed with.

3 We have agreed with this before several times.  
4 And now we're kind of shy about agreeing again. And we  
5 have seen some performance. I don't want to mis-  
6 characterize the test program. Is it good as all this and  
7 positive. We'd like to see how it works.

8 DR. FORD: May I ask a question? Who examines  
9 the Aging Management Programs at the stations? When we  
10 have a license renewal application in front of us, this  
11 staff down in Washington recently said, oh, there's a -- of  
12 this aging management program and you did it well, et  
13 cetera -- whatever it might be. And oftentimes we're given  
14 to understand the Region during this --

15 Now is it you? Who is it that I should -- new  
16 to the program and conduces yourself that it is done  
17 adequately and it is appropriate?

18 MS. KOZAK: Actually, both NRR and the Region  
19 have a role in renewing the aging management program.  
20 Well, let me go back. First, of course, there's the GGLL,  
21 Generic Gauging Lessons Learned.

22 DR. FORD: That's a very general --

23 MS. KOZAK: Right, I understand. But it  
24 endorses certain programs. And then the applicant in their  
25 application they send in, that is reviewed by NRR

1 Headquarter staff, which includes, to some extent, some on  
2 site audits where they review the aging management  
3 programs.

4 DR. FORD: Who does on-site audit?

5 MS. KOZAK: Well, NRR staff has a role in their  
6 auditing and then the Region also has an aging management  
7 program inspection where we go out and confirm that the  
8 program they have is consistent with the application, is  
9 being implemented and should support the license renewal.

10 DR. FORD: I mean, is it approved?

11 CHAIRMAN SIEBER: Well, you do not approve the  
12 program. You inspect and determine that the program is or  
13 will be executed the way that the program is set out.  
14 That's what the Region does.

15 MS. KOZAK: That's right.

16 CHAIRMAN SIEBER: Whether the program is  
17 adequate or not and meets the design conditions is up to  
18 the NRR to decide. And they approve whatever --

19 DR. FORD: I recognize that. What duties --  
20 they don't --

21 MR. HOLMBERG: Okay, let me kind of clarify.  
22 What the question asks is does the Region look at BWR  
23 owners group implementation of their vessels internal  
24 inspections. And the short answer is, no, not on a routine  
25 basis as part, it recognizes part of an aging management

1 program that whatever extent that the regional folks go out  
2 and confirm that program is appropriate would be conducted.

3 But as far as a routine, every outage we're out  
4 there doing in-service inspection program, we don't look at  
5 that particular aspect. It's not part of our procedure at  
6 this time.

7 DR. WALLACE: Well, I would say personally then  
8 we have these license renewals, they don't call it a huge  
9 document. There's all kinds of other stuff which is so  
10 routine. And I find that, I mean, people actually there  
11 inspecting and auditing what they're doing gives me far  
12 more confidence than a big fat document because I just  
13 can't, you know, put my arms around it. If someone like  
14 you is actually there and says, yes, they're doing it  
15 right, that gives me much more confidence.

16 MS. PEDERSON: If I could add to the topic.  
17 More on the teams as they go out and do the inspections on  
18 site are well linked up with NRR. Actually NRR  
19 participates, it's part of our inspection program. So if  
20 we did have a concern about what was licensed or what was  
21 in the ball or those kinds of things, we would be  
22 communicating those concerns. We inspect what they're  
23 committed to and what the license basis may be.

24 And if it pertains to the license renewal or  
25 anything else we do, if we have concerns about any of that



1 licensing structure or framework, we very well communicate  
2 that to NRR.

3 CHAIRMAN SIEBER: And the actual decision as to  
4 what's adequate to address the problem is NRR's to make.

5 MS. KOZAK: Correct.

6 CHAIRMAN SIEBER: And what you do is make sure  
7 the licensee is doing what they're committed to do under  
8 either an aging management program or if a vessel internal  
9 program is enforced under an aging management program, then  
10 that would be that too. But if it isn't endorsed, that's  
11 just something licensees do to protect their investment.

12 MS. KOZAK: That's right.

13 DR. FORD: Actually, it does puzzle me a wee  
14 bit though that an aging management program is a leading  
15 activity on the site. So, why don't we routinely oversee  
16 or go and see what they're doing routinely not just on an  
17 LRA.

18 DR. BONACA: Then they will. Nobody has  
19 entered the, I mean, you do inspect -- licensee --  
20 progress.

21 CHAIRMAN SIEBER: In fact, you have all kinds  
22 of inspections that licensees perform under the ASME Code,  
23 okay? Now, the VIP Program is in addition to the code  
24 because it usually looks at things other than the pressure  
25 plan. And so there are inspections going on as to the

1       adequacy of the embankments of the pressure boundary. And  
2       then licensees on their own look at internal parts that  
3       aren't part of the pressure boundary, just like they would  
4       look at a pump compeller or some internal part of a valve  
5       was not pressure retaining, as part of their general  
6       maintenance program.

7                   When license renewal comes along, their aging  
8       management programs that commit them to do certain  
9       additional things to provide assurance that it's safe to  
10      extend the license. And apparently one of those may end up  
11      being dryer inspections.

12                   MS. KOZAK: Just to follow on with that, there  
13      are future license renewal inspections that, you know, are  
14      just prior to the period of extended operations.

15                   CHAIRMAN SIEBER: Yes, one time inspections.

16                   MS. KOZAK: Well, they do a lot of one time  
17      inspections. But we will go in, we have another host  
18      approval license renewal inspection where we will go back  
19      and look at these commitments that they made to make sure  
20      that they're all being implemented as they state.

21                   It's also hard to project exactly what our  
22      baseline inspection program, the one that Mel is referring  
23      to, will like in that time period. It might very well  
24      include something above and beyond what he's doing now in  
25      the baseline inspection program. So, I think, and we'll

1 get to this later as Mel talks about some other specific  
2 issues. We are seeing certainly an evolution in the kinds  
3 of things we're inspecting as far as materials related  
4 issues and as we learn more as an Agency, we're issuing  
5 bulletins and temporary instructions and so on.

6 I'd offer at this point, obviously you can  
7 charge us as you'd like, we are significantly behind  
8 schedule.

9 CHAIRMAN SIEBER: Yes, and I recognize that. I  
10 encourage you to, I think that part of our problem is  
11 understanding who does what. Now I think that's a little  
12 clearer to everyone here. And so maybe we can just move  
13 on.

14 MS. PEDERSON: Just, if we could just take  
15 about one minute and have Laura update you on the next  
16 step. We've got a couple of other license renewal things  
17 that we can get on to some materials. Would that be  
18 acceptable?

19 MS. KOZAK: Sure. This is just a status of  
20 license renewal inspection activities for Region 3. Dresden  
21 and Quad Cities gave an update in April. Since then I  
22 completed the final open item session for Dresden and Quad.  
23 And so all of the inspections are complete and there are no  
24 inspection open items currently.

25 Cook, we also have their application that we're

1 reviewing. We've completed the scoping of screening  
2 inspection. That was completed May 21st. Overall, we  
3 found that they had adequate scoping and screening. We've  
4 had some observations about their scoping process for non-  
5 safety related equipment, which were similar to NRR's  
6 observations during their audit. So we were reviewing  
7 those issues with aging management's program inspection.  
8 That's a two week on-site inspection scheduled in November.

9 And then Point Beach, we have their application  
10 also and the inspections will begin in January of 2005.  
11 That's it.

12 MR. HOLMBERG: Good morning. As I introduced  
13 myself earlier, again my name is Mel Holmberg. I'm with  
14 the Materials Engineering Branch in the Division of Reactor  
15 Safety here in the Region. And as I mentioned, I had been  
16 doing reviews of licensees, what's called their In-service  
17 Inspection Programs for the better part of that time. I've  
18 been with the Agency about ten years. And so what I'm  
19 talking about here are programs that are designed to detect  
20 degradation and primarily safety related components, such  
21 as reactor coolant pressure boundary.

22 So, today, what I intend to go over is provide  
23 some examples of actual plant materials degradation and  
24 where failures that have been related to primary water  
25 stress growth and cracking. The first example of what I'd

1 like to cover here is an example that occurred at  
2 Palisades. This is a small single unit, PWR Site. It's  
3 almost straight across from Chicago on the east side of the  
4 Lake. They're a CE Designed plant.

5 This particular example, they experienced a  
6 failure of their power operative release valve line in  
7 1993. This occurred during heat up from the outage while  
8 they were still at hot stand by. And the leak that they  
9 experienced was caused by a three inch long circ-oriented  
10 crack at the safe-end-to-pipe weld.

11 What was interesting about this event was that  
12 the licensee had actually protected this weld during the  
13 outage. They had performed radiography on this particular  
14 location. And I'll have a drawing here to show you in a  
15 moment. And thought that the indication was something  
16 related to the original fabrication or construction. Not  
17 only did they do radiography but they also did some  
18 ultrasonic inspections of it.

19 CHAIRMAN SIEBER: How did the licensee identify  
20 that they had a crack and a leak? Was it visual?

21 MR. HOLMBERG: Yes. Well --

22 CHAIRMAN SIEBER: Design pressure test or  
23 something like maybe somebody saw it.

24 MR. HOLMBERG: Right, they were coming up.  
25 They were in hot stand by getting ready to go critical.

1 And they identified their, well, I think they saw some  
2 indications of unidentified leakage trends going up. And  
3 even --

4 CHAIRMAN SIEBER: So they could actually see it  
5 in the water balance.

6 MR. HOLMBERG: My understanding it was from  
7 some pumping and so forth, and found out by their --

8 CHAIRMAN SIEBER: Well, that's heartening to  
9 know that it's detectable that way without --

10 MR. HOLMBERG: Right. One of the things I want  
11 to talk about is the next --

12 CHAIRMAN SIEBER: One other quick question.

13 MR. HOLMBERG: Sure.

14 CHAIRMAN SIEBER: There is an isolation valve  
15 between the floor and its -- down tank. Was the leak  
16 between --

17 MR. HOLMBERG: That's what this drawing's  
18 trying to illustrate. The leak actually was not isoable.  
19 It was directly off of the safe end here. You see this  
20 little hash mark here? The safe end, this is off the very  
21 top of the pressurizer. This is roughly a four inch  
22 schedule 120 pipe. The leak location occurred on the safe  
23 end side where the pipe is welded to the safe end. And it  
24 represented a challenge for them in terms of nondestructive  
25 examination because of its configuration.

1           They had, again, they had some indication on  
2 their RT. They tried to characterize it using UT but it  
3 could only be conducted from the pipe side of the weld. So  
4 that, as you can see, creates a problem because they have,  
5 this is an anconal weld with anconal materials with rather  
6 large grain structures and veracity. It was also present  
7 in the weld.

8           So at the point that they decided it was simply  
9 related to original fabrication, that was due to the  
10 difficulties they had in examining this weld when they  
11 returned it to service.

12           Next slide. When the, after the failure  
13 occurred, of course, they shut down and removed that  
14 section of the safe end and pipe. And did some destructive  
15 metallurgical evaluations of the crack. The crack, as  
16 shown here, actually occurred, as I mentioned earlier, on  
17 the safe end side. It follows the heat effected zone in  
18 this Alloy 600 safe end.

19           Some of the key or principle reasons for why  
20 they thought it occurred at this location centered around a  
21 weld repair. That's the Area No. 4 shown on this slide  
22 here. There was an ID Weld repair made. This was a field  
23 weld. And that, of course, leaves a very high residual  
24 tensile stress on the surface of this component. And  
25 together with the factors on top of the pressurizer and

1 some of the highest surface temperatures you're going to  
2 experience at a PWR, set it up for this type of crack  
3 indication.

4 CHAIRMAN SIEBER: That weld repair was pre-op.

5 MR. HOLMBERG: Correct, original construction.  
6 And they estimate that the crack itself took about two to  
7 five years to grow through a wall. So of course there's  
8 always an incubation period, if you will, before it begins  
9 to grow. And it was ingranular in nature.

10 Next slide. I want to jump forward about eight  
11 years here. And, again, we're at the same plant where  
12 Palisades experienced a failure in the control out drive  
13 mechanism housing. In this case, the plant was actually at  
14 power and once again saw increasing trends of unidentified  
15 leakage. I think they got up to .3 GPM unidentified  
16 leakage.

17 Ended up shutting the plant down and did a walk  
18 down and identified an active steam leak on the CRDM 21  
19 housing. And I'll have a picture here in a moment to talk  
20 about that. The leak actually was caused here by a 2.8  
21 inch long axial oriented primary wash -- corrosion crack.  
22 And this is located in the third housing weld above the  
23 vessel head. Ultimately they identified 29 of the housings  
24 were cracked at this same location.

25 The flaws in this case were not detected sooner



1 because the code mandated inspections allowed for the  
2 licensee to perform surface exams, which showed, of course,  
3 for this particular mechanism, provide no value. And in  
4 fact, they still allow surface exams. So when the licensee  
5 first detected this, the Region became involved. And they  
6 were proposing rather following the code in more or less a  
7 rather narrow view. They were going to expand and do  
8 additional two housings and surface exams and overlay the  
9 leak.

10           Once the Regional managers and staff became  
11 involved, they decided that was not an appropriate course  
12 of action and they implemented ultrasonic inspections,  
13 biometrics, if you will, and then started identifying the  
14 other crack houses.

15           DR. WALLACE: I'm trying to figure out what  
16 this is.

17           MR. HOLMBERG: Yes, I'm going to go to the next  
18 picture. Let's show the next picture there. What you're  
19 looking at is an actual picture. There's a steam flow  
20 examining right through this area here. And that white  
21 deposit is a build up of boric acid around an actual leak  
22 location.

23           DR. WALLACE: Where are we and what's --

24           MR. HOLMBERG: That's what I'm going to show  
25 you here. This is the top of the insulation just above the

1 vessel head. This is --

2 DR. WALLACE: The vessel head is way down here.

3 MR. HOLMBERG: The vessel is down here  
4 somewhere.

5 DR. WALLACE: Way down there someplace.

6 MR. HOLMBERG: And what you're looking at is  
7 these are the control --

8 DR. WALLACE: So those are the things that have  
9 leaked before and dripped boric acid down. I confused the  
10 question about where it came from on the vessel.

11 MR. HOLMBERG: Not exactly.

12 DR. WALLACE: Not at this place but --

13 MR. HOLMBERG: Not at this location but higher  
14 up on the housing, seal housings.

15 DR. WALLACE: There seem to be leaks in various  
16 places on these control room drawings. That's part of the  
17 confusion at Davis-Besse.

18 MR. HOLMBERG: Right. For instance, this  
19 flange happens to have an O-Ring Seal design. So if that  
20 seal were to leak --

21 DR. WALLACE: Is it 29 out of 45 of these --

22 MR. HOLMBERG: Yes. And the actual leak  
23 location, I want to point to one that's in the foreground.  
24 It's between the eccentric reducer and where the full  
25 diameter of this housing starts. This is a pipe to

1 eccentric reducer weld is essentially what you're looking  
2 at.

3 So, if it was leaking on, that location's  
4 leaking, it would be right on this weld.

5 DR. WALLACE: On the fat part.

6 MR. HOLMBERG: Yes. So the licensee ultimately  
7 ended up removing that section.

8 MR. ROSEN: Let me go back. This picture,  
9 conclusively, I think, sets to rest the discussion we had  
10 some weeks ago at ACRS that steam leaks in and of  
11 themselves don't leave boron deposits because there is a  
12 boron deposit. The question is when it happened. Was it a  
13 water leak first and then became a steam leak or?

14 MR. HOLMBERG: This is shortly after it  
15 happened. They just shut down the hot stand by. The  
16 picture, I believe, I was taken by our resident inspector.  
17 But this is boric acid build up around the outside of this  
18 location. Plus, you probably can't see it here, but  
19 eventually the steam ended up condensing and pouring boric  
20 acid deposits on a number of other locations. So it does  
21 become evidence. With a healthy steam cleaning like that,  
22 you will see boric acid --

23 DR. WALLACE: You say healthy steam clean. How  
24 much of a leak is this?

25 MR. HOLMBERG: I think it was .3 gallons per

1 minute at the point they started shutting down. At this  
2 point, I'm not sure what the actual leak rate was.

3 DR. WALLACE: A significant leak.

4 MR. HOLMBERG: Yes. I mean, at one gallon per  
5 minute they're required to shut down by tech spec for  
6 unidentified leakage.

7 CHAIRMAN SIEBER: It's detectable by your leak  
8 measure and one of the --

9 DR. WALLACE: The leak, going back to my  
10 colleague, Steve Rosen's point, the leak was really  
11 detected before the boron evidence was received.

12 MR. HOLMBERG: Right. Well, the leak occurred  
13 at the plant a long line at power

14 DR. WALLACE: -- before you get the leak.

15 MR. HOLMBERG: Well, there would be no boron to  
16 see before the leak before the crack propagated through  
17 wall before plant was at power. In fact, that was my next  
18 picture. Well, we'll get to it here in a moment. This  
19 picture is actually a section of that same housing that's  
20 been removed. And they may not be familiar with this.  
21 This is a dye penetrant test. And that test is such that  
22 they introduce a dye into the surface of the materials so  
23 that when you put the developer on there it extracts the  
24 dye from any crevices, in this case, cracks.

25 The rather wide stain you're looking at that's

1 red is actually the axial flaw that went through wall.  
2 Again, this is from the inside. There were also a number  
3 of other crack indications found in this particular housing  
4 location, including one that's now shown here that it was a  
5 circumfrenicial flaw of about the same magnitude and almost  
6 through wall. So there was, many of these housing had  
7 multiple cracks at this location.

8 The crack was further characterized during  
9 constructive metallurgical type analysis with some  
10 interesting information that came out of that. This is the  
11 fracture face of that axial crack. What's interesting is  
12 you see these kinds of three ring patterns. Those are  
13 actually crack arrest barks or chevron patterns such that  
14 you can or the licensee is able to determine growth points  
15 so they can attach and determine the actual crack growth  
16 rate at least for this portion that propagated through some  
17 of the base material.

18 And from that information, it was useful  
19 information to me as the inspector on site because the  
20 crack growth rate was rather substantial. This is trans-  
21 granular cracking and it was on the order of almost ten to  
22 minus 5th inches per hour at the point it was growing  
23 through that base metal.

24 So that was substantially higher than what is  
25 seen, for instance, for inner-granular cracking in the BWR

1 environments, which was relevant because the licensee had  
2 proposed a weld over lay repair and had analysis to support  
3 that repair based on BWR crack growth rates, which I  
4 quickly pointed out don't look like they're applicable in  
5 this case.

6 So, ultimately the licensee decided not to  
7 implement the overlay repairs and the housings were  
8 replaced.

9 DR. FORD: Do you find it usual to see trans-  
10 granular cracking?

11 MR. HOLMBERG: The mechanism behind this, they  
12 tagged, and again it was all kind of speculation because  
13 they never found actual physical chemical evidence of it,  
14 had something to do with the fact that they're maybe a  
15 higher level of oxygen up in this part of the control drive  
16 housing. There are also postulated or some sort of  
17 hylergin, a chloride compound got in there. Certainly if  
18 there was chlorides and they were trans-granulars, it's  
19 typically a favored mechanism.

20 But it is unique in the fact that a lot of the  
21 -- cracking, such as the one we discussed earlier on the  
22 safe end is inner-granular.

23 DR. FORD: It's hard to tell with that  
24 magnification it is, in fact, trans-granular.

25 MR. HOLMBERG: Yes, it is. Yes, completely.

1 DR. FORD: And the -- has been completely ruled  
2 out?

3 MR. HOLMBERG: Right, they had it independently  
4 checked both at Westinghouse in their own laboratory.  
5 Both came up with the same thing, it was trans-granular  
6 stress gross crack.

7 CHAIRMAN SIEBER: It's interesting, you know,  
8 when you first throw away reactor coolant system, all the  
9 air goes up into the CRDM's. And in the early Navy plants  
10 had vents ont them so you can vent them off. But that --

11 MR. HOLMBERG: These don't have vents.

12 CHAIRMAN SIEBER: That's right. And so the  
13 only way to get the air out is to absorb it in the coolant.  
14 And so it's there for a longer period of time. It's there  
15 for a longer period of time than it would be in a plant  
16 that had vented mechanisms.

17 MR. HOLMBERG: Right. And they did take some  
18 credit for the active housing locations that they felt that  
19 the, you know, moving control rods and such would tend to  
20 get the air out. They do have spare housings that they  
21 felt would be more susceptible to higher oxygen levels.

22 MS. PEDERSON: If I may, Mel, before you start  
23 ahead. I'd ask a preference. We have arranged for lunch  
24 to come here in the very near future. Would you like us to  
25 continue with talking about some head discussions or

1 instant response that we could cancel if you prefer to  
2 spend time on this. I'm trying to be sensitive to the time  
3 that you need to finish the weld.

4 CHAIRMAN SIEBER: Well, we have at least one  
5 member who seems to have disappeared, who had an early  
6 plane to catch. It's more important for us to hear what  
7 you have to say than it is to see things. And, you know,  
8 or at least that's the way I feel about it. And so I will  
9 prefer to continue on.

10 DR. FORD: Could I just work through lunch?

11 CHAIRMAN SIEBER: You certainly can. So why  
12 don't we just go on?

13 MS. PEDERSON: Okay, we'll plan to cancel our  
14 instant response tour. Thanks, Steve, for prep. We'll use  
15 it another day. And we'll continue on and we'll just put  
16 lunch on hold until there's a normal breaking point.

17 CHAIRMAN SIEBER: Okay, doing that will  
18 encourage us to speed up.

19 MS. PEDERSON: Thank you.

20 MR. HOLMBERG: Okay, kind of shifting gears,  
21 the next topic for discussion is, even though it's related  
22 to primary wash stress scores and cracking is focused on an  
23 area that's associated with reactor vessel closure head,  
24 specifically where the closure, the RPV Nozzles, as they're  
25 called, that support the control on drive housing penetrate



1 on top of the vessel head. The fingered weld that is  
2 subject to tracking and primary water stress grossing  
3 cracking is a principle mechanism in that area.

4 And so as a result the NRC has issued an order.  
5 This is Order 03009. First came out in February of 2003.  
6 And that order required the licensees to determine how  
7 susceptible their particular head was to primary water  
8 stress gross in cracking, fitting them into three bins;  
9 high, moderate and low. And they subsequently modified the  
10 order in 2004 to not only address replaced heads but to  
11 provide flexibility because the order required the ranking  
12 to ensure that the licensee's implemented appropriate non-  
13 destructive examination techniques to identify cracking.

14 In addition, of course, the Region has a  
15 temporary instruction, TI-150, where we go out there and  
16 confirm that the licensees are implementing appropriate  
17 non-destructive examinations in accordance with the order.

18 What I'd like to do is share with you some  
19 actual pictures of one of the things that basically any  
20 licensee's required to do now under these orders is a bare  
21 metal visual exam. And this happens to be a picture from  
22 one of our, this is a Braidwood unit. And this is kind of  
23 what they all hope to find. This is a very clean head.  
24 You're looking basically underneath that boron insulation  
25 that I was kind of pointing out in that other picture. So

1 you've got a direct shot of the top of the reactor head.  
2 These are the RPV nozzles where they penetrate the top of  
3 the head. And this is, again, a good example of what they  
4 hope to find with either their direct visual exams or  
5 sometimes they put remote cameras on magnetic crawlers and  
6 crawl around the top of the head.

7 Next slide, because what they're actually  
8 interested in is taking a real close look at this inter-  
9 base area here where the RPV nozzle penetrates the head.  
10 This happens to be for Point Beach and no, the white stuff  
11 here is not boric acid that's run down. That just happens  
12 to be some spray mastic from a prior insulation design  
13 that's come down. So, again, this would be an acceptable  
14 nozzle from a visual exam standpoint.

15 Next slide, please. When there is leakage that  
16 comes through the nozzle, the classic or the description is  
17 a popcorn type appearance in that it's white, basically  
18 what you see before you. I won't try to describe it  
19 besides the popcorn appearance. But it's very evident that  
20 there's something going on there at that interface. And  
21 the boric acid deposits don't appear to have another  
22 source. And you can see the corrosion that's occurring  
23 also in concert with that.

24 Now, in addition to visual exams, licensees  
25 that, as their plants age and go on with time, are required

1 to implement what are called more intrusive exams of the  
2 actual area of interest. This is the area where the  
3 nozzle's attached to the head in terms of welding. So this  
4 is a shot from beneath the head. This happens to be the  
5 Midland Head that was used at Davis-Besse. So this is a  
6 view from underneath the head looking up at those same  
7 nozzles that we were looking up at those same nozzles that  
8 we were looking at from above.

9           And the area for most licensees, because their  
10 -- services in generally a high radiation area, maybe  
11 airborne radioactivity area. So it's an area they like to  
12 minimize their actual manpower in. So the first choice is  
13 to stick automated equipment such as ultrasound equipment  
14 up into those nozzles to perform the required inspections.

15           With that, I'd like to show you kind of a  
16 picture of what they produce when they do these automated  
17 inspections. This happens to be what they call a C-scan  
18 image. But it was taken with some automated equipment.  
19 The dark line or dark wave you see there is actually  
20 representative of that J Group weld. And the reason it's  
21 in a wave shape pattern is because those welds generally  
22 run at an angle with respect to the horizontal.

23           So if you were to un-ramp that penetration from  
24 the inside looking out, that's what this UT plot is trying  
25 to show you. And the dark area, the reason it's dark is

1       there's no sound returning. It's going into the weld and  
2       not returning to the transducer. So they developed a C-  
3       Scan plot and if they find areas that are potentially  
4       indicative of vindications, they move to this next view.

5               And basically the term I would use is these are  
6       staff base stamps. It paints a different picture. It's a  
7       side image, if you will, where not unlike your depth finder  
8       on your fish finder, the ET transducer is on the portion  
9       where it says Nozzle 2 by the surface. That's where the  
10       transducer's physically resting. And it generates sound  
11       waves. And this is the back wall of the tube. And these  
12       little waves here actually are indicative of potential  
13       crack like indications protruding into the base material.

14               So this is the type of indication that they're  
15       actually trying to find with their ultrasound when they're  
16       out there doing these inspections. Now this particular --  
17       go ahead.

18               DR. FORD: Now looking at that, what is the  
19       correct size? You've located it so what's the correct  
20       size?

21               MR. HOLMBERG: This particular indication was  
22       roughly 20, 25 percent through the bass material, through  
23       the thickness of the wall of that base material. And it  
24       extended for about 60 to 70 degrees in circumfractual  
25       extent.

1 DR. FORD: What about the probability, what was  
2 the accuracy of examination? Did you get a very --

3 MR. HOLMBERG: We don't have that information.  
4 As you may be aware, there's performance demonstration  
5 initiative, UT techniques. These are not those. These  
6 have never been demonstrated in terms of determining a  
7 sizing capability or accuracy. So, although you can size  
8 things and they can tell you that, they can't tell you what  
9 degree of accuracy that, in other words, hasn't been  
10 demonstrated to a certain degree.

11 CHAIRMAN SIEBER: So, anything you detect you  
12 repair.

13 MR. HOLMBERG: Well, let me go on here with the  
14 story of this particular instance.

15 DR. FORD: Rather than continue on, I have a  
16 question. I keep hearing from the industry there's an  
17 EPRI, that there's considerable difficulty of detecting and  
18 sizing cracks or defects in these large structural wells.  
19 Now, do you agree with that?

20 MR. HOLMBERG: In the welds themselves, they're  
21 actually --

22 DR. FORD: The welds in --

23 MR. HOLMBERG: Right. Their current techniques  
24 are designed to integrate the base material, which is  
25 adjacent to the well. So in the Nozzle 2 material itself,

1 they certainly have the capability of detecting flaws at  
2 this point, that intrude into that base material.

3 What I can't tell you, you know, the 99th  
4 percentile, you know, what size of flaw they can start  
5 detecting, but based on the demonstration and qualification  
6 work I've seen, it appears that they start getting good at  
7 detecting these once they intrude over about ten percent  
8 into the base material. And beyond that, you know, what  
9 length becomes, you know, where you can reliability detect  
10 it, I can't tell you.

11 DR. FORD: When you say reinspect, you don't  
12 mean specifically NRC employees.

13 MR. HOLMBERG: No, I'm sorry.

14 DR. FORD: I understand.

15 MR. HOLMBERG: The licensees conduct --

16 DR. FORD: Who does what --

17 MR. HOLMBERG: I am out there when they're  
18 conducting these inspections. And so as they pull up an  
19 indication like that, I might be sitting there next to the  
20 analyst going over these types of indications.

21 DR. FORD: Now, you're sitting beside him.  
22 What's going through your mind as to has he missed  
23 something? What's the probability of him detecting it?

24 MR. HOLMBERG: Well, there's tow things. One,  
25 there's not much you can do if their equipment misses

1 something. I mean, you're there to look at the data they  
2 do collect. And because it's automated, I have, and I do  
3 have them basically run through the data for me. So I can  
4 go back and, quote, look to see if he's missed anything  
5 that's in the data.

6 Now, if it's not in the data, there's nobody  
7 that can do anything about that. If it's in the data and  
8 he just missed it because of human error, there's a chance  
9 that I might be able to add value there. As far as where  
10 they find something and then decide it's a crack or not,  
11 that's where we really engage them because, for instance,  
12 this particular indication, they ultimately decided was the  
13 result of a weld repair and not a crack. And that might  
14 have become a subject of greater debate had they not gone  
15 and done a follow on exam and ultimately decided to repair  
16 this nozzle any way.

17 But that's where we add value is once you find  
18 something, you know, they don't, they often see these  
19 little fish mouth right there, this is the actual location  
20 where the weld holds the nozzle in. So there's some  
21 emanating from the weld now. They considered that  
22 basically part of the welding process or potential weld  
23 repair. And their threshold for even calling it an  
24 indication means it has to go ten percent into the base  
25 material per their procedures.

1                   So if there's a crack back in here, they won't  
2 even call it because --

3                   DR. FORD: So as far as my, I'm just trying to  
4 find who's responsible for what. What I'm hearing you say  
5 is that you are responsible for standing beside the  
6 approved, the NRC approved inspector as he does his job.

7                   MR. HOLMBERG: I am the NRC approved inspector.  
8 I'm standing over the licensee doing the inspection.

9                   CHAIRMAN SIEBER: The licensee makes the  
10 determination of whether an indication exists, whether that  
11 indication's a flaw and to characterize the flaw. Your job  
12 is to serve to assure that he's complying with the  
13 procedures and standards.

14                  MR. HOLMBERG: Correct.

15                  DR. BONACA: But it's there and all the  
16 inspections -- job, right?

17                  MR. HOLMBERG: Right.

18                  DR. BONACA: You choose, it's a sample process.

19                  MS. PEDERSON: It's a sampling process.

20                  MR. HOLMBERG: It's a sampling process but the  
21 stuff that they're disposition, we definitely take a health  
22 sample of.

23                  DR. FORD: It's not your job to make the  
24 structural integrity analysis.

25                  MR. HOLMBERG: No, we do not.



1 DR. FORD: That's NRR's job.

2 MR. HOLMBERG: Well, the licensee has to make  
3 an argument and then submit it.

4 CHAIRMAN SIEBER: The licensee does the work.  
5 The Agency provides those inspections and tests and ensure  
6 that the licensee did the work properly.

7 MR. HOLMBERG: Correct. And we're there to  
8 confirm they're following the procedures and, further  
9 though, on this case, we're there to confirm that those  
10 procedures are, quote, demonstrated. Now, that's a very  
11 gray area right now because we don't have any standards in  
12 this area. In other words, they do have mock ups and I do  
13 answer questions as to whether I concur and if these things  
14 are demonstrated based on what I know about -- techniques.

15 CHAIRMAN SIEBER: Well, this is a pretty  
16 rapidly evolving technology because the geometry and the  
17 materials involved. So, you know, any situation like that,  
18 to come up with the final standard takes longer we have  
19 available to us.

20 MR. HOLMBERG: Right. And I think there is a  
21 move, you know, that's been discussed about whether this  
22 should come under the umbrella of the PDI Program, which  
23 already exists for other welds. But I don't, I think the  
24 industry is probably resisted to that because --

25 CHAIRMAN SIEBER: Yes, we'll have to see where

1 that goes.

2 MS. PEDERSON: Actually, one thing to note is  
3 the licensee, who is responsible to actually do the  
4 evaluation itself, is they identify abnormalities. That's  
5 when we heavily look at those issues. In the case of Point  
6 Beach, is described heavily involved both the Region. Mel  
7 was on sight for many, many, many hours. We also engage  
8 with NRR because their technical staff and they have  
9 responsibility for things such as the bulletins and so  
10 forth. And we work very closely with NRR on that as well.

11 CHAIRMAN SIEBER: Okay.

12 MR. HOLMBERG: All right, we move along. The  
13 next slide. One other things they also did in this  
14 particular example was they did a dye penetrant exam on the  
15 surface of the J-Group weld. Where the ruler's laying in  
16 this fuzzy picture is some bleed out from indications and  
17 actually there were two patches. The other one's not shown  
18 here on opposite sides of this penetration.

19 The licensee had tried some light grinding to  
20 see if these were just surface indications. But ultimately  
21 those indications did not disappear. And that prompted  
22 them to go ahead and repair Nozzle 26. So the debate over  
23 whether that UT signal was crack or not never came to be  
24 because the decision was made to go ahead and replace the  
25 nozzle.

1                   CHAIRMAN SIEBER:  The -- I take it.  Or did  
2 they actually do some --

3                   MR. HOLMBERG:  They actually removed three  
4 sixteenth's of an inch of metal through grinding.

5                   CHAIRMAN SIEBER:  Okay.

6                   MR. HOLMBERG:  What I'd like to do next is kind  
7 of share with you kind of a summary of where we're at with  
8 respect to finding examples of PWSCC in the region.  To  
9 start with, we've got 13 PWR units and under the boarder at  
10 this point we've got three units that fall into the high  
11 susceptibility category, five units that fall under the  
12 moderate bin and five that go into the low bin.

13                   As a result of the inspections conducted under  
14 the order to date, licensees have identified some  
15 indications in this Region.  Of course, Davis-Besse, which  
16 most folks are now quite familiar with, have three nozzles  
17 that were cracked with two head cavities.  One of them was  
18 fairly substantial.  And the head was ultimately replaced.

19                   Cook Unit 2 in 2003 identified four nozzles  
20 that had relatively shallow surface cracks and actually had  
21 identified back in 1994 a more substantial crack that had  
22 been repaired with what's called an Embedded flaw technique  
23 in Nozzle 75.

24                   Also, I mentioned, we already covered this  
25 example at Point Beach just this year identified the Nozzle

1 26 J-Groove weld with crack like indications and then  
2 completed the removal of the lower portion of the nozzle  
3 and temper bead repair.

4 CHAIRMAN SIEBER: That was this spring?

5 MR. HOLMBERG: Yes, it was. What we're seeing  
6 in terms of inspection trends as a result of the efforts is  
7 we're seeing, first of all, this temporary instruction 150,  
8 which was required to be done at least twice and had a  
9 fairly extended expiration date of 2009, transitioned to a  
10 permanent requirement in that the inspections that were  
11 required are now in our baseline in-service inspection  
12 procedure, which is done each outage in each PWR unit.

13 So as soon as the TI expires, we will still  
14 continue to do the actual on site inspections. And we'll  
15 get into some of the details in a minute.

16 In addition, just recently the bulletin 200401  
17 was issued, which addresses Primer Water Stress Corrosion  
18 and Cracking in pressurizer penetrations. And we  
19 anticipate additional temporary instruction will be issued  
20 for us to go follow up on licensee commitments for any  
21 additional inspections of pressurizer locations.

22 One of the, some of the key things that went  
23 into our permanent procedure, our 711108 procedure, was to  
24 specifically observe or review the head NDE activities and  
25 basically to confirm that the adequacy of the NDE and also

1 that the scope of the NDE meets the order. And if there  
2 are any defects that are found, that they're dispositioned  
3 in accordance with the ASME code including any repair work  
4 that's required.

5 We also have got requirements under the new  
6 revised procedure to observe licensee performing boric acid  
7 control, program walk down. These are typically done early  
8 on in the outage and they're done after, basically, usually  
9 right after the plant shuts down. And they're done to try  
10 to identify areas where they may have leakage.

11 So there's actually two problems. One, the  
12 leakage but the other is that the boric acid itself sits on  
13 carbon steel components, particularly fasteners and such.  
14 It's detrimental and so if components become degraded, they  
15 need to be evaluated under their programs. And we're there  
16 to review that.

17 The overall effect of adding these requirements  
18 to the existing requirements in this procedure is basically  
19 to double the required resources such that we're now up to  
20 about 100 hours for each PWR unit.

21 In addition to the increase on our baseline  
22 resources, the actual inspections of the head,  
23 particularly those that are conducted from under the head,  
24 are proving to be financially very expensive and therefore  
25 prompting licensees to move to head replacement. At this

1 point in this Region we have seven PWR units that are  
2 planning on replacing their heads. We will be initiating a  
3 procedure 71007 where the Region follows up on the  
4 activities associated with head replacement.

5 It's a relatively resource intensive procedure,  
6 425 direct inspection hours. However, half to three  
7 quarters of that we should be able to tuck in through or  
8 allocate to our baseline inspection procedures. As you can  
9 see there, our work load is going to go up over the next  
10 couple of years based on the number of head inspections  
11 that are planned over the next several years.

12 So there will, again, be a continued need to  
13 ensure our resources are up to the challenge over the next  
14 several years. And that's all I have.

15 CHAIRMAN SIEBER: Okay, thank you. Any  
16 questions? If not, I think that we have reached the  
17 appropriate time in the schedule for lunch.

18 MS. PEDERSON: Great. Our delivery service was  
19 delayed so actually our schedule today melds nicely with  
20 that. I hope they're out there --

21 CHAIRMAN SIEBER: Great planning.

22 MS. PEDERSON: Exactly. We are expecting them  
23 within the next few minutes. So maybe we can take a break  
24 and it'll allow us to bring the food in as well. Thank  
25 you.

1 (Off the record at 11:45 a.m.)

2 CHAIRMAN SIEBER: And, Jack, it's good to see  
3 you again after many years and on a regular basis. And  
4 we're eager to hear what you have to say.

5 MR. GROBE: Okay, very good. Thank you. I'd  
6 first like to introduce Christine Lipa. I had wanted to  
7 get her down to Washington to meet with you folks one of  
8 the many times we talked about Davis-Besse. But due to the  
9 work load with the site, having both of us out of the  
10 office would have been a unique challenge.

11 So, I want to tell you a little bit about  
12 Christine. She's the Branch Chief with Projects Branch 4  
13 and as Jim and Steve indicated earlier, that branch has  
14 only one plant in it, and it's Davis-Besse. Christine's a  
15 registered professional engineer. She worked in the ship  
16 yards before she came to the NRC. Since she joined us, she  
17 was a region based engineer inspector and I believe she's  
18 somewhat of an expert in valves.

19 Then she went out as a resident inspector and a  
20 senior resident at Perry. And was promoted to Branch  
21 Chief. And she's had the opportunity, unique opportunity  
22 to be the principle leader of the Davis-Besse effort from  
23 the Region's perspective. So it's good to have her here.

24 The next slide, Tom.

25 We're going to cover a number of topics. We're

1 going to talk about the Davis-Besse oversight of the  
2 recovery efforts. And we'll go through that pretty quickly  
3 because we've discussed that previously. Assessment of  
4 Davis-Besse start up, the oversight we provided in their  
5 performance, the oversight that we're going to have going  
6 forward through the rest of 2004. Some Agency successes as  
7 a result of Davis-Besse and a unique technical issue I  
8 think you'll be interested in in the end.

9 We'll talk about the containment sump  
10 initiatives that the Agency has undertaken and some down  
11 stream affects that are somewhat unique that Davis-Besse  
12 identified. In Mag's e-mail, there were two topics that  
13 you asked for us to talk about from a Regional perspective.  
14 We don't have really much to share and I just wanted to  
15 touch on those just briefly.

16 One was any Regional comments on the research  
17 memo that shipped to Donnie, sent to Bill Travers regarding  
18 structural integrity assessment. Just possibly two  
19 perspectives on that that we can share. It's unfortunate  
20 that essentially all of the evidence that would give you  
21 insight into the corrosion mechanism and corrosion  
22 progression was removed at the same time the cavity was  
23 identified. They were simultaneous with doing the repair  
24 on that penetration nozzle. They were also cleaning the  
25 head.



1           So by the time the cavity was identified, all  
2           the corrosion and products and evidence that would give you  
3           insight into the corrosion mechanism were removed.  
4           Consequently, the Research utilized an expert panel and Dr.  
5           Shack was a member of that expert panel to estimate what  
6           the corrosion rate was. And that resulted in significant  
7           variability in the answer they came up with. So that was  
8           unfortunate.

9           The other thing I just wanted to highlight is  
10          we did a significance determination process on the head  
11          degradation, concluded that it was a Red Finding. And that  
12          determination concluded consideration of the fact that we  
13          didn't have a good understanding of the cracks in the  
14          cladding material and what impact that would have on the  
15          failure, probability of the plan. So we incorporated that  
16          thinking into the determination roughly a year before  
17          Research concluded their analysis of those cracks.

18                 CHAIRMAN SIEBER: Could you pull your  
19          microphone a little closer?

20                 MR. GROBE: I'm fighting a cold. I apologize,  
21          thank you.

22                 CHAIRMAN SIEBER: The microphone is -- so  
23          that's safe.

24                 MR. GROBE: The second item that Mag asked us  
25          to talk about was the GAO Report, the Region's reaction to

1 the General Accounting Office Report. The Chairman has  
2 responded to the General Accounting Office regarding that  
3 report on behalf of the Agency and we have no further  
4 comments or insight regarding that.

5 During the course --

6 CHAIRMAN SIEBER: Well, let me expand on that a  
7 little bit, expand on a question. The question is does the  
8 Region maintain it's own list of action items that are  
9 separate from the Davis-Besse Action Plan, the IG Report  
10 and a GAO Report? And if so, maybe you could tell me not  
11 the specific items but the kinds of things that will be on  
12 your Regional list and how you track it and how do you  
13 determine when you're done?

14 MR. GROBE: I think when we talk about Agency  
15 successes, Christine will get into a little bit of what  
16 we've done in response to the Lessons and Task Force  
17 Report. We do not maintain a separate set of action items.  
18 But we have taken a number of actions.

19 CHAIRMAN SIEBER: Okay.

20 MR. GROBE: During the course of the dialogue  
21 here, we have one slide on the safety culture and I asked  
22 Christine to bring some additional slide material and we'll  
23 pass that out. And I think we can get into a dialogue on  
24 what Davis-Besse did with respect to safety culture and  
25 maybe segway into some dialogue on reactor oversight

1 process and cut some of our other presentation short. So  
2 that will give us some time because I know a number of you  
3 asked me on break some questions regarding that.

4 So at this time I'd like to turn the heavy  
5 lifting over to Christine and let her go through the  
6 presentation.

7 MS. LIPA: Okay. The next slide talks about  
8 the basis for the restart decision. And this is really a  
9 two year long project. I was a member of the panel from  
10 the beginnings, when the panel was established, the 0350  
11 Panel. And by the time we got to the restart process,  
12 restart decision process, we had accomplished a lot of  
13 things. So let me just go through these here.

14 We did provide a briefing as a panel to Jim  
15 Caldwell, Jim Dyer and Sam Collins on February 23rd. We  
16 followed that up with a memo that gave our recommendation  
17 as a result of all of our work on February 26th. And then  
18 restart hold was lifted on March 8. So that's kind of the  
19 time line. And the panel did determine that the licensee  
20 performance was adequate for safe restart and operation.

21 We used a discipline process, the 0350 Process.  
22 And I have more details on another slide. And as part of  
23 that, the licensee submitted in their Restart Report a  
24 number of commitments that they would adhere to to continue  
25 with long term improvements. So that was part of our whole

1 restart decision. And then as you probably also know, we  
2 issued a confirmatory order as part of the restart. And  
3 there's more details in the subsequent slides.

4 This next slide talks about the methodical  
5 process that we used with the panel. We had a restart  
6 checklist that had 31 items and they were broken up into  
7 the seven areas that are sub-bullets here. And each of  
8 those, you know, we started with a list that was not quite  
9 31 and we added a few more as time went on as new findings  
10 came up. So we had high confidence that our list was  
11 complete.

12 And then we did over 12,000 hours of direct  
13 inspection. We had multiple inspectors from other regions,  
14 from Headquarters and contractors. So we had a lot of  
15 views looking at Davis-Besse. And then the decision making  
16 process included Jim Caldwell, the Regional Administrator,  
17 consulting with the Director of NRR and the Deputy.

18 The next slide talks about some of the  
19 commitments that the licensee included in their request for  
20 restart. And again, the main intent of these commitments  
21 was long term improvement action and we will be following  
22 up on certain of these commitments as we go forward.

23 The next slide talks about the confirmatory  
24 order. This was provided with the restart authorization,  
25 the restart approval letter of May 8. And really the

1 purpose is that first bullet there; assuring effective cell  
2 assessment on the licensee's part and sustained safe  
3 performance by what the order requires which are  
4 independent assessments. And that's the key, that they're  
5 independent assessments in those four areas that are on  
6 here: operations, corrective actions, engineering and  
7 safety culture. And then the --

8 MR. ROSEN: So when's the first one going to be  
9 about? The spring of next year?

10 MS. LIPA: They have, all four of the  
11 assessments are planned for this year. The first one is  
12 August and September, October, November. We've already  
13 received the plan for the first one. We'll be reviewing  
14 the plan before they do the assessment and then we'll be on  
15 site during part of the assessment to see how it's going,  
16 the debriefing, and then we'll review the report when it's  
17 issued.

18 DR. FORD: Christine, the other day we were at  
19 Cook Station and they had a recovery program which had many  
20 more itemized importance against this self assessment,  
21 which is what they called it. Is there any reason why the  
22 difference? You're talking about four, five that here and  
23 they have about nine or ten bulletized items. Should I  
24 read anything into that -- engineering, one of the  
25 bulletized items.

1 MS. LIPA: Well, let me tell you, I don't have  
2 it --

3 DR. FORD: Cross comparisons.

4 MS. LIPA: Between Besse and Cook?

5 DR. FORD: Correct.

6 MS. LIPA: Well, let me talk about, the  
7 previous slide I talked about the commitments and I didn't  
8 give a lot of details. But that second bullet provides  
9 that the licensee's own Commitment Plan, what they call  
10 their Cycle 14, which is the operating cycle they're in  
11 now, improvement plan has numerous areas. The order was  
12 only focused on four areas that were of a concern to the  
13 panel. But the licensee has improvement initiatives in  
14 multiple areas including maintenance, internal and external  
15 oversight, training.

16 DR. FORD: Okay.

17 MR. CALDWELL: Yes, that's typical. The same  
18 thing we have at Point Beach. We have a confirmatory  
19 action letter that has, I think it's four items. But they  
20 have an Excellence Plan, they call it, which has many  
21 numbers of items that they believe they have to do. We  
22 look for the ones that are effecting our weekly, effect the  
23 regulatory performance. And those are the ones we commit  
24 them to under a regulatory tool.

25 But we look to see how well they perform --

1 program.

2 MS. LIPA: Okay? And then back to the  
3 confirmatory order on Page 6, the other part of the  
4 confirmatory order besides the independent assessments is  
5 the licensee plans a mid-cycle outage early next year. And  
6 so we put, as requirements in that order to do an upper and  
7 lower vessel, bear metal inspections.

8 The next slide, No. 7, is really mostly just  
9 for reference that we have a lot of public interest,  
10 external stake holder involvement throughout the process.  
11 And these are just some of the high points, all the  
12 different meetings we had, all the different briefings for  
13 congressional and state and local officials. And we  
14 believe that through our efforts we've demonstrated our  
15 accessibility to the public and our focus on safety.

16 DR. FORD: Could I go back to 6? This  
17 statement -- if you tell me. About mid cycle, this is at  
18 Midland?

19 MS. LIPA: Yes.

20 DR. FORD: And remind me. Was that a, were  
21 those 692's?

22 MS. LIPA: They were the same design as Davis-  
23 Besse.

24 DR. FORD: Okay, so they're 622.

25 MR. GROBE: They have an order a new head.

1 DR. FORD: Okay.

2 MR. GROBE: And they also have on site  
3 replacement C Generators. And I understand they're going  
4 to do that in the same outage. The new head has arrived --

5 DR. FORD: My question was going to be if it  
6 was 690 and 132, they presumably would have told you what  
7 their purchase specifications and manufacturing  
8 specifications for that head would have been. Is that  
9 correct?

10 MS. LIPA: There was a lot of inspection of the  
11 Midland head throughout the process to make sure it  
12 conformed with the right ASME codes. We had inspectors out  
13 at Midland looking at it. I don't know the details but I  
14 know we looked at the whole specs of it and the whole thing  
15 in detail.

16 CHAIRMAN SIEBER: Yes, but part of the reason  
17 why you did that was it wasn't fully compliant with today's  
18 standards. And so as the inspecting official, the Agency  
19 had to approve its deviation from code standards to allow  
20 them to use the head.

21 MR. GROBE: And consumer's power hadn't  
22 maintained the -- package with all the non-constructive  
23 examination and material analysis that they needed. So  
24 they re-performed that and --

25 CHAIRMAN SIEBER: And it would be unusual for a



1 licensee to provide specifications for replacement heads to  
2 the NRC except to say that it qualifies under the ASME code  
3 and these various attributes in the licensee's opinion  
4 accept for overuse. And then the region would inspect to  
5 determine whether, in fact, it is acceptable for use, if it  
6 meets the code. And the codes of standards that are  
7 applied are the right ones for that application.

8 So, basically that's the process as opposed to  
9 getting the Agency involved in pre-approvals or something  
10 before the purchase is made.

11 MR. ROSEN: Do you know whether the replacement  
12 steam generators have been required cutting containment,  
13 cutting a hole in containment?

14 MS. LIPA: Yes, they will. And they cut a hole  
15 in the containment for the replacement of the head as well.

16 MR. ROSEN: So they'll have to re-open it to --

17 MS. LIPA: Right, and they didn't put a door.  
18 So they cut it open and then they welded it back together.

19 MR. ROSEN: They'll have to cut it open again.

20 MS. LIPA: They'll have to cut it open again.

21 MR. ROSEN: They're getting good at it, right?

22 CHAIRMAN SIEBER: Yes, well, that's why you put  
23 everything in and take everything out at once, if you can.  
24 Unfortunately for them, they're going to do it twice.

25 MS. LIPA: Okay? The next is Slide No. 8,

1 which is the safety culture area. And we had a unique  
2 challenge in the safety culture area to map our inspection  
3 plan for this. The regulatory foundation, even though we  
4 don't have specific regulations on safety culture because  
5 the licensee did a root cause and found safety culture to  
6 be the root cause of the problem, that Criteria 16 was our  
7 regulatory footing on this since it was a significant  
8 condition as was the quality, they're required to prevent  
9 occurrence.

10 So the next three bullets on the page talk  
11 about the three phases that we approach this inspection.  
12 First we looked at the depth of the licensee's root cause  
13 assessments. And they did a more, a type analysis, very  
14 detailed. We looked at the scope of those root cause  
15 assessments. Then we looked at the corrective actions that  
16 they assigned. And that was the Phase 2 inspection. And  
17 then Phase 3 was to look at the effectiveness of those  
18 corrective actions. And part of Phase 3 was the licensee's  
19 longer term and short term actions in a self safety culture  
20 area. Not that we were assessing whether safety culture  
21 was acceptable for restart but whether they had tools in  
22 place to effectively monitor it, whether they could tell  
23 that it had improved and what their actions were.

24 And then the fifth bullet talks about they had  
25 done a couple of surveys at six month intervals. And in

1 November 2003 they saw a drop in certain areas from the  
2 March 2003 that indicated some concerns in the safety  
3 conscious work environment arena. So we did another  
4 inspection to follow up on what they did in response to  
5 what the November survey results were telling them. And we  
6 had to probe a lot to find out what they were doing about  
7 these, what appeared to be a decline in some of these  
8 areas. And it was mostly through our efforts that they  
9 took a really close look at it and put some actions in  
10 place to understand the decline.

11 And then by the time they were ready to ask for  
12 restart, we had another inspection and we felt comfortable  
13 that they had taken adequate corrective actions in that  
14 area.

15 DR. BONACA: I mean, if they had not identified  
16 safety culture an issue, you still would have pursued some  
17 evaluation of cost cutting issues in light of this  
18 experience. So you would have really done some assessment  
19 anyway, right?

20 MS. LIPA: That's true because they would have  
21 done a root cause and we would have probed at it. And  
22 their root cause would have gone beyond the technical. It  
23 would have looked at human performance, organization  
24 performance, corrective action performance.

25 DR. BONACA: Right, but particularly, I mean,

1 you know, how does it like, the Corrective Action Program  
2 now?

3 MS. LIPA: The, did you want to say something?

4 MR. GROBE: I was going to say, let's pass  
5 these out and get into this in a little more depth.

6 DR. BONACA: Well, maybe we can do it later.

7 MR. GROBE: No, this is an appropriate place.

8 DR. RANSOM: Did you have access to the results  
9 of the consultants who were hired to more or less assess  
10 the safety culture? You reviewed all of that material?

11 MS. LIPA: Yes, we have our team leader, who we  
12 were fortunate to have one team leader and pretty much a  
13 dedicated team for all three phases plus the final phase of  
14 this inspection. The team leader and most of the members  
15 of the panel were able to see both the preliminary and the  
16 final independent safety culture assessment that was done  
17 by, what was the name?

18 MR. GROBE: Performance Safety and Health  
19 Associates, PSAJ.

20 Let's back up a little bit and get into this in  
21 a little bit more detail because you've asked some good  
22 questions. One of the premises of the 0350 process is that  
23 if the Agency determines that it needs to implement that  
24 process and the 0350 panel ensures a clear understanding of  
25 the root cause and I believe, as you correctly stated, if

1 the licensee had not identified this, we would have pursued  
2 it. I don't believe we would have pursued it in the same  
3 level of depth.

4 The root cause assessments that they did,  
5 excuse me, were in seven different areas and it included  
6 everything from what you would normally expect of  
7 engineering, contribution and operations contribution,  
8 problematic issues all the way up through Corporate  
9 governance, management compensation approaches and  
10 corporate level oversight, independence assessment and  
11 Nuclear Safety Committee, the Off site Review Committee  
12 Function.

13 So it was a very comprehensive root cause  
14 assessment that they eventually got to with some  
15 intervention on our part.

16 What we passed out is the first Energy Safety  
17 Culture Model, which they're using at all three of their  
18 sites. This is modeled very, in very close alignment with  
19 the IAEA Inset Documents on safety culture and safety  
20 management. The young lady from Performance Safety and  
21 Health Associates, Dr. Sonya Hayber, has done a number of  
22 safety culture assessments internationally in Canada, in  
23 Spain and in other parts of Europe and she was one of the  
24 principle contributors to those inset documents. So she  
25 had a very good foundation in that area. And our

1 inspection team thoroughly reviewed those assessments.

2           Following that independent assessment that Dr.  
3 Hayber did, First Energy developed this model and one of  
4 the teams, one of the expectations that the panel  
5 established for the inspection team was to compare the  
6 results in the mechanism by which First Energy was going to  
7 continue monitoring safety culture to ensure that there was  
8 alignment and that they could clearly understand what was  
9 going on at the site.

10           We had individuals from NRR, Research that were  
11 experts in safety culture that have done research. I'm sure  
12 you're familiar with Jay Perzinski and others. As well as  
13 two former industry senior executives, Mike Brothers and  
14 John Beck, who were associated with the Milestone Safety  
15 Culture. So they had direct hands on experience with the  
16 debilitated safety culture and how to recover that. So the  
17 team had tremendous ability given the scope and breadth of  
18 their experiences and competencies.

19           We talked a little bit earlier about safety  
20 culture and I think we got into a little bit in the context  
21 of field supervision. What First Energy has established is  
22 three levels; policy and corporate level, plant management  
23 level and individual level. And all of those are necessary  
24 in accordance with the International Guidelines to have an  
25 effective Safety Management Program. You need the

1 Corporate and policy level, guidance clearly stated. You  
2 needed to be monitored and driven home on a day in and day  
3 out basis at the management level. And you need nuclear  
4 professionals that are capable of doing the job.

5 Within each of those areas, on the side of this  
6 chart, is a description of the various attributes that they  
7 assessed. And for example, under the individual drive for  
8 excellence, questioning attitude, these are common things  
9 that we would all associated with a healthy safety culture.

10 Some other utilities have safety culture  
11 assessment tools similar to this. Not very many. The  
12 feedback that we got from our team is that this is fairly  
13 comprehensive and fairly unique in the industry.

14 Criterion 16 gave us the opportunity to very  
15 clearly get into this arena. And as Christine earlier  
16 stated, we didn't inspect safety culture. That's not  
17 something the NRC does. What we did is make sure that the  
18 licensee had an effective tool that gave them proper  
19 insights into safety culture at the site and we ensured  
20 that they responded to the things that this tool was  
21 telling them.

22 And just a, I think it's useful and  
23 elusterative to get into what happened in November. There  
24 were two issues that drove a safety culture problem. One  
25 was that they transitioned from an hourly pay structure for

1 their engineering organization to a salaried structure with  
2 bonus. And the engineers interpreted that as a production  
3 over safety because they were working tons of overtime, as  
4 most plants do when they're in a long term shut down. And  
5 the bonuses were milestone driven.

6 The second thing was in the operations area,  
7 the licensee had built their schedule with a lot of detail  
8 for accomplishing the modifications that had to be  
9 accomplished on site, the maintenance activities and things  
10 of that nature. Major test activities to bring the unit  
11 back. But they hadn't properly incorporated into the  
12 schedule routine operations activities to bring the plant  
13 back on line from a two year outage.

14 And as a result, operations, which is the last  
15 one in a long string of folks that have to work on systems  
16 and get them back into an operation configuration, didn't  
17 have sufficient time in the schedule. And the operators  
18 interpreted that as a focus on schedule over safety.

19 And those two things drove some safety culture  
20 anomalies that actually clearly showed up in their  
21 assessment tool. So it's, we have confidence that this  
22 tool is going to give them adequate insight and they  
23 responded to that. And you can see demonstrable  
24 performance changes after they took corrective actions from  
25 that November situation.



1                   Do you have any questions regarding what First  
2 Energy is doing in the area of safety culture?

3                   MR. ROSEN:   What do the colors mean on the  
4 slide?

5                   MR. GROBE:   That's a good question.   There's  
6 four colors; green, white, yellow and red.   Yellow and red  
7 require prompt action and a Condition Report.   The  
8 Condition Reporting process is required by the Nuclear  
9 Regulatory Commission.   It focuses on structure systems and  
10 components.   It doesn't focus on human performance or  
11 safety culture.   But they put within their model that if  
12 you have a yellow or red, you have to have a Condition  
13 Report and prompt management action.   And green is nirvana.  
14 It's everything's working perfectly well.

15                   They have about a 60 page procedure that  
16 implements this.   And for each of these attributes, on the  
17 outside, there's a number of indicators that they measure.  
18 It could be anywhere from four, five up to almost a dozen.  
19 And within each of those indicators they've established  
20 thresholds for red, yellow, white and green.

21                   And the team that did this inspection did a  
22 thorough review of that procedure.   It actually went  
23 through about a dozen divisions before First Energy settled  
24 on something that worked effectively.

25                   MR. ROSEN:   So I presume that say a drive for

1 excellence, there are subsidiary indicators, some of which  
2 have turned yellow, many have turned yellow, and that makes  
3 the upper indicator on this chart yellow.

4 MR. GROBE: That's correct. That's the way it  
5 works. In addition to a direct build up of subordinate  
6 indicators, there's also a tremendous amount of management  
7 judgment that's facilitated in the procedure such that, for  
8 example, in self assessment area, it's white here. They  
9 did this assessment a number of times during the outage.  
10 In one of a prior assessments that is red. And that was  
11 management driven. Management made it red because the  
12 licensee organization was significantly challenged during  
13 the outage, had not, to management's level of expectation,  
14 had not established a self assessment program that they  
15 felt was sufficient even though the indicators, as measured  
16 in the procedure, might have given you a lesser level of  
17 outcome. Management exercised discretion and made that a  
18 higher level of concern.

19 MR. ROSEN: I presume the procedure level will  
20 do that.

21 MR. GROBE: Yes.

22 DR. FORD: And Jack, what do the arrows mean  
23 besides --

24 MR. GROBE: It's trend, the trend since the  
25 last assessment.

1 DR. FORD: So, you really got three out of 17  
2 attributes showing on the trend.

3 MR. GROBE: That's correct.

4 DR. FORD: Is that satisfactory?

5 MR. GROBE: This really, I think, sets nicely  
6 into a discussion of our inspection programs. The panel  
7 concluded that -- yes, sir.

8 CHAIRMAN SIEBER: Yes, before you go off in  
9 that direction, I need you to ask just a couple of short  
10 answers, fundamental questions, if there is such a thing.  
11 If you look at Title 10 and any other source where the  
12 Agency derives its rules and inspection criteria, if you  
13 look at the attributes of safety culture, and most of that  
14 stuff is found in Appendix B. And Criterion 16 is pretty  
15 broad. And I can see how one could interpret safety  
16 culture in every one of its points and ramifications as  
17 fitting into Criterion 16 provided the licensee said this  
18 is the cause, the root cause of my problem.

19 If the licensee failed to do that and you  
20 believed in your heart that it was still safety culture  
21 that was a problem, you could not attached the regulatory  
22 background to everything that's in the safety culture model  
23 as you set it out here. You would get maybe 50 percent of  
24 it, like Corrective Action Program and, you know, safety  
25 conscience work environment and that kind of stuff.

1                   The question I have, after that long  
2                   introduction, is does the Agency need more tools to deal  
3                   with safety culture issues if they are a significant part  
4                   of declining performance at a licensee?

5                   MR. GROBE: I thought you said this was a short  
6                   answer question.

7                   CHAIRMAN SIEBER: Yes, it's more than yes or  
8                   no. But it can be as short as you care to make it.

9                   MR. GROBE: Really, this gets into ROP.

10                  CHAIRMAN SIEBER: Yes, it does.

11                  MR. GROBE: The Chairman has clearly  
12                  articulated to General Accounting Office that the Agency  
13                  does not believe it needs more tools.

14                  CHAIRMAN SIEBER: Yes, I avoided bringing that  
15                  up.

16                  MR. GROBE: The ROP, I think I have a fairly  
17                  coherent understanding of how we transition from the old  
18                  inspection program to the ROP. And there were two  
19                  fundamental shifts in the approach, the regulatory  
20                  oversight approach. One had to do with safety and risk  
21                  focus. We didn't have the kind of probabilistic risk tools  
22                  at our disposal when we developed the first inspection  
23                  program. It evolved over time as has the ROP.

24                  But the ROP incorporates risk and safety focus  
25                  in a completely different way than the previous inspection

1 program. And it resulted in the establishment of the  
2 cornerstones, which I think you're all familiar with. And  
3 then inspection attributes that were different than the  
4 prior inspection program. And a couple of outcomes of  
5 that, for example, radiation protection emergency  
6 preparedness and security were elevated in their importance  
7 through this process.

8 In addition to that, the specific inspection  
9 procedures are very different under the ROP than they were  
10 under the prior inspection program. The ROP, as its  
11 predecessor program, is what we call Performance Based.  
12 And we look at outcomes, safety outcomes, in the risk  
13 important areas. And only would get into this kind of  
14 issue if the outcome is unacceptable. And we do that  
15 through the context of corrective action.

16 And that's how we currently inspect safety  
17 culture. We've been inspecting it, I've been around 24  
18 years and we probably have a couple hundred years on this  
19 side of the table. We've been doing it for 20 years. But  
20 we haven't been doing it in the context of direct  
21 inspection. We've been doing it in the context of  
22 performance based inspection.

23 CHAIRMAN SIEBER: That's correct. In fact, in  
24 the ROP system you're looking at cross cutting issues as a  
25 way to identify safety culture types of issues in a

1 licensee's organization. Since you didn't answer my first  
2 question, maybe you can say is that sufficient, looking at  
3 cross cutting issues? Because I see, for example, I read  
4 all your letters, and I see where you identify a plant here  
5 and there on cross cutting issues, which you call out. And  
6 when you look at what the licensee is doing, it looks like  
7 safety culture, those kinds of things.

8 For example, Cook. That was your response and  
9 that was their response. And I think both were right on,  
10 if I am correct.

11 MR. GROBE: The ROP has two ways of getting in  
12 to safety culture attributes. You're correctly  
13 articulated. One is the cross cutting issues. And those  
14 are very broad, huge performance corrective action program  
15 effecting this and safety conscience work environment.  
16 There's very broad guidance that gives tremendous  
17 flexibility to be able to conclude that a licensee has a  
18 problem in a cross cutting area. It requires dialogue with  
19 Headquarters to insure consistency across the Regions.

20 But, in addition to that, we get into safety  
21 culture attributes. Every time there's a white or higher  
22 framing, and that's through what we call Supplemental  
23 Inspections; 95001, 002 and 003. And that's the other  
24 fundamental change between the old inspection program and  
25 the ROP.

1           You've all seen the performance indicators over  
2 the last two decades of unplanned scrams and safety system  
3 availability and things like that. There's been a  
4 tremendous improvement in operational safety performance  
5 over the last two decades. And we refer to that in the  
6 guidance documents that went out to the Commission as a  
7 mature industry. And by and large that's a correct  
8 interpretation of the data.

9           As a result of that, under the old inspection  
10 program, inspection findings that were not risk or safety  
11 significant could result in NRC engagement. And through  
12 enforcement conferences and regulatory meetings or even  
13 escalated enforcement action. And under the ROP it was  
14 determined that engagement at that low level was not  
15 necessary. That's what we call licensee response panel.

16           But we do engage. If there's a white, we have  
17 95001, which requires us to evaluate what the licensee did  
18 in response to that finding. And at 95002, if there's a  
19 yellow finding or multiple whites, the inspection  
20 expectations require us to insure that there is a  
21 comprehensive root cause assessment. And, of course, if  
22 there's a situation like we had at Point Beach where you  
23 get into a multiple degrading cornerstone, we have 95003,  
24 which is an extensive root cause assessment by the NRC,  
25 also we expect the licensee to do that. But we

1 independently do it.

2           So we will get into these types of attributes  
3 during the course of those types of inspections. So we  
4 have both the cross cutting issues as well as the  
5 supplemental inspections. The difference is the level of  
6 risk significance at which you engage. We do not engage at  
7 the green level. Whereas in the past inspection program we  
8 may have. And that --

9           DR. BONACA: If I understand you then, the most  
10 monitoring some of the attributes of safety culture, some.

11           MR. GROBE: Through performance, on a  
12 performance basis.

13           DR. BONACA: I understand that. And you -- but  
14 you have again more we say the attributes. Like, you know,  
15 decision making. That's something we would like to have  
16 every employee have. That's an attribute, except culture.  
17 You have an outcome that says the work has been done  
18 properly, all corrective actions are effective. That's  
19 what your --

20           The other trouble we have oftentimes, you know,  
21 in discussions is we've got performance is a lagging  
22 indicator of other things. So you may end up believing  
23 that it really is fine until you have measured --

24           MR. ROSEN: An event.

25           MR. BONACA: Then you go back and look and you



1 realize that, yeah, the attributes really weren't that  
2 good. I mean, people are not making precise decisions, et  
3 cetera, et cetera. That has always been the debate within  
4 CCRS. To what extent should the NRC also to be monitoring  
5 the attribute itself.

6 Responsible for improving the attribute clearly  
7 is the plant. The plant has to be the one that has a plan  
8 like this to improve the characteristics of its own work  
9 force. But, you know, the hope has always been that one  
10 could possibly monitor those attributes. So just look at  
11 it as and recognize it as a precursor almost of events of  
12 things that could happen.

13 And then, right now the system doesn't allow  
14 that because what we are looking at is performance. And  
15 that --

16 CHAIRMAN SIEBER: Yes, let me get back to the  
17 original question, which probably with all this discussion  
18 can come to a yes or no answer. The question was are the  
19 regulatory tools we now have adequate to monitor licensee  
20 performance or is something else needed?

21 MR. GROBE: I'm still not in a yes or no  
22 answer. Please, everybody else jump in. The -- I'm sorry,  
23 Jim.

24 MR. CALDWELL: I was just going to say, I think  
25 you hit the nail on the head when you talked about the

1 cross cutting issues and the Commission has asked the  
2 Agency to look at the cross cutting issues to make sure  
3 that we have the right tools to deal with them.

4 In fact, we have changed one of the approaches  
5 in dealing with the cross cutting issues. The procedure  
6 now allows that if you go two cycles with a cross cutting  
7 issue, you can ask the licensee to respond in writing and  
8 have a public meeting on what they're going to do to fix  
9 it. So we are looking at other tools. And that would hit  
10 the corrective action program, which doesn't require you to  
11 get to a white. Corrective action program, a cross cutting  
12 issue over human performance cross cutting issue, could be  
13 a sum of those things that you talked about, the pre-cursor  
14 attributes where they're non-conservative decision making  
15 or, as in an offer, make it a non-conservative decision  
16 making in error that doesn't result in a risk significant  
17 problem.

18 But if there's a number of those type of  
19 performance issues, you can declare a cross cutting issue  
20 and we're looking at tools to be able to deal with those  
21 more effectively. So, I'm not sure what will come out of  
22 that. So the answer is yes and no. Yes, we have enough  
23 tools but we're looking to see if there are more and better  
24 tools to be able to do a more effective and efficient  
25 review of the licensee performance.

1                   CHAIRMAN SIEBER: That's sort of the kind of  
2 answer that I was hoping I would hear. I asked that  
3 question because there may be something we can do. We are  
4 supposed to or considered by some as the driver of great  
5 ideas. And that has a, sort of dubious kind of challenge  
6 to it. My personal belief is I would rather first talk to  
7 the people who know, who are in the field, who are doing  
8 the work and making the judgments as to whether their  
9 resources are adequate or not.

10                   And basically what you're telling me is by and  
11 large they are. The Agency is moving forward to improve  
12 those tools but they're doing it in a logical progressive  
13 kind of way as opposed to saying, well, we ought to write a  
14 new rule that covers all these safety culture attributes  
15 and make them do it, which I think is almost --

16                   MR. ROSEN: I don't think anybody's really  
17 consciously or seriously proposing that, Jack. Those  
18 people who wish to defeat that effort, the effort that  
19 you've talked about, say things like that. That you should  
20 write a rule for monitoring safety culture. But those of  
21 us who are serious about trying to get improvement at the  
22 grass roots level are talking more about the kinds of  
23 things you talked about here. Managing, no; monitoring,  
24 yes. How, what tools are you, do you have available now to  
25 monitor? The elements of the thing we call safety culture,

1 which is a set of behaviors. And do you they need to be  
2 improved.

3 One other area that I have focused on a little  
4 bit as Chairman of the Human Factor Sub-Committee, is the  
5 training of regional and Headquarters inspectors deem  
6 corrective action program, design and operation. I think  
7 it's not a simple thing. The way you get really, really  
8 good at this thing, unfortunately, is through long  
9 experience.

10 But there are some short cuts to it and I think  
11 that it can help to have extensive and training that's  
12 based on operational experience. Training with lots of  
13 examples of degraded environments and bad behaviors that  
14 lead to problems in communication or procedural compliance  
15 or the kinds of things that we know end up being factors  
16 that influence bad performance.

17 So I think to be constructive about the debate,  
18 and it is a debate. There are people who would wish we  
19 would just not even talk about that. Let the industry  
20 continue. Jack, you raise the point, Jack Grobe, that the  
21 industry's has almost a 20 year career of continuous  
22 improvement if you look at the charts and graphs. The fact  
23 is that those are misleading, I think.

24 It's true that they give you the average  
25 performance. But it is not the average performance that we

1 are worried about here, we, the ACRS or you, the Regional  
2 branch. What we are both worried about is the tail of the  
3 curve, the plant at the tail of the curve that could cause  
4 significant problem with the public's health and safety at  
5 that region and that create a very negative public  
6 environment for us continuing this enterprise.

7 So I think the idea is to smoke out that  
8 person. It's true that the average has gone up but there  
9 are always these performance and it may be different plants  
10 over different time periods because we all know that these  
11 cultural things are very fragile. They can be good one  
12 year and not so good the following year. The change in  
13 leadership could change it, as your model shows, the Finack  
14 Model shows, a change in leadership can change it literally  
15 over night.

16 So, we have to be alert to the fact that there  
17 could be one or two plants across the country or maybe in  
18 the region that do need additional attention. We have to  
19 find indicators that would alert you and us to look at the  
20 plant as turning the corner and going down a road we don't  
21 want them to go on.

22 That's my position. I feel very strongly about  
23 that. I'm proud of the industry. It has come a long way  
24 but there are continuing risks at one or more plants where  
25 it ends up at a place we don't want them. I really want to

1 see some indicators that our out there, some tools  
2 developed to help.

3 MR. GROBE: This is, and I'll have to be really  
4 clear here. This is just Jack Grobe talking.

5 There is one area where we, and I think we've  
6 already mentioned it, where we are much more direct in our  
7 inspection of these kinds of attributes. And that's  
8 problem identification resolution inspections. The  
9 challenge with that inspection is that the findings that  
10 are evaluated with the same risk tool, where we evaluate  
11 any other finding whether it's an engineering finding,  
12 operations finding.

13 Within the framework of the current ROP, which  
14 we evaluate annually. There was some up ticks in curves in  
15 the last annual evaluation. And the Agency has paid close  
16 attention to that. And we're continuously revising the  
17 program. But within the context of the current ROP, I  
18 think that one area that, if we decided to change, would be  
19 fruitful, is to establish a different type of significance  
20 determination for the problem identification resolution  
21 findings. And that's significance determination.

22 I don't know how to solve this problem. It  
23 requires a lot of thinking. But would focus less on risk  
24 and more on cultural attributes.

25 DR. BONACA: Well, you know, I mean I really

1 agree with that. Been complaining about a process from day  
2 one. And the fact that repeat businesses of the same  
3 event, if they are not individually set to accept the  
4 significance and not being noted. And to me that's such an  
5 indication of the lax culture, the one which you do  
6 something wrong, you know, learn a lesson. You do it again  
7 and you do it again. Never resolved.

8           Each one of the instances that we accept as  
9 significant, the aggregate of the attitude is going to  
10 infest itself in something significant some day because by  
11 that point, then, yes, the significant process doesn't --  
12 That's just an example.

13           MR. GROBE: And that really gets to last  
14 difference between the prior inspection program, assessment  
15 program and the ROP. And that is the, the fact that the  
16 ROP is reactive, it's not predictive. And you have to make  
17 sure that the median of that performance curve is far  
18 enough over such that the tail doesn't result in problems.

19           I'm certainly not excusing Davis-Besse but  
20 there was no accident. The head didn't rupture, thank God.  
21 I think we feel that a significant, that it was a  
22 significant short coming on the part of our Region that we  
23 didn't find this sooner. This was not an ROP issue. This  
24 problem started many years before the ROP. And it  
25 continued into the ROP. So neither inspection program

1 resulted in identification of this problem at Davis-Besse.

2 It's not a simple thing to simply say the ROP's  
3 not working. I think by and large we have many examples  
4 that indicate the ROP is working.

5 There's some additional stuff we want to get to  
6 and there's one technical issue I think you'll find  
7 interesting. And so we can continue this dialogue --

8 CHAIRMAN SIEBER: Well, what I'd like to do, I  
9 went through your slides. I think this dialogue that we've  
10 just had is important to us to help us understand just what  
11 your opinions and impressions are. And we certainly can  
12 take that into account in our own pursuit of these kinds of  
13 issues. But I noticed in your slide, on Slide 13, you  
14 begin to discuss the substitutes and I had the privilege to  
15 present the ACRS, these same Commissioners recently for  
16 which I have been sent out of town, so to speak.

17 So everything you know about containments  
18 sounds, particularly Davis-Besse and its design, that you  
19 can say within the next ten or 15 minutes, I would  
20 appreciate.

21 MS. LIPA: Okay. Well, you probably know a lot  
22 more about this than I do but let me just tell you about  
23 the Davis-Besse perspective and kind of what the Region has  
24 done.

25 Obviously GSI 191 has been worked on for years



1 now. And then the bulletin came out last June. And then  
2 we had temporary instruction for the inspectors to go out  
3 and see what the licensees are doing with response to that  
4 bulletin. And we did complete the TI at Braidwood, Byron,  
5 Cook and Davis-Besse. And then the rest of the plants are  
6 scheduled to be done by the end of the year.

7 As a result of those TI inspections that were  
8 done in the Region, there were no findings, you know, that  
9 resulted. But there were some insights and generally it  
10 looks like the licensees are on track to complete the  
11 actions expected as a result of the bulletin.

12 With the Davis-Besse, I have some specific  
13 examples in here. What Davis-Besse did early in their  
14 outage, they realized that the NRC was going to be  
15 expecting something more with respect to GSI191 and so they  
16 expedited their work and got their, you know, started  
17 working on their sump before the bulletin came out. And  
18 they had come up with a new design to give them more  
19 surface area to account for more uncertainties. They also  
20 found, during their outage, that they had some paint and  
21 some coatings that were not qualified. They looked  
22 beautiful but they were not qualified so you couldn't count  
23 on them during an accident. And also there were some  
24 paints that were chipping and what not. So they did have  
25 an LER and that did result in a public finding.

1                   One of the other important things from Davis-  
2 Besse was their high pressure injection pumps. Let me see  
3 if I have another slide here. Yes, if we go to Slide 17.

4                   CHAIRMAN SIEBER: These are what head pumps?

5                   MS. LIPA: Those are high head pumps. Slide 15  
6 and 16 show the Davis-Besse diagrams of their newly  
7 modified sump and the vastly increased surface area.

8                   DR. BONACA: What is the --

9                   MS. LIPA: Okay, 15 is the concept; the old  
10 sump is up by where it says upper strainer and it was just  
11 really like a screen box. And that was the surface area.  
12 Then they extended it by putting these kind of like arms  
13 and legs to it that look like, if you look at Slide 16.  
14 That's the construction with quarter inch holes. So that's  
15 how they get all the additional surface area.

16                   CHAIRMAN SIEBER: Yes, that's basically what  
17 this design does is provide surface, fit it into the  
18 contorts of their tank.

19                   MR. CALDWELL: The whole containment bottom  
20 level of the tank is really the sump. But it's whether it  
21 can get to the suction of the injection pumps or not. And  
22 before they had a small strainer area that you had to go  
23 through to get it. Now they have a huge strainer area to  
24 be able to get the water to the pumps.

25                   CHAIRMAN SIEBER: Yes, huge is in the eye of

1 the beholder. There is a knowledge base document, a new  
2 grade, because we commented on and found that it was not  
3 particularly consistent. Was not in a shape to be used as  
4 the basis for analytical analysis of the appropriate sub-  
5 size that did not adequately cover chemical events like the  
6 coatings you were referring to. And I'm wondering what  
7 Davis-Besse used to determine that the screen size that  
8 they actually did install was adequate given the research  
9 basis. They had a lot of uncertainty. Those are --

10 MR. CALDWELL: You mean screen size or surface  
11 area?

12 CHAIRMAN SIEBER: Surface area, not screen  
13 size.

14 MS. LIPA: For our surface area, they tried to  
15 make sure they had enough to account for the known  
16 uncertainties and enough safety margin for other things  
17 that could come up later. And we had an expert out from  
18 NLR who took a very close look at the modification and the  
19 inputs.

20 MR. GROBE: Yes, they did a detailed transport  
21 analysis.

22 CHAIRMAN SIEBER: Yes, the transport analysis  
23 wasn't too hard, the analysis that was based on the same  
24 view or as inconsistencies in which we'll underestimate the  
25 amount of debris that's generated. The only way to

1 overcome that is to remove anything that is fibrous or  
2 articulate that would fall into these zone events was on  
3 the whole large frame, always do that, to me. It will  
4 become clearer as we study it.

5 MR. GROBE: I don't remember the safety margin.  
6 Do you remember the numbers? But I believe it's multiple  
7 times safety margin. Multiple times, it's not a  
8 percentage. It's two or three times safety margin in my  
9 surface area. And we can get that.

10 CHAIRMAN SIEBER: The original reg guide, 1.32,  
11 said you calculate it, put the margin in for the PSH pump  
12 and then double it, which is a pretty deterministic way of  
13 doing it. So the original safety margin was a factor of  
14 two and it did not account for fugitive particulars, paint,  
15 rust, all kinds of stuff that would get generated and  
16 calcium pipe insulation.

17 And licensees, probably in those days,  
18 underestimated what can insulation would do. You know,  
19 reflect this stuff doesn't generate particles of degrees  
20 other than pieces of the canning itself. But the other  
21 insulation where you're canning calcium sulphate or other  
22 fiberglass, something like that, will tear it away and all  
23 that stuff goes to the sump.

24 So, the one way to get rid of uncertainty is to  
25 get rid of all the materials that cause that. So I'm

1 wondering whether Davis-Besse's going to be okay or you're  
2 going to have to do something else.

3 MR. CALDWELL: Well, at least let me clarify  
4 it. When I said huge I guess maybe that's not a good,  
5 clarify remark. I was saying in relation to the original  
6 sump size, which was what? 50 --

7 MR. GROBE: 50 square feet.

8 CHAIRMAN SIEBER: I'm aware of where they were,  
9 where they went. So that is actually a great improvement.  
10 But I have a keen interest in seeing where all of this goes  
11 to. Since the Commissioners have helped me maintain a high  
12 level of interest in the subject.

13 MS. LIPA: Okay. Another thing I want to cover  
14 on Slide 17 was Davis-Besse found at their high pressure  
15 injection pump, which is unique to Davis-Besse but that it  
16 did have some internal clearances that were smaller than  
17 the holes in the sump would allow particular sizes to get  
18 through. So they made efforts to modify the high pressure  
19 injection pumps to be able to work with quarter inch  
20 holes.

21 But through the course of their testing, they  
22 did a lot of testing in our lab, and they developed this  
23 mixture of, they called it sump soup, what kind of  
24 contaminants could be in the water. They found a fiber  
25 matting concern through their testing. They found that

1 they could get from fiber insulation materials could start  
2 to collect and then catch pieces of concrete and other  
3 debris and actually become like a hard thing that can be  
4 abrasive.

5 And as a result of that Davis-Besse reduced  
6 their fiber insulation in containment. They resolved the  
7 problem with the HPI Pump, then they also resolve this  
8 problem with the fiber matting. And we have some diagrams  
9 in here that'll show you on the Slide 18 shows the hydra  
10 static bearing, which is one of the things that they have  
11 problems with the clearances and the hole sizes being too  
12 large. But 19 is actually where we start getting into this  
13 fiber matting concern where it shows the, the way the  
14 bearing is designed. And there's like what they call a  
15 Figure 8. We can see some grooves in there.

16 Do you want to point them out from the screen,  
17 John?

18 MR. GROBE: Yes, let's do that. Could you go  
19 back to Slide 2? This is the cooling water supply. It  
20 came off the Fourth Stage of the bump. And it went into a  
21 cavity here and then cooling water for the hydra static  
22 bearing was injected through these orifices. And these  
23 were smaller than the sump screen.

24 CHAIRMAN SIEBER: So water can get through?

25 MR. GROBE: That's correct. And they actually

1 ran testing, as Christine said. And these orifices clogged  
2 solid within a very short period of time. The original  
3 design had this cavity. This is the bearing surface where  
4 the shaft can ride. The cavity was sloped up so it had a  
5 wedge. What that did was even after they got water through  
6 the orifices, it tended to drive material into the bearing  
7 surface and damage the bearing.

8 CHAIRMAN SIEBER: Now this is a horizontal  
9 shaft pump?

10 MR. GROBE: It is.

11 CHAIRMAN SIEBER: Whereas Westinghouse load  
12 head pumps are vertical shaft and contains straight pumps?  
13 So their situation is different, right?

14 MR. GROBE: Yes. And as a matter of fact, this  
15 is the only pump this manufacturer, it's a French pump.

16 CHAIRMAN SIEBER: It's the only one like that.

17 MR. GROBE: In the United States. But the  
18 fiber matting issue also affected the other aspects of the  
19 pump, which are common to other pump manufacturers.

20 Next slide, Tom.

21 As Christine was saying, they added additional  
22 bearing surfaces, put in these slots to clear out  
23 significant debris, significant sized debris. And the end  
24 result, and this was done trial and error. This was not  
25 engineered design. This was designed by trial and error.

1                   Next slide.

2                   This was actually a successful test. You can  
3 see the fiber that has accumulated. This is after they  
4 removed most of the fiber from the containment. But that  
5 there was still, I think there's two or three square feet,  
6 excuse me, cubic feet of fiber left. So even that small  
7 amount of fiber in the water resulted in culmination. And  
8 the damage to the shaft was minimal.

9                   CHAIRMAN SIEBER: What's the mission time for  
10 this in an accident research relation --

11                  MS. LIPA: Long term; days, weeks. I don't  
12 have a number.

13                  CHAIRMAN SIEBER: It's days but not weeks,  
14 right?

15                  MR. GROBE: No, no. It's 30 days.

16                  MR. ROSEN: Now, Jack, did you say this was  
17 successful with all that stuff plugged in there? This is  
18 an okay valve?

19                  MR. GROBE: Yes. It was successful based on a  
20 number of analysis that are done. That test ran for 24  
21 days. They extrapolated that to 30 days. They did rudder  
22 dynamic analysis and vibration analysis and showed the pump  
23 to function adequately.

24                  CHAIRMAN SIEBER: It can, it can deteriorate,  
25 not destroy itself in the mission time. And that's an



1 important consideration, I think.

2 MR. GROBE: First Energy, there's a pump and  
3 valve conference in the Washington area in the first week  
4 in July. And First Energy and NMPR Associates are  
5 presenting a rather lengthy paper on this issue at that  
6 conference.

7 MR. ROSEN: See, I would have drawn the  
8 opposite conclusion.

9 MR. GROBE: Why don't you go to the next slide?

10 MS. LIPA: The next slide, you can see on the  
11 left, a little more significant wear. And there is a close  
12 up of that on the final slide. It actually shows that that  
13 part of the surface was, you know, because of the  
14 abrasiveness of the fiber matting, it looks like a tenth to  
15 two tenths of an inch that that poured into the, this part.

16 CHAIRMAN SIEBER: Right. And so the bearing  
17 would be pretty sloppy at this point. Vibrations would be  
18 down.

19 MR. GROBE: Right. They did two, two separate  
20 tests. They did this Sump Soup Test to see what kind of  
21 damage would occur in general components. Then they did a  
22 separate test where they disassembled the pump and machined  
23 all the clearances, the two times the long clearances. And  
24 they ran it with clean water and monitored vibration and  
25 did another dynamic analysis.

1                   And based on those two tests they concluded  
2                   that this pump was operable. And we did extensive review,  
3                   including observation of all this testing activity. It was  
4                   done at Riley Labs in Alabama, and agreed with their  
5                   conclusion. But because this also affects the bushings and  
6                   seals, this has some applicability or could have some  
7                   applicability to other plants. And we've provided this  
8                   information to NRR and the folks that are doing the GSI 191  
9                   work had this information. And they're considering it as  
10                  far as downstream affects from the sumps.

11                 CHAIRMAN SIEBER: I have, years ago, worked at  
12                 pumps with vertical shaft pumps. And pumped slug out of  
13                 clarifiers, for example, as a maintenance person. And  
14                 that's about as -- as you can get. But it was sand and --  
15                 river they returned it to the pump. Strangely enough, the  
16                 bearings do wear, the shafts wear down until the vibration  
17                 actually breaks the shaft and the pump, it continues to  
18                 pump for a long, long time.

19                 So, I think that you have to evaluate these  
20                 based on testing as opposed to engineering analysis so you  
21                 get the feel for the distribution, the failure notice that  
22                 would occur within the mission time, which is 30 days.

23                 MR. ROSEN: I understand your --

24                 CHAIRMAN SIEBER: That's basically the  
25                 appropriate engineering analysis.

1           MR. ROSEN: I understand that conclusion and I  
2 understand your view of it but I'm not convinced. I  
3 suppose I'll see the data some time.

4           MR. GROBE: The unique attribute of this that  
5 had been previously observed was this fiber matting that  
6 occurred. And the way they described it was as these small  
7 little pieces of fiberglass went through the process, it  
8 developed like a little velcro on the outer surface of the  
9 fiber. And they ended matting together and incorporating  
10 grit. They were just like a grinding. And they found  
11 these in all of their close tolerance components where they  
12 found these fiber mats inside grinding away at the  
13 component.

14          DR. FORD: Jack, could I go back? Have you  
15 finished on the sump?

16          CHAIRMAN SIEBER: Yes, I don't know if I'm  
17 going to let you go back or not because --

18          DR. FORD: Well, you jumped ahead under the  
19 sump --

20          CHAIRMAN SIEBER: That was intentional.

21          DR. FORD: I have a question. One interesting  
22 thing here, you have specific training on the condensation.

23          MS. LIPA: Yes.

24          DR. FORD: Some of it was discussed previously.  
25 What good lessons we learn from this and all the attribute

1 you got -- brought in their plan. Similar to the lessons  
2 learned from the --

3 MS. LIPA: Well, from my perspective, this was  
4 training for inspectors on how to think about things and  
5 how things can kind of creep up on you and get in, you  
6 know, approach problems, not probably resolve -- this was  
7 training we thought was available to our inspectors. But  
8 I'm not sure I understand your inspection at --

9 DR. FORD: Lessons learned from the Columbia  
10 Space Shuttle tragedy which are appropriate for Davis-Besse  
11 situation in regards to safety culture inspectability in  
12 terms of all those, what are the lessons learned?

13 MR. GROBE: There were tremendous amounts of  
14 similarities between the casual factors of Columbia and the  
15 causal factors of Davis-Besse. As a matter of fact, I  
16 remember reading that report. There was one page where you  
17 could have substituted Davis-Besse for NASA. And it was a  
18 direct description of what happened at Davis-Besse.

19 So there was very close alignment between what  
20 happened at Columbia and what happened as Davis-Besse as  
21 far as the casual factors.

22 DR. FORD: Trying to move ahead --

23 MR. GROBE: The specific issues at Davis-Besse  
24 was that a minimal level of action to insure compliance and  
25 a tolerance degraded conditions over a long period of time

1 without a complete knowledge of what was actually going on.  
2 So, in fact, they had a belief that they had one level of  
3 degradation. In fact, they were very significantly  
4 different level of degradation. And those attributes were  
5 woven through the Columbia.

6 MR. ROSEN: As long as we've gone back to that  
7 Slide No. 12 in the prior presentation, I would like to ask  
8 a specific question about training again on PINR. We did a  
9 study, we ACRS, did a little external study to compare the  
10 new inspection procedure, the training procedure, the  
11 training stuff for PINR, the new stuff, against the inflow  
12 principles with effective corrective action. And we noted  
13 a glare, one glaring problem.

14 Final looked very good but the problem I know,  
15 we noted was that there was a lack of focus on  
16 effectiveness of corrective actions. And that was  
17 troubling. But I did hear you say earlier that you do  
18 focus on that, you know. And yet you're training material  
19 does not appear to. Is that training material that's  
20 generic for the whole agency or just the Region? Do you  
21 make your own training material?

22 MS. LIPA: Let me see if I can answer. The PIR  
23 Inspection Model was changed recently. A lot of that was  
24 as a result of the lessons learned task force.

25 MR. ROSEN: 71152?

1 MS. LIPA: That's correct. And then there was  
2 a read and sign training approach to help the inspectors  
3 understand the differences and why they were there.

4 MR. ROSEN: Superseded the old stuff that was  
5 in G200?

6 MR. GROBE: You're talking about the training  
7 course G200/

8 MR. ROSEN: Right.

9 MR. GROBE: It's been a while since I've taken  
10 those courses. I don't remember exactly which one G200 is  
11 but --

12 MR. ROSEN: Well, that's really immaterial,  
13 Jack, because that's been superseded, I think, by 71152.

14 MS. LIPA: Well, 71152 is one inspection  
15 procedure that the inspectors use. They have ben using it  
16 since the ROP was recently revised. So this training that  
17 I was talking about here, that I think you're talking  
18 about, is how we train the inspectors on these recent  
19 changes so that they get the most and fully understand  
20 those changes.

21 MR. ROSEN: And that training material was  
22 Regionally developed for Region 3 or more broadly?

23 MS. LIPA: No, it came out of Headquarters.

24 MR. CALDWELL: You're talking about training to  
25 show the difference between the two procedures.

1 MS. LIPA: Right.

2 MR. CALDWELL: You're talking about training  
3 for inspectors on how to recognize what a good corrective  
4 action --

5 MR. ROSEN: Right, right.

6 MR. CALDWELL: And we'll have to get back to  
7 you. We have imported into this region corrective action  
8 program training. I don't know if it's the same one you're  
9 talking about or not. So we brought it in here several  
10 times for our inspectors as well as we've done root cause  
11 training. We've done a lot. Like I said before, we spent  
12 a lot of money on training and we, we've brought those in,  
13 I don't know, Steve, are you aware of which corrective  
14 action program we brought in here? I can talk to my HR  
15 folks and find out exactly what we've brought in and get  
16 back to you. I don't know if it's the same one you're  
17 thinking or not.

18 MR. PARKER: Yes, we brought an augmented one  
19 in to, it was based off the Agency 1 of the Root Cause and  
20 Effective Action Training. We worked with the contractor,  
21 Conger and Elesy to focus on corrective action programs and  
22 implementation of those. And we'll like examples of what's  
23 a good corrective action program and the implementation of  
24 those, how those work. In fact, several of our inspectors  
25 have used that going forward on our PINR Inspections and

1 had very good results.

2 MR. ROSEN: So you've gotten the need to raise  
3 your own training rather than something's available broadly  
4 from the Agency. So you did that. You brought Conger and  
5 Elesy in, which is okay. But what we did in our little  
6 work effort was to compare what was, what we felt was the  
7 current training that was offered to Agency wide with the  
8 principles of effective correct action, which is the info  
9 document.

10 And what we found was that the most important  
11 finding, I think, was that there was little focus on  
12 effectiveness of corrective action, making sure that the  
13 corrective actions for risk significant stuff was  
14 effective. And also, there was little focus on prior -- up  
15 from making sure that you applied detailed important root  
16 cause analysis on the items of risk significance. You  
17 know, basically separating the wheat from the chaff so you  
18 could focus on the important stuff.

19 Those were the two things that I, and some of  
20 the things you said earlier today lead me to believe that  
21 you're doing that reasonably well. I was pleased to hear,  
22 Jack, you say that you use risk significant activities. I  
23 presume you use them to sort out whether you think they're  
24 doing a good job on the corrective action, that they're  
25 working on the important things as well.



1                   And finally, just to make my point clear, I  
2 think no corrective action program is complete unless you  
3 go back on the important risk significant items and see  
4 that they were effective, that they effectively precluded  
5 regardless.

6                   MR. CALDWELL: I want to correct one thing. We  
7 didn't just decide to design our own program because we  
8 didn't think the Agency's was any good. We looked for ways  
9 of minimizing impact on, you know, travel, travel funds and  
10 that. We brought a lot of training into the Region. And  
11 in this case, I'm not sure what training you're talking  
12 about. You must be talking about one that's available in  
13 Headquarters.

14                   And so we brought it into the Region in order  
15 to get the maximum exposure to the inspector. So we  
16 probably had to work with Conger and Elesy to design the  
17 thing. But it wasn't because we were saying that the one  
18 at Headquarters was bad. We wanted to get it here so our  
19 inspectors, we could get the most exposure to our  
20 inspectors.

21                   And we found that to be more economical too as  
22 far as our training --

23                   MR. ROSEN: I applaud all action. I think that  
24 focusing on corrective action for understanding what a good  
25 one is, if you stumble on a good one or a bad one, knowing

1 the difference is what the government is really paying you  
2 to do. I think it's right and where you ought to be.

3 CHAIRMAN SIEBER: Well, we follow that, keeping  
4 in mind that we have to end at 3:00 o'clock. What I'd like  
5 to do is take a break at this point and then we can begin  
6 with the part of the round table when we come back. So  
7 let's come back at 2:00 o'clock.

8 (Off the record.)

9 CHAIRMAN SIEBER: We're beginning late and  
10 that's okay according to the federal rules.

11 What I'd like to do is have the round table  
12 discussion on ROP and quit around ten minutes to 3:00 so  
13 that everyone can catch airplanes and whatever it is they  
14 have to do. So, we'll call this session back into session.

15 MR. KOZAK: Okay, what we're going to start  
16 with, we don't have a lot of prepared remarks for you. We  
17 have a couple of things we'd like to show you that we're  
18 using to help our inspectors out. We're going to cover a  
19 little bit on fire protection. But first my partner, he's  
20 our Senior Analyst, one of our two here in the Region, is  
21 going to show you a web page that they developed that we're  
22 using in the Region to help inspectors out in the risk  
23 area. And I have a handout which will show you the front  
24 of the web page.

25 What we did is put together an internal web

1 site for that, put, collectively put the information  
2 together and have a coherent place where the inspectors  
3 could go to get the information, to get the work sheets,  
4 just assemble. Sonja put this together. This is Sonja.  
5 We've got her simple bio on there. And then we have the  
6 other Regional contacts. When the other Regions get their  
7 web site, we'll be able to put this together so there's  
8 contacts in other regions if we have another issue.

9 F Power or SPV's, the inspectors are able to  
10 come here, understand Manual Chapter 0609, which is the SPB  
11 process. The Appendix A is for F Power Finding. So all of  
12 these are highlights where they can cut back and get the  
13 upper management they need.

14 As you see on the left hand side, all of the,  
15 this is Appendix H, containment integrity. SPP, the  
16 information is there. So they don't have to go and try to  
17 search the web site or the documentation. It's all here  
18 electronically that they can do it. So, on the left hand  
19 side, F Power Containment SPB, EP, External Events. We  
20 don't have a SPB for external events but that's the basis  
21 document, the information you might need.

22 Maintenance Rule will be coming out with an  
23 SPB, occupational Rad Exposure. We don't deal, Sonya and I  
24 as far as risk with occupational exposure but that's in  
25 here. So all the SPB's are in here. Should the inspectors

1 have questions or issues, we have a link to both Sonja and  
2 I that they can automatically put the information here, get  
3 to us. We can electronically put it on a feedback so there  
4 will be a feedback form here.

5 Or if they need to do a Phase 2 SPB, we've got  
6 some information here. This is just a link that we  
7 developed but we're still developing at where they can have  
8 all the information they need for a Phase 2 that they can  
9 pull that information down.

10 We have SPB workshops, manual Chapter 0609.  
11 What we intend to do here under risk significant systems  
12 and components is to highlight for the team, if we have an  
13 SSPI or an inspector that's looking for systems to walk  
14 down, that we can highlight the risk informed system, as  
15 you discussed earlier, is the diesel and off site power and  
16 RPS is the key risk significant system. They will be able  
17 to understand that but not only understand that but what  
18 components in those systems that they need to focus on.

19 Sometimes just saying a hipsy or hippus system  
20 is not enough. But what component is causing that to be  
21 risk significant? Is it the driver of the pump or the  
22 turbine or where do we need to focus on that? So our  
23 intent would be that they have a collection of information  
24 that they can easily pull out and have that information.

25 Down here, the work sheets, this is a web site,

1 the NRR where they can come down easily and pull these down  
2 right here. The Region 3, all the Region 3 work sheets are  
3 here. For example, Clinton, you can pull right down here  
4 and download the work sheets or be able to get any  
5 information they may need from here. There's the work  
6 sheet right there for TPCF, a transient without power  
7 convergent system. So they can easily obtain the  
8 information they need here.

9 So, we'd just like to give you an overview that  
10 we're trying to develop some communication tools, some  
11 information and try to collectively put it together that  
12 it's easily available for the inspectors to pull up and  
13 communicate with us. There's only two of us in the Region  
14 right now. We're looking at additional SRA Resources. And  
15 we're looking at that mainly because of the, what we  
16 believe is a potential impact with MSPI coming forward,  
17 fire protection and trying to develop better communication  
18 as far as planning and coordination with the inspectors,  
19 that we can have them focused on the right systems and  
20 components.

21 So I just wanted to give you a quick overview.  
22 If there's any questions, otherwise we'll just sort of move  
23 on.

24 DR. FORD: That's not rocket science, but  
25 that's terrific stuff. I think that's great. It really

1 helps. A lot of times finding the right stuff can be 80  
2 percent of the job.

3 MR. PARKER: And you're right. There's nothing  
4 special about it. The idea was to try to pull everything  
5 together and get that information in one place where they  
6 can have what they need and be able to draw from that. And  
7 then if they still need us, great, we're there. We're  
8 available. That's our job is to be able to support them  
9 for the planning inspection and determine the risk  
10 significance of findings. So it's just another way to  
11 maybe make us more effective, more efficient.

12 CHAIRMAN SIEBER: Why does MSPI cause  
13 additional work load for you? What's the significance --

14 MR. PARKER: Initially I think, Ann Marie can  
15 talk to that somewhat, but it is going to have temporary  
16 instructions. Some of the initial planning is going to  
17 require potentially a couple of weeks for maybe the TI, as  
18 it was originally planned to go out. And the SRA's would  
19 require probably a couple of man weeks per site on a dual  
20 unit site, I believe we anticipated. So we would have, be  
21 a part of that support effort up front, at a minimum.

22 MR. ROSEN: Do you think, following up on  
23 Jack's comment, do you think that's going to be a  
24 continuing work load that we, or do you think it's a start  
25 up problem?

1           MR. PARKER:  It'll certainly be a start up and  
2           then it'll have some impact.  And we don't really have a  
3           good feel.  I think Ann Marie might be able to put a little  
4           perspective.  She participated in all the meetings and was  
5           the Regional Coordinator.

6           MS. STONE:  I can answer that now or --

7           MR. ROSEN:  Yes, go ahead.

8           MS. STONE:  With respect to the SRA's, the  
9           greatest impact is going to be immediately once the  
10          decision goes forward, if it is made, once the decision  
11          occurs.  Basically what they'll be involved with up front  
12          is assisting the residents and the scoping of systems as  
13          well as doing more the PRA spar model type.  And we do  
14          anticipate it to be about a five week effort between  
15          preparation and documentation and the actual inspection per  
16          site, per dual unit site, to do that type of work.

17          As far as what occurs afterwards, it is still  
18          going to involve some involvement of the SRA's.  We don't  
19          know at this time how much.  But each time the plant  
20          revises their PRA, there's going to be an impact on the  
21          MSPI.  So there's going to be some validations occurring  
22          even afterwards.  Not to the same extent but still some  
23          effort on their part.

24          MR. ROSEN:  That's right, but as far as the  
25          plants are concerned, they could have just report

1       unavailable hours and unreliability, the failure attempts,  
2       start up attempts and failures and that sort of thing. And  
3       the original data will be fed into their MSPI template and  
4       they'll report the answers.

5                So, I think it's the same, the plant still  
6       runs. Nothing changes in the plants. It's just what they  
7       do with the basic raw unreliability and unavailability  
8       date.

9                MS. STONE: You're correct that the data will  
10       still be reported to us, you know, they'll report to us the  
11       unavailability and unreliability information. There is  
12       some inspection after that occurs at the resident site to  
13       validate that information.

14               MR. ROSEN: But there's that now with the data,  
15       right?

16               MS. STONE: That's correct but there are, with  
17       the MSPI there are a number more or a larger number of  
18       components that are involved and currently involved. But,  
19       yes, that's --

20               MR. ROSEN: And I see that as a down side  
21       because it's more data. But on the other hand, we heard  
22       this morning, I think what was it, yesterday we heard that  
23       for Cook, for example, the essential service water system's  
24       important and it wasn't one of the PI's that were being  
25       reported.



1 MS. STONE: That's correct.

2 MR. ROSEN: That flaw will be remedied by the  
3 MSPR.

4 MS. STONE: That's correct. Essential service  
5 water is pulled into the MSPI where it's not in the SSP.

6 MR. ROSEN: The support system.

7 MS. STONE: That's correct, that's correct.  
8 And then just to follow up on that, as I stated when  
9 licensees modified their PRA, and it happens, I won't say  
10 on a consistent basis but it does occur. That would follow  
11 some re-inspection.

12 MR. ROSEN: Every, I know at one plant I was  
13 involved with was once every other refueling cycle. So  
14 that's three years, roughly three years or something. In  
15 other words, they would update --

16 MS. STONE: Yes, I can't answer that  
17 concretely.

18 MR. ROSEN: Updating the unavailability date  
19 and the unreliability data every other --

20 MR. PARKER: Every three years. That's  
21 different with the plants. That's part of their PRA  
22 updates. There's no requirement that we have potentially  
23 through the peer reviews and the PRA standards that they  
24 develop with their auditors group, peer review. I think  
25 most of the plants in Region 3 are typically on a three

1 year cycle.

2 MR. ROSEN: Yes, right. So you'll have to take  
3 a look at the data and see if there's anything, the new  
4 data and the old data, see if there's anything very  
5 different. And if there is, check it out.

6 MS. STONE: That's correct. But that is  
7 different than what we're doing now.

8 MR. KOZAK: Any other questions for SRA?

9 All right, we'll move, we have a couple of  
10 introductory slides in the fire protection, which is  
11 something they asked us to cover. And Bob Daley is a  
12 Senior Rad Inspector, will cover that.

13 MR. DALEY: My name is Bob Daley. As said, I'm  
14 senior Rad Inspector of DOS. I'm here to talk about fire  
15 protection in Region 3. It's subtitled Issues and  
16 Challenges. But from what you see from the first slide,  
17 I'm going to talk issues, I'm talking about some of the  
18 findings.

19 We've gone through an entire tri-annual cycle  
20 and there's a trend that we actually seen is that a lot of  
21 the findings relate to compliance with historical license  
22 basis. When I say that, there's really two categories.  
23 One category is back in the '80's when the fire protection  
24 program was approved. And somewhere down then, either they  
25 didn't follow up on modifications that were being done or

1 the licensee misinterpreted the requirements or  
2 misinterpreted what was required of them. And since then,  
3 they really hadn't been in compliance.

4 Now, we found a small amount of those. But the  
5 vast majority of the historic license based of problems  
6 that we found have been of the nature where they have a  
7 historical license base with an improved fire protection  
8 program in the early '80's. And over the years they  
9 changed their plan in different ways and they haven't  
10 recognized how that effective the fire protection program.  
11 They hadn't recognized that they didn't validate the  
12 historical -- for certain requirements with in the SCR's.  
13 They have a majority finding in this category of --

14 And when we say, when we talk about these types  
15 of findings, we kind of categorize them as primarily  
16 knowledge based findings where the licensee really doesn't  
17 understand the historical license base. They don't  
18 understand the requirements or they misinterpret them and  
19 that's why this happens. And it is fairly complex.

20 Some examples of that, one big example is  
21 Monticello. We had six findings, that's a half a dozen.  
22 That's a lot of findings. We found that the vast majority  
23 of these had to do with the program where they really  
24 weren't keeping up with their program. They had name  
25 changes to the plant, like I had talked about. And they

1 didn't recognize that those changes were different from  
2 historical license basis had approved.

3 I've often said you can normally ask one  
4 question when you go into a licensee to get an idea of the  
5 quality of the program. And that's asking the general  
6 question, what's in your fire protection program. If they  
7 come back and say that, you know, it's maybe one book or  
8 two books with all the documents. Well, there's probably  
9 something missing there. So you're probably going to find  
10 some problem.

11 On the other side of the coin, if you have a  
12 big book shelf full of documents, well, there's probably  
13 problems there too, again, because there's so much there  
14 and so complex because as they've made changes along 20  
15 years or so, it's so complex that it's hard for them to  
16 catch everything and see all the requirements.

17 CHAIRMAN SIEBER: There was, it's my experience  
18 in this area that licensees, as they change people in  
19 charge of Fire Protection, generally turn to this and let's  
20 accumulate material syndrome, sort to speak. But if you  
21 look at the fire protection plan, hazardous analysis, if it  
22 hadn't been updated in 20 years, it's probably deficient 20  
23 years ago as it is today.

24 And it seemed to me that if the plants that  
25 really were striving to seek current compliance, they had

1 to redo their hazardous analysis or plan, take into account  
2 all these changes and to correct some of the  
3 inconsistencies that originally existed.

4 Is that a good impression of mine or not?

5 MR. DALEY: Well, in fact, in Monticello,  
6 that's kind of what they had. When I asked them what was  
7 in their fire protection program, they came back and they  
8 gave me three original SAR's and just like you were saying,  
9 I mean, when they gave me that I realized, well, there's  
10 something, they've lost, there's something missing here.  
11 They don't know what's in it. That's what to a lot of  
12 findings.

13 But it was successful because based upon  
14 talking to other people in the Corporate, NFC Corporate and  
15 also talking to the residents, they spent a lot of time and  
16 resources to actually -- their license basis.

17 CHAIRMAN SIEBER: I think that's an important  
18 feature. You know, one way to make that happen is through  
19 the inspection program, which I can see you understand and  
20 that's what you're doing short of, you know, some new kind  
21 of NRR directives, letter and what have you. This is  
22 probably the best way to approach it. But hopefully the  
23 licensees are understanding in advance before the inspector  
24 shows up on the doorstep that this is what needs to be  
25 done.

1                   MR. DALEY:  And they have gotten better about  
2                   it.  We follow them through the tri-annual, towards the end  
3                   of tri-annual inspection.  The self assessments that they  
4                   do the year before and the year before are much better.

5                   CHAIRMAN SIEBER:  Good.  That gives me some  
6                   comfort.

7                   MR. DALEY:  It does me also.

8                   Kewaunee White Finding, again this is another  
9                   misinterpretation.  In fact, there was kind of, the  
10                  licensee was a little confused.  It's a little bit more  
11                  complex than this but there's mainly two compliance  
12                  strategies for our fire area.  You can comply with 322 or  
13                  you can comply with Section 323, and when we went out there  
14                  they were a little confused on which compliance strategy,  
15                  which specific fire -- we were looking at was.

16                  And based upon that, they also kind of  
17                  misinterpreted the requirements and thought that they  
18                  needed a suppression system in that area.  We, in fact,  
19                  realized that they did.  And thus we had a finding of --

20                  Prairie Island, combustible control; again  
21                  historic license basis issue when they had an exemption.  
22                  We had agreed to do an exemption way back in the '80's that  
23                  said that we allow you not to have a suppression system  
24                  but, and you had separation over 20 feet for -- let's say  
25                  shut down equipment.  What was clear from the intent, what

1 they told us and what we told them back was that this was  
2 all based upon a low amount of insidual combustibles and a  
3 very low amount of transient combustibles.

4 When we're saying a low amount, what they're  
5 talking about is the transient combustibles, if you had to  
6 work or you had to set up a C Zone and then you take them  
7 out after the work's completed. We went out there and they  
8 had whole vats of anti -- they had some garbage, liquid  
9 combustible. They had wax of this, plastic bagging just  
10 staggged out there. At that time we realized that they had  
11 basically invalidated our exemption and we issued them an  
12 on site evaluation. Again, those are primarily knowledge  
13 based issues.

14 As I go on, some of the challenges that we have  
15 in Region 3, that we perceive as challenges in the fire  
16 protection area is the new fire protection SDP. I was at  
17 the training for the fire protection SDP and overall I will  
18 tell you, it is an improvement. Technically, it makes a  
19 lot more sense than the old SDP. But just because of the  
20 nature of fire protection, to make technical sometimes you  
21 have to, it becomes longer.

22 And there was a lot of steps that you have to  
23 go through. There's a lot of screening steps in that SDP.  
24 And therefore, there's a lot of decisions that the lead  
25 inspectors, baseline inspectors are going to have to

1 through. So it has to be complex.

2 CHAIRMAN SIEBER: There's still a fair amount  
3 of judgment required on the part of the inspectors.

4 MR. DALEY: Yes, it does.

5 CHAIRMAN SIEBER: Is it a little, is it a lot  
6 kind of judgment.

7 MR. DALEY: Yes, sir. And one of the things  
8 that it does much better than the old SDP is the value of  
9 potential sluts. The evaluants of circuit issues are much  
10 better. But also, one thing that's very noticeable is that  
11 a lot of these circuit issues, you're going to go through  
12 all those steps of the SDP, which is time consuming. And a  
13 lot of these circuit issues still can't be screened out,  
14 which puts you, again, it's kind of a Phase 3 all over  
15 again. So it's going to be time consuming.

16 Manual actions; since most manual actions are  
17 taken really as a result of circuit issues, we have cable  
18 -- mal-operation of circuit. Those are going to be treated  
19 pretty much like circuit issues if you have an issue. And,  
20 again, that will take some time to get through it. You're  
21 probably facing that also.

22 Future inspection challenges; NFPA 805, I've  
23 read NFPA 805. I've got familiar with it for the last five  
24 or six years both on this side and the other. And NFPA 805  
25 is quite a bit different from the regulations that we have



1 now. When that comes out, if any plant so chooses to use  
2 that in the Region, it's going to take a lot of effort and  
3 a lot of relearning to actually inspect it.

4 Associated circuits; they're talking about, I  
5 think, January is the time frame now, January of 2005, to  
6 lift the moratorium on associated circuits. That's really  
7 a tri-annual cycle and really have been looking at it. So  
8 we need more training which is going to take more time for  
9 the Region. And the big thing is really experience because  
10 it's one thing you can get a lot of training but the real  
11 thing is actually going out and looking at the issue and  
12 looking at the actual circuitry and being used to and  
13 familiar with the subject circuit type issue.

14 And that's really the end of my presentation.

15 MR. ROSEN: Before you set off that, there is a  
16 manual action rule making --

17 MR. DALEY: Yes.

18 MR. ROSEN: And, we will hope, that will  
19 clarify the issue, at least as to what you can take credit  
20 for and what you can't. You know, the actions will have to  
21 be feasible and with significant time margin. We used to  
22 call it reliable but now we call it significant time margin  
23 to take it. And I think those, the decision as to whether  
24 it's feasible and a significant time margin will be human  
25 performance issues based on probably something like the

1 Therp Bottle from Gutman and Swane, the human performance  
2 model.

3 So there's going to be this intersection or the  
4 fire expertise, that you have, and the human performance  
5 expertise that some of your SRA's have. And I see that as  
6 quite a, it's going to be a challenge in the future.

7 But all of this goes back to solving the  
8 problem of finding some related compliance with historical  
9 license basis. One can, I presume, take credit for manual  
10 actions, whether or not they were taken credit for in the  
11 license spaces, so if you comply with the new rule making.  
12 I mean, I don't know what the rule making is going to say.  
13 But I assume it will say something like that. I mean, even  
14 though you might not have taken credit for a manual action  
15 before, in order to take a new license spaces, in order to  
16 take credit for it now, you're going to have to go through  
17 one of the steps that's described in the new rule making.

18 MR. DALEY: Yes, I've seen some of the wording  
19 or I haven't seen the latest wording that they've gone  
20 through. But it's going to be highly dependent on time  
21 lines. I'm establishing a time line, and that's going to  
22 actually keep the inspectors out there actually to walk it  
23 through --

24 MR. ROSEN: Right, right.

25 MR. DALEY: And once the time line, I mean,

1 that's really a question of will you have, based upon the  
2 fire scenario that she's build to that ruling. Can you  
3 have damage before that operator gets out to the piece of  
4 equipment --

5 MR. ROSEN: My point is that it's going to take  
6 continued interaction between the SRA people and the fire  
7 people.

8 MR. DALEY: Oh, definitely  
9 , much more at the action --

10 MR. ROSEN: I think that'll put both of you in  
11 the hot seat, sort to say.

12 MR. PARKER: You're right. I think that's one  
13 of the things Bob pointed out. From Resources, that will  
14 be a significant resource, both that and understanding  
15 cables and cable locations. A lot of plants don't have  
16 very good location of their cables. So they're trying to  
17 understand if we were to have a fire or at least develop a  
18 fire scenario because of a finding that Bob or the other  
19 fire protection engineers identify, it's going to be a real  
20 challenge to get that information or to get the utility to  
21 obtain it for us.

22 MR. ROSEN: Well, I think you need to, in the  
23 case where utility doesn't have a good database, doesn't  
24 know where its cables are, you have to assume they're in  
25 the worse place. I mean, what else can you assume? And

1 the good thing about doing that is it may encourage the  
2 utilities to do a better job in configuration management to  
3 know, to map out where their cables are, if they can.  
4 Because some of the later points have in great detail where  
5 they are and they have a leg up and rightly so.

6 MR. PARKER: Exactly.

7 CHAIRMAN SIEBER: Thank you.

8 MR. KOZAK: Next we're going to go over a  
9 little bit on how we implement the ROP here in the Region.  
10 What I just handed out to you was, and it's an internal  
11 inspection plan that our inspectors put together at  
12 Braidwood for a quarter. And we issue quarter reports that  
13 are integrated for just about everything with the exception  
14 of large team inspections and security.

15 Steve Ray is here. He's the Senior Resident  
16 Inspector at Braidwood. And I'll have him go over this in  
17 a second for you.

18 One of my primary jobs here in the Region is to  
19 monitor our implementation and completion of the baseline  
20 inspection program here in the Region. And I do that for  
21 all of our sites, for all of our procedures, and put  
22 together a report periodically during the year. And I'll  
23 file a report at the end of the year which details how many  
24 hours we spent on each inspection procedure, how many  
25 samples we completed for each inspection procedure and if

1 we, indeed, did complete the ROP in the Region.

2 So, we monitor that on a big picture level here  
3 from the Region. And, of course, we have to report that to  
4 NRR, the operating plan, that we completed the ROP in the  
5 Region. So, given the way that the ROP is structured with  
6 so many procedures required to be completed a certain  
7 number of times, that's kind of a large task to do.

8 Why we handed this out to you is to try to give  
9 you some insights into how we want to chose different  
10 samples to do and samples mean how many times you do the  
11 inspection procedure, quote, using risk insights and how  
12 many hours we spend. So, I'm going to ask Steve to spend a  
13 few moments to walk you through his plan.

14 MR. RAY: All right. Yes, there is a lot of  
15 tracking that needs to be done to complete the program  
16 properly because each inspection procedure has a  
17 recommended number of samples per year, a ban, usually,  
18 plus or minus some, and a recommended number of hours for  
19 years. So to make sure we get that program done, we have  
20 to keep pretty close track of it. Each site does it a  
21 different way. I was in the pilot program so one of the  
22 first things I did was develop a program to track this.

23 And what we do is at the beginning of the year  
24 our Branch Chief will tell us, since each procedure has a  
25 band of about plus or minus ten percent or so, our Branch

1 Chief will tell us, okay, you know, based on their  
2 performance last year, where she expects us to be in that  
3 band; the low end, the middle or the high end of the band.  
4 We take that and lay out over the year for each quarter how  
5 many inspections sample we would want to do in that quarter  
6 to meet that requirement.

7 And that's based on, we modify that a little  
8 bit based on schedule because there's a refueling outage  
9 one quarter, for instance, we'll probably do less other  
10 inspections. So we'll put more in the other three  
11 quarters. Then each quarter I make a sheet like this.  
12 This is toward the end of the quarter so it's mostly filled  
13 in but it'll be pretty much blank except for the procedure  
14 number, the titles and, you know, it's listed one time for  
15 each time we expect to do a sample. And that can be  
16 modified during the quarter. You can add lines or delete  
17 lines.

18 And then as we do them, we keep track of when  
19 we did them, who did them, what we actually inspected.  
20 There's a lot of abbreviations there, so we can understand  
21 a lot of them. And then how many hours we took on that  
22 particular sample. What cornerstone was in what unit or  
23 was associated with. And we keep tracking that way and you  
24 can see how much we have left.

25 That's the tracking. To actually figure out

1 what we're going to do for each of those samples, we try to  
2 look a week or two ahead at the licensee's maintenance  
3 schedules, testing schedules, things like that, what  
4 they're going to be doing. And pick the high risk  
5 significant jobs, the high risk significant systems and,  
6 for instance, at Braidwood, the two most risk significant  
7 systems are the diesel generators and the excellory feed  
8 water pumps. So if you look at this, you'll see a lot of  
9 Eyesight AF and a lot of DG samples in there.

10 And depending on what else they're doing that  
11 week, we try to take the high risk activities that they're  
12 doing, in general, and inspect those. A lot of it just  
13 depends on what opportunities come up.

14 CHAIRMAN SIEBER: Let me go back just for a  
15 second. You said you would look at the licensee's  
16 performance and decide where in the band the samples that  
17 licensee fits with regard to previous and expected future  
18 performance. And then you will inspect, you know, a little  
19 bit more where you think they might be deficient and a  
20 little bit less where they probably excel.

21 Doesn't that lead to sort of a self fulfilling  
22 prophecy in the huge spectrum if you can find a lot of  
23 findings? And so if I thought they were bad, spent a lot  
24 of time on 4, sure enough, they were. Does that happen?

25 MR. RAY: Well, somewhat although the band

1       isn't very large.  It's only plus or minus ten percent.

2                   CHAIRMAN SIEBER:  Yes, I can see that from the  
3       chart.

4                   MR. RAY:  And so we don't worry that much, I  
5       guess.

6                   MR. KOZAK:  The baseline inspection program has  
7       a minimum number of samples.  In order to complete the  
8       program we have to accomplish that minimum number of  
9       samples.  Some of our baseline inspection procedures have a  
10      band of samples recommended so it'll say do, for instance,  
11      between, I don't know --

12                   MS. STONE:  6 and 8.

13                   MR. KOZAK:  Yes, between 6 and 8 samples a  
14      year.

15                   CHAIRMAN SIEBER:  That's probably not relevant  
16      for the impact that --

17                   MR. RAY:  So if we're doing a minimum number of  
18      samples, that would be six.  However, if we were saying  
19      we're doing the minimum number of samples, that would  
20      usually be based on the resources that we have available.  
21      Our Region, as you know, has had a lot of challenges with  
22      Davis-Besse and Point Beach, which requires us to spend a  
23      lot more resources over there, which in turn affects other  
24      plants.  That's just the way it is.

25                   But we make sure that we complete the minimum



1 required samples in the procedure. And the band isn't that  
2 large. So it's not like we're going in and inspecting  
3 twice as much at one site.

4 CHAIRMAN SIEBER: I understand. Thank you.

5 MR. RAY: Any other questions on that? I think  
6 that's it on that subject.

7 MR. KOZAK: We didn't have a lot more prepared.  
8 Mag indicated that you may want to have some questions for  
9 us on the ROP as -- Steve, Senior Resident, if there's any  
10 other issues you want us to cover, we'll be happy to do  
11 that.

12 MR. ROSEN: Yes, I think, just kind of follow  
13 up from our last meeting, I guess we were in Region 2 in  
14 Atlanta --

15 CHAIRMAN SIEBER: No, 3 and 1 was the last.

16 MR. ROSEN: I got the sense from talking at the  
17 previous regions that the SRA's really felt swamped. It  
18 may have been part of the start up with the ROP. What is  
19 your sense now in terms of the feedback you're getting from  
20 the inspectors? And are you able to keep up?

21 MR. RAY: I would say right now that we're  
22 doing a pretty good job. Personally, I don't think we're  
23 supporting the inspectors as much as we would like. And I  
24 say that in regard that we have certain things we need to  
25 do. We look at assessments, Management Directive 8.3 when

1 there's a transient in a plant. We'll look at every one of  
2 those and try to understand the risk significance and  
3 importance in that regard.

4 We'll try to determine whether, from a risk  
5 perspective, that we need to have a special inspection. We  
6 have a piece to that. We look at it deterministically and  
7 we look at it probablistically. So we have a piece there.  
8 We also have, every finding that we have, if we have a  
9 performance deficiency associated, the SRA's are required  
10 to look at the risk characterization to support the  
11 inspectors.

12 And what we're trying to do and I think where  
13 we have challenges is doing a better job in planning,  
14 trying to help the inspectors focus the resources on those  
15 risk significant system component, what are the direct  
16 activities. And I think it's across the board. Different  
17 regions do it more effectively and they balance that. And  
18 that's where we want to try to put some additional  
19 resources.

20 And when we have some of the mandatory things,  
21 NOED's and SURP's, our risk significant or our enforcement  
22 actions, I think we're maintaining a pretty good job there.  
23 We're meeting our schedules. We're meeting our activities  
24 and planning. But we need to do a better job or we need to  
25 do a better job in focusing on the inspections and

1 supporting the inspectors.

2 MS. WESTON: How might the proposed MSPI impact  
3 that --

4 MR. RAY: I think it'll have a significant  
5 impact, specifically as I pointed out earlier up front,  
6 it's going to take one to two weeks during the temporary  
7 instruction, or at least the way it was originally  
8 proposed. And you multiply that out. We have a fire two  
9 unit plant and it was believed that one week inspection  
10 prep for the TI, for a single unit site. Two weeks for a  
11 two unit.

12 And if you look at that, that's a significant  
13 impact because we anticipated that we would have an SRA  
14 supporting each one of those. And that would take us away  
15 from the, some of the other activities that we have. And  
16 currently the region is looking at whether we need  
17 additional SRA resources. And so I think there's a  
18 decision made to, at this point, to over hire additional  
19 SRA's.

20 So we've been trying to think ahead and plan  
21 ahead in that regard and I think management's done a very  
22 good job in dealing with that.

23 CHAIRMAN SIEBER: One of, one of the issues  
24 that has been around for the last few years is the  
25 timeliness of the higher level SPP results. And it seemed

1 to me the last time I looked at that that we still weren't  
2 meeting the time goal.

3 MR. RAY: We have a lot of challenges in that  
4 regard. And a lot of it has to do with the process. We  
5 have a finding. We have an inspection reports that come  
6 out quarterly. So that's 90 days. Our timeliness is 90  
7 days. And so unless it's under a special inspection  
8 report, there are things there. And then if the licensee's  
9 not willing to support us, that presents a challenge.

10 And in that regard, we have a lot of things  
11 that are causing problems for us. Most licensees in our  
12 region only have a Level 1 PRA. They don't have a size-  
13 mate. They don't have a shut down. They don't have a  
14 transitional risk. We only have two or three plants in the  
15 region that have fire puree. So where I'm coming from is  
16 it's a significant challenge that we, the NRC, don't have  
17 those models either.

18 Our SPP process requires us to do an  
19 evaluation. It can be qualitating, such as a fire. If we  
20 can demonstrate that we still have a safe shut down plant,  
21 we can make some arguments that we have one or two, it  
22 didn't affect the safe shut down, in other words. So we  
23 can make some qualitative argument. But if the licensee is  
24 not willing to play, then it's hard to get that information  
25 and get it out in a timely manner.

1                   CHAIRMAN SIEBER: Do you have an analytical way  
2 to determine fire risk or the significance of the fire risk  
3 in a finding?

4                   MR. PARKER: Right now, without having a fire  
5 model ourselves, without having the licensee have it, we  
6 still have significant challenges and the NRR is still  
7 working on some screening tools for us on how to deal with  
8 that. Our tool requires us right now, Manual Chapter 0609  
9 of the SEP says that if we have any finding that's a border  
10 line green, meaning that it's 180 to minus 7, that we need  
11 to evaluate it because external events, fire, size -- could  
12 all increase potentially an order of two magnitudes. So we  
13 need to evaluate that.

14                   And that's where we're having our challenges on  
15 that tool is without having the tools to do that, we put  
16 this, an integral part of the process, but our  
17 infrastructure and the utilities infrastructure hadn't  
18 moved quick enough to support that.

19                   The other challenge we have is if the utilities  
20 decides they want to have a reg conference, a regulatory  
21 conference to challenge our characterization, then that  
22 adds another 30 to 60 days, depending on scheduling,  
23 getting them in, having the meeting and then trying to  
24 decide whether that materially affected it. So that's all  
25 part of that 90 day process, which puts an additional

1 burden on us meeting our goals.

2 DR. FORD: But if the utility doesn't have a  
3 good PRA for fire or something like that and you have a  
4 finding and are trying to evaluate it, and you use your  
5 best judgment and have some arguments, it's going to be  
6 hard for them to contest it. They can use arguments that  
7 are different than yours and can test the qualitative  
8 argument. But in the end, you know, someone with a  
9 calculation and a number is powerful, a lot more powerful  
10 than just saying I think this.

11 If I'm the licensee and all I got is what I  
12 think and you got what you think, I guess you're in a  
13 commanding position to say, well, we're the regulator. You  
14 haven't done a lot of homework in this area. You're just  
15 coming in with your assessment. And we believe ours.

16 MR. PARKER: And that's true in a lot of cases  
17 but your point earlier that you make the worst assumption.  
18 We can't assume all of the ECCS equipment is in that room.  
19 You know you have division and stuff. So you have to  
20 provide the best reasonable, realistic argument you can.

21 DR. FORD: Well, reasonable sure, but --

22 MR. PARKER: And that's the difficulty. In  
23 some cases this has been transferred to NRR through a  
24 temporary or a TIA asking for their assistance. They don't  
25 have the resources. So fire issues specifically, it's

1       contracted out, in some cases to San Dia, and that may be  
2       another 90 day or 100 days, 200 days to get San Dia to do a  
3       risk assessment. It is a significant expense for the  
4       Agency.

5                   CHAIRMAN SIEBER: And the eyes and ears that  
6       tell you what equipment is there and what's impacted and  
7       what the distances are and so forth is the resident  
8       inspector. So I presume that periodically he gets a phone  
9       call saying I need to know this additional information to  
10      complete the analysis. Is that the way it works?

11                   MR. PARKER: Yes, for fire protection, yes?  
12      Any SPP issue we'd be working with senior residents or  
13      residents trying to obtain that information that they're  
14      basically the eyes and ears. They have that. They have  
15      maybe a better perception of it in some cases, trying to  
16      get a feel specifically if we have to do an HAA analysis  
17      because they believe it's reasonable. Is the room going to  
18      have smoke in it? Can they accomplish that? So we work  
19      very closely with the residents and the inspectors on their  
20      findings. It's quite a challenge.

21                   But back to your point again, if the utility,  
22      in some cases the burden is the utility will not play up  
23      front. So the burden is on us to make our best judgment.  
24      We could have spent 60 to 90 days to do that. Now, all of  
25      a sudden, the utility sees its potentially risk

1 significant. Now they want to do the homework.

2 So, now what it is is we have the reg  
3 conference and that additional time for them to provide us  
4 information is impacting us. So we have to make a  
5 concerted decision. Do we want to move forward or do we  
6 want to give them ample time to provide us that  
7 information?

8 CHAIRMAN SIEBER: Sometimes the licensee finds  
9 that it's not easy being --

10 MR. PARKER: Yes.

11 CHAIRMAN SIEBER: It doesn't get excited until  
12 the time is running out.

13 Let me ask you this. You talk about perhaps a  
14 reluctance on the part of licensees to share information up  
15 front. How many times have you had to go percentage wise  
16 to a spar model because a licensee didn't have continual  
17 access to the PRA, their plan?

18 MR. PARKER: Generally the approach that we use  
19 is we'll start out with the work sheets, and that's done  
20 with the inspectors. If that shows potentially risk  
21 significant, then we'll start working on it from there.  
22 But in every case that we've had a cert, I will do the spar  
23 model and try to do my own. And at that point I try to  
24 communicate with the utility to see what they've done.

25 And if we don't get or let's assume we get



1 agreement. If we get agreement then we move forward with  
2 exactly where we are, that the work sheets the inspectors  
3 provided and the spar model get consistency with the  
4 utility. We'll go forward with that characterization  
5 without any additional effort.

6 If the utility has a disparity between us,  
7 they're showing green, we're showing gray, then we try to  
8 appreciate that difference, no matter how big it is, to see  
9 what's driving it. Is it our tool? A third tool? And  
10 where do we go from there.

11 So we've always, at least in this region, are  
12 giving them ample opportunity to communicate with us up  
13 front.

14 CHAIRMAN SIEBER: But the spar models have been  
15 benchmarked to the utility's PRA to the extent that it's  
16 possible, right? That's part of NRR's --

17 MR. PARKER: All of them except for Perry, and  
18 we just did Perry two weeks ago. So we should be getting  
19 that on the street within the next month or so. But all of  
20 them in Region 3 and I think across the country.

21 CHAIRMAN SIEBER: So you ought to get  
22 reasonably the same answers.

23 MR. PARKER: Yes, you're right. We would hope  
24 so because the benchmarking we took maybe 50 component  
25 systems and we ran through and tried to make sure we got

1 consistent results or understand and document any  
2 disparities.

3 Yes.

4 CHAIRMAN SIEBER: So I take it based on all of  
5 that you feel pretty comfortable that by the time you're  
6 done with the process you get the correct answer, the  
7 correct power?

8 MR. PARKER: Yes, yes, we do. We have had  
9 challenges in the spars in the past and we're hoping now  
10 that the benchmarking gives better correlations.

11 CHAIRMAN SIEBER: Okay.

12 MR. PARKER: Thank you.

13 CHAIRMAN SIEBER: Any other questions from any  
14 of the members?

15 MR. KOZAK: Okay, we've got about five minutes  
16 left.

17 CHAIRMAN SIEBER: Okay, go ahead.

18 MR. KOZAK: We already touched upon MSPI.

19 MS. STONE: I can sit here? Our first slide  
20 here discusses the implementation concerns that we have  
21 here in Region 3. First bullet there is performance  
22 deficiencies are to be evaluated through the SDP. We had a  
23 public meeting with industry on May 26th. And at that time  
24 there was some agreement that we would be using the SDP  
25 with the MSPI. Again, we stressed at this meeting that the

1 decision to keep or eliminate the SDP, further questions on  
2 whether we keep or eliminate the SDP we had to re-evaluate  
3 our outstanding technical issues.

4 The reason, one reason why it's important to  
5 keep the SDP is there's a number of fundamental concerns or  
6 problems with the ROP philosophy and enforcement if we use  
7 the MSPI. If we do not, if we use the SDP most of these  
8 concerns will, you know, will be eliminated. One of the  
9 concerns, for example, is how to handle enforcement. With  
10 the MSPI it's possible for a, depending on how the MSPI is  
11 tracking, it is possible for something that is really not  
12 significant to cross into a white boundary. Whereas if we  
13 evaluated under an SDP, it would be green. So there's a  
14 potential discrepancy there.

15 As well as in the opposite direction. If we  
16 invoke what's called the Front Stop, a risk significant  
17 failure of a component, if we invoke the Front Stop the  
18 MSPI would be green whereas if there was performance  
19 deficiency associated with it, the SDP would be, you know,  
20 higher than green.

21 CHAIRMAN SIEBER: Now, correct me if my  
22 understanding is wrong, PI's stand on their own and a  
23 greater than green PI finding would not be evaluated using  
24 a bowl of SDP's. Whereas inspection findings are all  
25 evaluated using the SDP process. Is that correct?

1 MS. STONE: All performance deficiencies are  
2 evaluated through the SDP. It is possible for a  
3 performance deficiency to both impact the SDP and the PI.  
4 If both resulted in color, for example, if the SDP, the  
5 performance deficiency is white, for example, and it  
6 happens that the PI is white, the ROP currently has a, we  
7 can evaluate that. We don't have a double counting  
8 mechanism.

9 CHAIRMAN SIEBER: Well, my concern would be if  
10 the PI was white, the SPD was green. How do you handle  
11 that? And it is possible you can --

12 MS. STONE: It is possible. We have that  
13 situation at, in fact, at Braidwood where the auxiliary  
14 feed water system for one of the units, because of its  
15 history, the key eye is white. However, each individual  
16 performance deficiency that comes up is evaluated to the  
17 SDP. It is possible for it to be green.

18 CHAIRMAN SIEBER: If I go to the web site,  
19 though, that white PI will show up.

20 MS. STONE: That's correct.

21 CHAIRMAN SIEBER: And so that overrules what  
22 the SDP would have said about evaluating that white finding  
23 unless you have an inspection finding that has more issues  
24 in it, the SDP determines something different. Am I  
25 confused or have I continued to confuse everyone else?

1 MS. STONE: The SDP is looking at one event,  
2 one occurrence, one performance deficiency. Whereas a PI  
3 is looking over a period of time.

4 CHAIRMAN SIEBER: History.

5 MS. STONE: Yes. When the MSPI was first  
6 developed, first presented, the idea was that the MSPI  
7 would replace both the SDP and the SSU. We have, we have  
8 problems with that. And as I said, the May 26th meeting  
9 there was a decision to go forward where the MSPI would  
10 replace just the SSU.

11 MR. ROSEN: Will the industry, what was the  
12 industry's reaction to that?

13 MS. STONE: They have agreed to that.

14 MR. ROSEN: They have.

15 MS. STONE: I say that they agreed that the, in  
16 an effort to move forward, the MSPI would replace the SSU.  
17 The decision as far as is that all the time for trial  
18 period, that has not been developed yet.

19 MR. ROSEN: It sounds like you're resolving  
20 some of the key issues.

21 MS. STONE: We lessen the significance of some  
22 of the key issues. They are not resolved. For example,  
23 the Front Stop is still a technical issue that we need to  
24 -- I'm sorry?

25 CHAIRMAN SIEBER: It's an issue.

1 MS. STONE: It's still an issue that needs to  
2 be resolved. Using the SDP for performance deficiencies  
3 reduces the significance of it. But it's still an issue  
4 where a risk significant failure could occur and the Agency  
5 cannot react as it would have perhaps in another situation.

6 CHAIRMAN SIEBER: I think we're getting pretty  
7 close to our adjournment time. And what I would like to do  
8 is to thank everyone in Region 3 for your hospitality, for  
9 the work that I know you went through to prepare for our  
10 visit here. And I can assure you that your input to us is  
11 valuable and it's a perspective that we only gain once or  
12 twice or three times a year when we either visit licensees  
13 or the regional headquarters.

14 Nonetheless, to me I respect your opinions very  
15 greatly because this is where the rubber meets the road, so  
16 to speak. And I think your input to us and your input to  
17 NRR and the rest of the Agency is very important. And if I  
18 can do anything, I try to carry you, your thoughts and your  
19 messages forward so that they're considered by the resident  
20 and the Agency.

21 So I think every one of you who has  
22 participated and particularly Regional Administrator, Jim.  
23 I think the work that you have done is important. And so I  
24 wish you all God's speed. And it's a good thing if we  
25 don't come back for four years, I think. On the other

1 hand, since I was raised here, went to high school here, I  
2 never object to being sent to the wild Downers Grove area.  
3 So thank you very much.

4 MR. CALDWELL: Thank you. Well, I appreciate  
5 you taking your time in coming. I hope we've been  
6 responsive to your questions and issues. This is, like I  
7 said in the opening, a very good stab here to do a good  
8 job. So we appreciate the opportunity to show case our  
9 talents. I also want to make sure you understand that we  
10 work very well with the NRR and the other regions so that  
11 nothing we were trying to indicate here would show poorly  
12 on other organizations because we do work well with those  
13 folks.

14 And, in fact, we put a concerted effort in  
15 making sure of that. But we have some really strong  
16 inspectors aggressive and managers inspectors here. We  
17 take the mission of the Agency very seriously. And so I  
18 hope that came across today. And we appreciate you taking  
19 the time.

20 CHAIRMAN SIEBER: Not only that, we met a lot  
21 more of your folks and every one of them is a true  
22 professional.

23 MR. CALDWELL: Thank you very much.

24 CHAIRMAN SIEBER: And I think that this Region  
25 is blessed by having good people.

1                   MR. CALDWELL: Thank you. I'd also like to  
2 thank Tom and his work with Mag. They worked together to  
3 set this up. Tom's been working just about day and night  
4 to make sure we were all set up to go here. So we do  
5 appreciate his efforts.

6                   MS. WESTON: And I'd like to commend his  
7 efforts. He really, really made an effort to get this done  
8 even when I couldn't reach him because you all were in  
9 meetings all the time. So thank you very much for that.  
10 And also thank Patricia and Gail, both of whom were very,  
11 very helpful.

12                   MR. CALDWELL: Thank you.

13                   CHAIRMAN SIEBER: Okay, with that, I think I  
14 will adjourn the meeting. And again, thank you very much.

15                                   (Whereupon, the meeting was adjourned  
16                                   at 2:52 p.m.)

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