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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

Title: MEETING: PLANT OPERATIONS AND FIRE PROTECTION

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UNITED STATES NUCLEAR REGULATORY COMMISSION'S

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

JUNE 14, 2000

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

4 ***

5 MEETING: PLANT OPERATIONS AND FIRE PROTECTION

6

7 U.S.N.R.C., Region III

8 801 Warrenville Road

9 Lisle, IL

10 Wednesday, June 14, 2000

11 The committee met, pursuant to notice, at 8:30

12 a.m.

13 MEMBERS PRESENT:

14 DANA A. POWERS, Chairman

15 GEORGE APOSTOLAKIS, Vice-Chairman

16 JOHN J. BARTON

17 MARIO V. BONACA

18 ROBERT L. SEALE

19 JOHN D. SIEBER

20 GRAHAM B. WALLIS

21

22

23

24

25

1 P R O C E E D I N G S

2 [8:30 a.m.]

3 CHAIRMAN BARTON: Good morning. The meeting will
4 now come to order. This is a meeting of the ACRS
5 Subcommittees on Plant Operations and Fire Protection.
6 I am John Barton, Chairman of the Subcommittee on
7 Plant Operations, and Jack Sieber is Chairman of the Fire
8 Protection Subcommittee.
9 ACRS members in attendance are George Apostolakis,
10 Dana Powers, Mario Bonaca, Robert Seale, Robert Uhrig, Jack
11 Sieber, and Graham Wallis.
12 The purpose of this meeting is to discuss
13 selective technical components of the plant operations and
14 fire protection issues. The subcommittee will gather
15 information, analyze relevant issues and facts, and formally
16 proposed positions and actions, as appropriate, for
17 deliberation by the full committee.
18 Jit Singh is the Cognizant ACRS Staff Engineer for
19 this meeting.
20 The rules for participation in today's meeting
21 have been announced as part of the notice of this meeting
22 previously published in the Federal Register on May 24,
23 2000.
24 A transcript of the meeting is being kept and will
25 be made available as stated in the Federal Register Notice.

1 It is requested that speakers first identify
2 themselves and speak with sufficient clarity and volume so
3 they can be readily heard.
4 We have received no written comments from members
5 of the public.
6 We will now proceed with the meeting, and I call
7 upon Mr. Jim Dyer to begin.
8 MR. DYER: Thank you, Mr. Barton. Good morning.
9 Welcome to Region III. I'm Jim Dyer, I'm the Regional
10 Administrator for the Regional Office. With me here today
11 are Mr. Marc Dapas, who is the Deputy Director of the
12 Division of Reactor Projects; Mr. Jack Grobe, who is the
13 Division Director, Division of Reactor Safety; and, Mr. Jim
14 Caldwell, who is Deputy Regional Administrator.
15 Also, throughout the day, we've scheduled an
16 agenda, which copies are available for the public over by
17 the coffee pot and as you come into the conference room, and
18 the various members of the staff will be addressing the
19 subcommittees today, based on the information we understand
20 that you request, and if you want additional information,
21 we're very flexible. We'll try to get anybody who is here
22 on the staff to answer your questions or present anything in
23 particular you wish to address.
24 I think, going to my first slide, a little
25 background about Region III. This was the recent addition

1 to the package, so we'll have copies made. But just Region
2 III encompasses an eight-state area involving, on the
3 reactor side, involves 16 operating sites, 24 operating
4 reactors, and those are the people sitting at the table
5 right now, particularly Mr. Grobe and Mr. Dapas, have the
6 principal responsibilities for safety oversight in those
7 areas.
8 We also have a Division of Nuclear Materials
9 Safety and Division of Resource Management and Assessment.
10 Our reactors are relatively close to each other in
11 the eight-state region and particularly in the State of
12 Illinois, and it makes convenient travel from the Region III
13 offices here in Lisle.
14 CHAIRMAN BARTON: Something that can't be said
15 about travel to here.
16 MR. DYER: Yes. Just a little overview about the
17 regional organization, and I can make some introductions of
18 the folks, the staff.
19 What I really want to just focus on is the upper
20 half of the chart we provided you here. For our
21 presentation here, what we plan to do is I was going to go
22 through the overall regional organization and then allow the
23 division directors, particularly the Division of Reactor
24 Safety and Division of Reactor Projects, to go into their
25 more detailed reviews of their staffing and how we're

1 organized to manage our safety responsibilities here in the
2 region.
3 I guess, first of all, we are organized with four
4 divisions, three technical divisions; that is Division of
5 Resource Management, the Division of Nuclear Materials
6 Safety, Cindy Pederson is out today, and we didn't plan on
7 her participating. They do have some responsibility for the
8 decommissioning reactors. So if you have any questions that
9 go into that arena, we'll bring somebody down to discuss
10 that with you.
11 Additionally, Mr. Grobe, Division of Reactor
12 Safety, and in my oversight and role, the way I look at the
13 way the region operates is somewhat of a matrix organization
14 between DRS and DRP. I view the Division of Reactor Safety
15 as the functional experts in the various areas. So their
16 responsibilities are in the operations, engineering, plant
17 support areas, radiological protection, fire protection, and
18 that.
19 In those areas, they're responsible for looking at
20 specific areas across all of our 16 operating reactor sites.
21 So for the case of operator licensing, they're responsible
22 for overviewing of the operator licensing and operations
23 inspections, team inspections, and calibrating safety
24 assessment at all 16 sites across that one functional area.
25 Then separately from that is the Division of

1 Reactor Projects, which is organized by reactor assignments
2 to the various sites, under Mr. Dapas and Mr. Grant, and
3 these are organized more in lines with projects.
4 They're our generalist inspectors and basically
5 they are responsible for everything that goes on at that
6 site. So within the region, if a particular event occurs or
7 a particular issue comes up at a site, there should be two
8 points of contact that have cognizance over that area.
9 One, the DRP point of contact from a generalist
10 view, because it affects that site and you can integrate the
11 impact of the assessment across all the functions at that
12 site and put it in that proper context.
13 The second would be from the functional area
14 review and taking a look at, from Mr. Grove's DRS point, how
15 does this -- what are the lessons learned, how are we
16 consistent across all of our 16 sites in the way we're
17 treating that area.
18 So that's the general oversight of how the region
19 is orchestrated and integrated. In particular, the key
20 aspect of regional activities that establishes and
21 identifies the issues we're going to follow up is at 8:15
22 every morning, we conduct a review of plant events and plant
23 status. Normally, it's in this room. This morning it was
24 taking place in our other conference room down the hall on
25 the third floor.

1 But in that meeting, we will go through any
2 reported events for the night and any emerging issues that
3 come from the sites, from the resident inspectors, we bring
4 them up and put them on the table and discuss what is our
5 response going to be to those activities.
6 CHAIRMAN BARTON: So is this organizational
7 structure you described pretty similar in all four regions?
8 MR. DYER: It's identical in all four regions.
9 It's just my concept of operations, if you would, as to how
10 they -- other regions may decide to do things differently.
11 We all have morning meetings, but we all have some
12 differences as to how we would approach a morning event or
13 an emerging issues.
14 CHAIRMAN BARTON: Thank you.
15 MR. DYER: I think a little bit about the Regional
16 Administrator staff; in particular, this is also similar to
17 all the regions. Of most interest to you is probably our
18 area of enforcement and allegations. If there are any
19 questions that would come up regarding -- by the
20 subcommittees today. Mr. Brent Clayton is here this morning
21 and he is available, if you have any questions, or he is
22 going to spend some time this morning and we'll bring him
23 back or we'll get a member of his staff, if there are any
24 questions about the allegations or the enforcement
25 activities that we have going on here in the region.

1 Additionally, we also have an Office of
2 Investigations, which is similar in all regions, a Public
3 Affairs staff, and then a Regional State Liaison Officer.
4 Mr. Roland Lickus had to take his son to a doctor's
5 appointment this morning. He is going to come in a little
6 bit later.
7 I think what is unique to Region III is our
8 relationship with the Illinois Department of Nuclear Safety.
9 I'm convinced there is no state that has the extent of
10 nuclear oversight that the Illinois Department of Nuclear
11 Safety has with their resident inspectors at all the six
12 sites that are operating in Illinois and their extensive
13 emergency planning and incident response capabilities.
14 If you care to discuss our relationship or how we
15 interact with Illinois Department of Nuclear Safety, Roland
16 is probably the best person to talk to with that.
17 Additionally, we have a regional counsel, who is
18 in our -- spends a lot of his time involved with reactor
19 enforcement cases, and particularly, now that recently we
20 have had a lot of discrimination issues that have taken a
21 lot of our time and have been a challenge.
22 So that's the basic overview of our organization
23 here, from a regional administrator's level. I guess I
24 would ask if there are any questions.
25 DR. POWERS: I guess one thing that has just

1 emerged for the committee is we're anticipating getting a
2 power upgrade application from Guianardo, rather substantial
3 one. So any thoughts you have on that power upgrade that
4 you think we ought to know about would be useful, if there
5 is a chance during the day.
6 MR. DYER: Okay. You're going to have the senior
7 reactor analysts later on the day and I know they may be
8 more informed. I know Mike Parker was out there with
9 Research and did some walk-downs.
10 DR. POWERS: I think we would be interested in thoughts
11 about are there synergistic effects associated with going to
12 power upgrades and high burn-up fuels in an aging plant.
13 Things like that. It's the first of what we see of many
14 rather substantial power upgrades. I hesitate to quote the
15 exact amount, but it's about 15 percent power up rate, which
16 would mean they're about 20 percent of what they had in the
17 past.
18 MR. DYER: We can certainly comment on the impact
19 that has on the inspection program. But the technical
20 viability, NRR reviewers get involved.
21 DR. POWERS: Sure. And insights that you have
22 that are peculiar to you that we would be most interested
23 in.
24 MR. DYER: And Commonwealth Edison is also looking
25 at what I consider to be rather substantial power up rates

1 for both the Quad Cities and the Dresden stations.

2 DR. POWERS: I think there's going to be a covey

3 of them coming in.

4 DR. SIEBER: Speaking of coveys. You've had the

5 privilege or honor or whatever of not being involved in the

6 first sub-group of license renewal activities and perhaps it

7 would be more appropriate to address this question for

8 Regions I or II, but I don see any of them here.

9 How do you anticipate a license renewal

10 application would impact the regional activities?

11 MR. DYER: Quite frankly, I don't think it is

12 going to impact. We'd love to have one. Right now, we

13 don't have any takers. I think Commonwealth Edison is --

14 both Commonwealth Edison and the management company, which

15 formed Duane Arnold, Monticello and that, are both talking

16 about it, but --

17 DR. SIEBER: No one has committed yet.

18 MR. DYER: Nobody has committed and I think

19 they're at least six months away from doing that. I know

20 that we really haven't taken a look at that for license

21 renewal.

22 MR. GROBE: We can talk in a little bit more

23 detail when we get into the details of how my division

24 operates.

25 MR. DAPAS: I think, in summary, though, it's

1 probably relatively transparent to the new inspection
2 program.
3 DR. SIEBER: I had one other question. Are any of
4 the people out here representing the public as opposed to
5 members of your staff?
6 MR. DYER: They are all our staff.
7 DR. SIEBER: Okay.
8 MR. DYER: All of which I believe may be giving
9 you presentations later today.
10 DR. SIEBER: Okay. I was just curious.
11 MR. DYER: Okay. Next slide, please. Following
12 up, I think that a few of the activities that we've recently
13 completed or are in the process of completing that may
14 provide some areas for later discussions, of course, is some
15 of our more recent regional accomplishments.
16 We did implement the pilot program at both Quad
17 Cities and Prairie Island. I think in particular, it was a
18 unique relationship, particular with the Quad Cities sites,
19 in that it involved integrating the Illinois Department of
20 Nuclear Safety into this program.
21 We conducted the training here in this room, in
22 fact, and brought all the Illinois Department of Nuclear
23 Safety folks in to cross-train them. Secondly, Quad Cities
24 had some unique performance indicator verification issues
25 and it really opened up, I think for the industry and the

1 NRC, an understanding as to just how many different ways you
2 can calculate performance indicators.
3 And as a result of that, Commonwealth Edison
4 really took the lead, I believe, for the industry to
5 solidify and come up with a common way of doing it.
6 I think Oliver Kingly, at our last review, made
7 the comment that he says he never realized that they had
8 seven different ways of calculating EFTY within the
9 Commonwealth organization, and depending on which
10 organization you asked, as to how much reactor burn they've
11 done, they have a different way of calculating it.
12 So it was those kinds of things, and the same
13 thing with how they recorded availability. It was
14 interesting.
15 DR. POWERS: The NRC seems to have about seven
16 different ways of calculating availability, depending on
17 what rule you go to.
18 MR. DYER: We have transitioned to the new
19 oversight program at all our sites, with the exception of
20 D.C. Cook. I would like to add that while you were in
21 transit yesterday, I signed the D.C. Cook 0350 closure
22 letter. So D.C. Cook is -- the closeout has been done and
23 now they're in the process of heating up and testing their
24 systems in mode three and trying to wrestle with a problem
25 with the turbine-driven aux feedwater pump this morning.

1 But they will be the final plant to transition
2 after the restart of Unit 1, and that will be later this
3 year.
4 CHAIRMAN BARTON: When do you see them fully under
5 the new oversight process?
6 MR. DYER: Jack probably has the best -- I was
7 asked that at the Commission meeting, and I would say about
8 six months after startup.
9 MR. GROBE: One of the things that we have to
10 consider is how effective the performance indicators are
11 before we transition them back to the regular oversight
12 program. That's been shut down for almost three years. So
13 there is no valid performance indicator data, with the
14 exception of maybe in the health physics and emergency
15 planning areas.
16 So we'll be looking at the performance indicator
17 data and turn the plant back to the routine inspection
18 program as soon as we feel comfortable that the way the
19 program is structured, we can effectively monitor the plant
20 performance.
21 CHAIRMAN BARTON: Thank you.
22 MR. DYER: We completed our PPR reviews for the
23 end of cycle on the pilot plants and also did some mid-cycle
24 reviews for the other plants, just to get them going in. Of
25 note, as a result of the review, we, believe, are the only

1 region, and we have two yellow performance indicators within
2 the region, Kewaunee, alert notification system and siren
3 system is in a yellow status, and we completed the 95-002
4 inspection, which is the supplemental inspection at
5 Kewaunee.
6 Additionally, Quad Cities, the HPCI system went
7 into a yellow status because of availability on an auxiliary
8 oil pump, and we can discuss those. We have not done any
9 supplemental inspections or held the public meetings yet
10 with respect to the Quad Cities plants. That was just a
11 recent issue.
12 Again, implementing the revised enforcement
13 process, and if there are any questions, Brent Clayton is
14 available in that arena.
15 Some of the areas -- one of the areas that's been
16 a major shift here in the region and a major focus is -- I
17 don't know if you know of the RIT system, which is our cost
18 accounting system, which is used as the basis to budget our
19 resources. We have found that we have not been accurately
20 recording our costs and things that we thought were going in
21 one of the cost bins, such as follow-up inspections or plant
22 assessment, were, in fact, going in a completely different
23 bin, some of our SRA training time.
24 So we've wrestled with our cost accounting system
25 and it's clear that under the new budget constraints and

1 that, that we are going to have to become better managers of
2 our resources and understand what our budget resources are
3 and what the plans are that we're doing.
4 DR. SIEBER: Does that affect the licensee
5 billing?
6 MR. DYER: It turns out that licensee billing was
7 about the only thing we did right, as far as the inspection.
8 We were very good with inspection reports, but there's a lot
9 of non-direct costs. That would be plant assessments,
10 follow-up on technical issues, things like that that we were
11 getting coded to other administrative duties and things like
12 that.
13 So it sort of skewed our model and didn't capture
14 accurately what the costs of how the region did business,
15 and we've subsequently gone back and cleaned it up. So
16 hopefully for the rest of this fiscal year, we should.
17 But fee billing was it -- the inspection efforts,
18 the direct inspection, as well as prep and doc for the
19 inspection reports was pretty much -- that was done well.
20 DR. SIEBER: Is it fair to say that the net effect
21 of all of this was to tend to put more time or more pressure
22 on the administrative rather than the programmatic side?
23 MR. DYER: Yes. The real impact was on -- we
24 receive resources for plant assessment. By and large, those
25 were under-billed, those resources, and administrative was

1 over-billed.

2 DR. SIEBER: That can be embarrassing in the long

3 run.

4 MR. DYER: As you'll find out later on, we've had

5 -- when I first got here a year and a half ago, we had, I

6 believe, six plants that were receiving enhanced oversight

7 under 0350. Every one of the managers at this table was

8 overseeing either Commonwealth Edison or at least one or two

9 of the facilities that were preparing to restart.

10 And when the budgets -- and the staff was

11 similarly supporting all those activities. And when the

12 cost data came back and we were budgeted six and a half FTE

13 for plant assessment, and we spent two and a half, which

14 just didn't make sense.

15 So we knew something was up. Everybody was

16 spending all their time in 0350 panels and oversight and

17 when the cost data -- that's when we started looking as to

18 why we did it and what it was was we had some old cost codes

19 that we had been using for years and they were translating

20 to some sort of different -- so it's caused a -- it's been a

21 rather substantial effort.

22 Again, we made also a focus on improving our

23 communications, enhancing them, particularly to get the

24 implementation of the new oversight program. There's more

25 rumors flying around about the program, as any time you go

1 through a significant change.

2 We've held monthly meetings, enhanced meetings,

3 with the divisions and have done some very good training. I

4 think it's paying off now. I think the folks at the working

5 level that are actually leading the change and the

6 transition and they are the ones that have the best concept

7 of what's going on at the plants.

8 CHAIRMAN BARTON: I want to ask you a question.

9 MR. DYER: Sure.

10 CHAIRMAN BARTON: Regarding that. If I were a

11 "good plant" in this region, as defined by you folk, now

12 under the new oversight program, with the baseline

13 inspection program, would I be receiving more or less

14 inspection hours?

15 MR. DYER: Absolutely more. I have a slide. I

16 can diverge from that, if you want to.

17 CHAIRMAN BARTON: We just heard that yesterday

18 loud and clear as a complaint. So we wondered whether it

19 was true or whether we were just hearing a story.

20 MR. GROBE: We are going to talk about that

21 specific aspect in some more detail.

22 CHAIRMAN BARTON: Okay. Good.

23 DR. POWERS: The question has some things to it in

24 that it may be true now, but it is going to be true once

25 you're in a more steady-state on the inspection program.

1 MR. DYER: Right. We are probably the extreme
2 region for that concept, but --
3 MR. GROBE: The reason for that is that under the
4 old program, we had some flexibilities, and we'll get into
5 that in detail. We had a number of problem plants and I
6 don't remember the total numbers, but it was upward, over a
7 period of years, 20,000 inspection hours at D.C. Cook,
8 similar at Clinton and other sites.
9 So a plant like Davis-Besse, which was one of our
10 better performers, under the flexibility of the old program,
11 got significantly fewer hours.
12 The baseline, the risk-informed baseline is
13 intended to establish not a ceiling, but a floor, and that
14 floor is higher than what Davis-Besse got in the past.
15 MR. DAPAS: And we'll explain why there was that
16 flexibility under the old program and relative to the new
17 program.
18 DR. POWERS: I mean, I guess the question that
19 comes to mind is why shouldn't there be that flexibility. I
20 mean, if you're going to have problem plants, and you are on
21 occasion going to have those, why shouldn't you put your
22 resources where the squeaky wheel is and let the guys that
23 are doing a pretty good job --
24 MR. DYER: Well, I think it's a little more
25 complex than that. We're going to get into it. We have

1 about an hour set aside for this.

2 And let me just close out. Part of the issue is

3 that -- I'm quite pleased and, Jack, you couldn't wipe the

4 smile off his face, but the fact that yesterday was the

5 final closeout of our 0350 process and our formal restart

6 0350 process for D.C. Cook is -- that has been a -- that is

7 a significant impact on the region and that's the final one.

8 As I said when I got here, we were doing it with

9 LaSalle, Quad Cities had just started up, we had Clinton, we

10 had Cook, Peach Bottom, Point Beach wasn't that far away

11 from restart. So there was a number of -- we have literally

12 been focusing from plant to plant.

13 And last year at this time, the great fear was

14 that if Clinton kept delaying and LaSalle kept moving their

15 schedule up, it looked like both of them were going to

16 restart within a week of each other. They subsequently

17 restarted about a month apart. So that was a great relief,

18 because a region literally cannot handle two restarts

19 simultaneously of problem plants coming up.

20 So now we're poised to do the D.C. Cook restart

21 and we are getting resources from all the other regions in

22 order to support the final closeout of the inspections, as

23 well as the actual startup.

24 CHAIRMAN BARTON: But with Cook coming back, that

25 will only help the stability question in this area.

1 MR. DYER: I believe it actually helps more the
2 northeast, because it's the tie lines. When Commonwealth
3 Edison came back, Chicago was flush and the last time I
4 talked to Oliver Kingsley, it looks like they could actually
5 have excess power. What they want to do is it get to the
6 northeast, where there's a need for power, and the tie has
7 been right there at D.C. Cook. They have been able to route
8 power through that intertie out of the main grid.
9 So they've actually been wheeling power south and
10 then back up.
11 DR. SIEBER: Or it would go through Canada.
12 MR. DYER: Right.
13 DR. SIEBER: To what extent does headquarters hold
14 the region accountable when a plant -- I'll speak louder.
15 To what extent does headquarters hold the region responsible
16 or accountable if a plant emerges as a problem plant?
17 MR. DYER: Well, you have to take a look at how
18 did it occur and it's more you do a root cause analysis, if
19 it's caused by an event; you know, should we have found it
20 earlier, and done that.
21 I don't think it's any kind of fingerpointing or
22 blaming as a result of that, but it always causes you to
23 reflect. And I can say it's not only just the region that
24 has the problem plant.
25 When the Commonwealth Edison problems came up and

1 the Cook problems came up, and Millstone, even when I was in
2 Region IV as Deputy Regional Administrator, we were all
3 looking could that happen here. It's a general --
4 DR. SIEBER: Do you think the oversight process
5 will help you identify precursors to problem plant issues
6 more so than the old inspection program?
7 MR. DYER: I don't that the oversight process will
8 help the NRC identify it. I think the deregulation is going
9 to force the commercial nuclear industry to take a greater
10 role in fixing, and the cost, the main cost in production,
11 those areas, the pressures that they now feel are far more
12 than what the NRC used to put on them.
13 They have to be a much more demanding manager now of their
14 plants in order to accomplish the shorter outages, in order
15 to bless the less than one reactor trip per year, on an
16 average now, in the industry.
17 That's not NRC-driven. That's economics-driven,
18 in my mind. And no matter how much I, as a regulator,
19 challenge the licensee to improve performance, it's going to
20 cost them a couple hundred thousand dollars a day now when a
21 plant goes off-line, that's making the difference.
22 So I think our critical focus is shifting to make
23 sure that they follow the prescribed processes and that
24 they're playing by the rules, if you would; that when a
25 system is inoperable, they declare inoperable and do the

1 right thing, as opposed to how are they fixing it. That's
2 the emphasis.
3 MR. GROBE: The new inspection program is more
4 indicative than it is predictive and that's one of the
5 concerns that we have in how we implement this, to retain
6 the ability to identify the early precursors of more
7 significant problems.
8 We're going to get into that in a lot of detail
9 with lessons learned on the new inspection program to date.
10 DR. POWERS: And if you find routes to prediction
11 under the new inspection program, we're going to be real
12 interested, because it really is an indicative program.
13 DR. SIEBER: One more short question. With all
14 the emphasis on cost-cutting and economical production, do
15 you see things like the plant material condition going up or
16 down, or programs being eliminated or consolidated to the
17 detriment of the whole program, or other issues that are not
18 being attended to that otherwise, in a more generous
19 economic situation, might be attended to?
20 MR. DYER: I guess from my perspective, I've seen
21 an investment in the plant. The thought of looking at
22 extending the life cycle, the prospects of doing that and
23 whatever they run, they've got to run well. Those are the
24 key things that we've seen.
25 Particularly, what we saw was a total focus, I

1 believe, from some of our plants is when they were shut down
2 under the 0350 process and trying to get restart, they took
3 a focus away from operations and they were focused on
4 getting the plant fixed, whether it was reconstituting the
5 design basis, modifying the plant to fix a long-term
6 problem, or doing whatever is necessary to get their
7 procedures and infrastructure effective.
8 There had been a lack of focus on maintaining the
9 operating crews and maintaining the plant in an operating
10 status net. So now that we've seen the plants once they
11 start up, there has been a shift toward that operational
12 safety focus, an increase in number of licensed operators.
13 In Region III, and I think Jack probably has a
14 better handle on the budget numbers than I do, but I think
15 we were looking at typically we were running between 30 and
16 50 exams a year and once Cook, Clinton and ComEd got up and
17 running, in the past year and a half, two years, there now
18 -- our number of licenses are upwards of 160, demand for us
19 to give 160 licenses.
20 So it's literally tripled our workload in a short
21 period of time. That's put a pressure on the region to get
22 a lot of qualified license examiners and borrow them from
23 headquarters and management, which is what Jack has done,
24 but that kind of a ramp rate, if you would, has put a severe
25 strain on the regional resources for that program.

1 But that's what we're seeing now, is an enhanced
2 focus on operations and an investment in the plant. So I
3 think almost all the plants are --
4 DR. POWERS: I was just going to comment in
5 response to your question about material condition. I think
6 under the new program, when you look at unavailability,
7 performance indicators, if the licensees are maintaining a
8 material condition, you would expect to see that manifested
9 in transients caused by equipment problems and challenges to
10 the operator.
11 So I think the new program has carved out a role
12 of ensuring that material condition is being maintained or
13 at least flagging to us that there are problems in that
14 area, and then we would go in and look at the licensees'
15 root cause evaluation and corrective actions as part of our
16 supplemental inspection of a particular performance
17 indicator threshold, for like system unavailability.
18 MR. GROBE: Jim and Marc are focusing primarily on
19 reactor operations and those issues that directly make
20 money. In some of the peripheries, we've seen some
21 problems; for example, in the security and safeguards area.
22 Commonwealth Edison substantially changed their approach to
23 event response and protecting the plant from a physical
24 threat and we just recently completed what is referred to
25 our OSRE, operational safety response evaluation, at Quad

1 Cities and they performed poorly.

2 They changed the strategy also at LaSalle and
3 Braidwood, significantly reducing the number of armed
4 responders, for example. And we have exercises there later
5 this month.

6 DR. SIEBER: So that was an issue involving the
7 security organization as opposed to operation involvement in
8 security.

9 MR. GROBE: And I think Jim's point on the
10 financial demands is really key. Those things that can
11 produce power and ensure equipment reliability are getting a
12 lot of attention.

13 DR. POWERS: I think we can say the same thing in
14 fire protection, because it doesn't generate kilowatts, it
15 may be getting less attention than some of the other things,
16 as well.

17 DR. SEALE: Not very well.

18 DR. SIEBER: Well, this is apparent or has been
19 apparent for some years. I've worked with LaSalle for a
20 couple of years and they had a lot of fire protection work
21 orders that had aged substantially and I see the same thing
22 on division valves at other sites and people say, well, as
23 long as the valve is open, we're okay, but if you rupture
24 the main, you may put the your whole system out, because you
25 can't isolate.

1 So I think that that often needs attention,
2 because it somehow jumps outside the risk-significant
3 portions of the plant, which are the CAT-1, structures,
4 systems and components.
5 MR. DYER: One other, on the same spin, I was just
6 thinking, you know, in the case of Clinton, was one of the
7 plants that was really run on a shoestring. It was a single
8 unit utility. I think we have seen a significant commitment
9 of resources and improvement and a change over there,
10 particularly since Amergen took over and purchased the site,
11 and it was shortly thereafter that they came out with a
12 business plan that included looking at license renewal as
13 opposed to the mentality when it was Illinois Power, which
14 was get the plant restarted itself.
15 So it was do what was necessary to restart the
16 plant, which it did not include training new operators.
17 DR. WALLIS: Do you find that consolidation of
18 plants under single owners is helpful then, in general?
19 MR. DYER: We've had limited experience with that.
20 The Amergen is the first one under, and now the management
21 company is just trying to formulate and they really haven't
22 had an impact yet.
23 Commonwealth Edison, we've had a seesaw
24 relationship with over the years. Right now, it's riding a
25 wave up and it's doing better. So I'm waiting to see.

1 MR. CALDWELL: I think the real answer to your
2 question, though, is it's going to be case specific. I
3 don't think you can make a generic statement about how
4 deregulation is going to affect all the plants. The
5 single-unit sites, if they don't have a lot of resources, it
6 may have a major impact. These sites that are now being
7 taken over by large companies, they can't afford to have the
8 kind of shutdowns that we've seen in the past, the
9 multi-year shutdowns.
10 So they're going to have to focus on making sure
11 the plants are properly maintained. So it's going to be up
12 to us to look at the different facilities and the different
13 situations they're in and to try and understand it. But I
14 don't think you can make a statement across the board that
15 it's going to have the same impact.
16 MR. DAPAS: That's one of the things the agency is
17 looking at is industry consolidation and there is a working
18 group that I'm involved in to understand what changes may be
19 necessary in certain program areas as a result of industry
20 consolidation.
21 DR. SIEBER: I don't want to ask too many
22 questions and get you off schedule.
23 MR. DYER: I think I've blown my schedule.
24 DR. SIEBER: I'm sorry.
25 DR. POWERS: We have a tradition of doing that.

1 MR. DYER: Yes. But what I was going to do is now
2 turn the meeting over to Jack Grobe and Mark Dapas and let
3 them got into more of the details of how the DRS and DRP
4 organization goes, consistent with our program.
5 MR. GROBE: We had some donuts delivered and, Dr.
6 Barton, do you want to just take three minutes?
7 CHAIRMAN BARTON: No, we're behind schedule. If
8 you want a donut, get up and help yourself.
9 MR. GROBE: Excellent. We've laid out an agenda
10 that I think that I think, we had coordinated with Jit, that
11 hopefully meets your needs. We've got about 65 slides to go
12 through, which our ability to do that is probably limited,
13 but our goal is to make sure that we answer all your
14 questions.
15 So I'm going to try to be a little bit of a
16 gatekeeper on the clock and move us along as we go.
17 But the first thing we're going to do is talk a
18 little bit about how we're structured, how we're
19 implementing the new program and some lessons learned on the
20 new program, and then invite Sonia Burgess up to talk about
21 our senior reactor analyst program. She's one of my SRAs.
22 MR. DAPAS: I thought I'd start out with kind of a
23 broad overview of our geographic responsibilities. You can
24 use the slides of you can go through the handouts we
25 provided, whichever is easiest for you.

1 But we are responsible for 24 operating reactors
2 at 16 sites, and that consists of 13 pressurized water
3 reactors and 11 boiling water reactors. As Jim said, our
4 responsibility encompasses an eight-state area. We've got
5 six sites in Illinois, two sites in Wisconsin, three sites
6 in Michigan, two sites in Minnesota, two sites in Ohio, and
7 one site in Iowa.
8 And as Mr. Dyer mentioned, it's relatively easy to
9 travel to any site. We can get to Prairie Island and
10 Monticello, which is near Minneapolis-St. Paul, Twin Cities
11 area, in a day; same thing with Duane Arnold, near Cedar
12 Rapids, Iowa. So that doesn't present the challenge that it
13 does to some of the other regions in terms of being able to
14 get to the sites.
15 The Division of Reactor Projects, or DRP, has
16 roughly 75 professional and administrative staff. Most of
17 the inspection staff in DRP has an engineering background or
18 a technical science degree. So we have a fairly
19 professional staff.
20 And we've organized the branches to provide
21 additional oversight to D.C. Cook; D.C. Cook, of course,
22 being an agency-focused plant. We've got one branch
23 dedicated to Cook, which results in the other five branches
24 have three sites apiece, and we thought that was appropriate
25 considering all the inspection activities and coordination

1 of our technical issue resolution that's associated with
2 restart preparations by the licensee. And I'll go through
3 more specifically how we're organized in a minute.
4 Next slide, please. I thought I would talk a
5 little about the functional responsibilities for the
6 Division of Reactor Projects. One of the most important
7 functions we have is inspection program management. DRP is
8 the clearinghouse for the inspection program. We're sort of
9 a gatekeeper for regulatory activities associated with the
10 specific sites. We manage the site-specific inspection
11 plan.
12 I expect the branches to be cognizant of all NRC
13 activities. That means specialist inspections that are
14 ongoing by the Division of Reactor Safety Inspectors, DRS,
15 allegations, status of enforcement actions. The branches
16 are knowledgeable of all the inspection findings,
17 performance indicator information, and any outstanding
18 inspection follow-up items.
19 So all regulatory activities and issues that
20 impact on inspection responsibility are pretty much
21 processed through DRP.
22 We maintain a continuous on-site inspection.
23 Specific inspection activities are carved out for the
24 residents on a periodic basis, and that's, of course, within
25 the context of the new baseline inspection program.

1 But there is a premium placed on that on-site
2 inspection and the ability to observe activities firsthand.
3 DR. WALLIS: Excuse me. Continuous to me means it
4 goes on all the time. That can't quite possible.
5 MR. DAPAS: We don't have 24-hour coverage.
6 Continuous meaning that we have a day-to-day presence.
7 DR. WALLIS: That everyday there is a presence.
8 MR. DAPAS: Yes, correct. Daily on-site
9 inspection would probably be more appropriate.
10 MR. CALDWELL: They also, they live in the general
11 area and are available to go in for event response, or if
12 there is a particular issue.
13 DR. SIEBER: Do you have any problems filling
14 those jobs, are you shorthanded?
15 MR. DAPAS: I was going to talk a little about
16 some of the staffing challenges we have in maintaining the
17 resident positions fully staffed and give you an idea of
18 where we're at.
19 DR. SIEBER: When you do that, you can also talk
20 about rotation, there is a certain rotation that's supposed
21 to occur that sometimes doesn't because of lack of
22 personnel.
23 MR. DAPAS: I was going to comment on that
24 specific item.
25 DR. SEALE: I would also like to hear about

1 growing those positions in the sense that the revised
2 inspection process, the interest in risk-informed regulation
3 and so forth seem to be adding to the challenges that the
4 inspectors face, having to operate in a slightly different
5 environment, knowing when to inquire of the risk analysts
6 about appropriate information concerning the operations at
7 the moment and so on.
8 I would be interested in how you are growing those
9 people in that sense.
10 MR. DAPAS: I think we will touch upon that. If
11 we don't, point that out, please. The residents are the
12 focal point for agency interface with the licensee. Of
13 course, there's the routine exit meetings and where the
14 resident staffs discuss their specific inspection results.
15 They maintain cognizance of the results of any DRS
16 inspections. When the licensee identifies any type of
17 degraded equipment, which would result in like a technical
18 specification limiting condition or LCO entry, that's
19 communicated to the resident inspector and reportable events
20 are communicated to the residents, any notice of enforcement
21 discretion requests that are developing.
22 Basically, the resident is the information conduit
23 and that includes licensing issues. Certainly, there's
24 discussions between the NRR project manager and the specific
25 licensee representatives involved in licensing activities,

1 but the residents are cut in on that and they inform the
2 region of outstanding licensing issues.
3 So they're clearly the focal point for that
4 communication between the NRC and the licensee, which
5 underscores our goal of assigning mature, professional
6 individuals to the sites, because they are the eyes and ears
7 of the agency, in many regards.
8 Also, the resident staff serves as first
9 responders for incident response, as Jim Dyer mentioned and
10 Jim Caldwell. The resident inspector would respond to the
11 control room and the senior resident inspector would respond
12 to the technical support center for any type of emergency
13 event declaration, like an unusual event or an alert.
14 Anytime the licensee mans their emergency plan.
15 And they provide NRC management with information
16 to determine the appropriate agency response, monitoring,
17 standby, or initial activation, and they ensure the licensee
18 is following their emergency operating procedures and
19 actions for each emergency event classification.
20 One of the central things that the residents
21 communicate early on to regional management and headquarters
22 management is, is the plant in a safe condition, what are
23 the licensee concerns, what are the principal areas that
24 they're focusing on. So that first communication is very
25 important in terms of the agency responding appropriately.

1 Next slide, please. I thought it would be
2 informative just to discuss briefly some of the specific
3 inspection activities that a typical resident encounters.
4 There is clearly a focus on operations. We target
5 activities where the plant is configured with the greatest
6 risk impact. As an example, if the licensee is going to
7 perform an integrated test of the emergency core cooling
8 systems, that involves a lot of coordination between the
9 operators, both in the control room and in the plant, valve
10 and switch manipulations.
11 That may be a risk-significant evolution that we
12 would want the residents to observe.
13 Event follow-up, as I mentioned before, that could
14 be a reactor trip, a partial loss of off-site power, plant
15 transient, any particular event that challenges the operator
16 response and the residents are there to follow-up on that.
17 DR. POWERS: Let me legitimately make a point
18 about this response to any event that occurs, that the
19 resident has to do. He becomes literally the eyes and ears
20 in those cases, at least for the first hour or two, he is
21 the eyes and ears of the agency.
22 But one would hope that that's an activity that he
23 doesn't get to practice very often. How does he practice?
24 How does he develop skill in that area?
25 MR. DAPAS: We will talk about the detailed

1 qualification program that a resident goes through, but
2 there's a lot of mentoring. The senior resident inspectors
3 have experience in event response. There's, of course,
4 simulator courses that the resident staff takes in
5 Chattanooga, where the plant is put through -- the simulator
6 is run through different emergency transients, and the
7 residents clearly understand what EOP should be implemented,
8 emergency operating procedures.
9 And there is a specific procedure for event
10 follow-up, which gives the inspectors guidance of particular
11 things that they should be looking for. And one of the
12 things that I think is effective when we have our oral
13 qualification board, which we'll talk more about, it's not
14 uncommon to ask a question, you'll be walking into the
15 control room and there's this, this and this going on, what
16 areas are you focused on, what information are you trying to
17 ascertain.
18 So we try, to the extent we can, to prepare the
19 residents to be able to provide that event response and
20 communicate the information.
21 MR. GROBE: The other thing is the resident
22 inspectors in Region III, the folks we've tried to place out
23 there, are experienced and, as Marc, said, mature people,
24 extensive experience as system test engineers, integrated
25 test engineers, folks that had come through the Division of

1 Reactor Safety. For the operator licensing program,
2 operator licensing folks have extensive knowledge and
3 appreciation of what's going on in the plant.
4 And within a very short period of time,
5 approximately a half an hour, they're going to have a ton of
6 support from the regional office.
7 DR. POWERS: Yes. But it's really that they're
8 working on their own and having to use their own judgment.
9 Of course, nothing schools judgment better than experience.
10 And the number of events we have, I mean, we just don't have
11 very many.
12 So experience -- it did remind me of the
13 simulators in Chattanooga. That of course, would be a good
14 thing, having a proceduralized thing, that's a very good
15 thing.
16 MR. GROBE: And that's the primary focus of our
17 requal training. They get extensive systems training
18 initially, but the requal is primarily focused on the
19 simulator.
20 DR. SIEBER: And it's been my experience, also,
21 that resident inspectors participate in licensing drills.
22 They are either observers or actual players, and that's
23 really good experience for them, because they not only learn
24 what the licensee is supposed to do, but they see how the
25 licensees act and how to communicate with them.

1 MR. GROBE: When we get into the new inspection
2 program, you're going to see that we have less flexibility
3 to do that.
4 DR. SEALE: You can't essentially tag along when a
5 plant operator is going through -- or a plant operations
6 team is going through a simulator exercise with a
7 plant-specific simulators.
8 Do your inspectors get to, if you will, watch this
9 and ask themselves what their role would be as they go
10 through that?
11 MR. GROBE: Once every two years, we have a
12 requalification inspection, where we observe the licensees'
13 simulator examinations, and a few years ago, we made a
14 decision, for that exact purpose, to include one of the
15 residents on the requal team, and we try to do that whenever
16 we can.
17 But we wouldn't be in a mode of interfacing with
18 the people that are in the midst of an examination.
19 DR. SEALE: I understand that's a very careful
20 line there.
21 MR. GROBE: It gets the operators into the
22 simulator.
23 DR. SEALE: Exactly.
24 MR. GROBE: And it gets the resident inspectors
25 into the simulator on some periodic basis. The one area

1 that I'm concerned about, and we're looking at trying to do
2 something about, is that we have very limited training on
3 CMG, the severe accident management guidelines. All the
4 licensees that had training on the CMG materials and our
5 emergency responders have limited training in that area, and
6 we're looking at trying to do something to familiarize the
7 staff and management on the severe accident management.
8 MR. DAPAS: When I was talking about event, I
9 talked about it in the context of a significant event. Of
10 course, event can cover a broad spectrum, certainly.
11 One of things that we engulf with our event
12 response procedure is an assessment of the risk associated
13 with that particular event to determine should we initiate a
14 special inspection, and that's pretty clearly defined.
15 DR. APOSTOLAKIS: How do you do this? How do you
16 assess the risk?
17 MR. DAPAS: We look at conditional core damage
18 probability. We look at what was the particular equipment
19 configuration, mitigative systems, et cetera, and what is
20 the risk associated with that challenge.
21 Obviously, when you have an event, if it's a loss
22 of off-site power, reactor scram, you had the initiating
23 event, now what's the consequence of that, what systems were
24 available.
25 DR. APOSTOLAKIS: So for each unit, you have a

1 PRA?

2 MR. GROBE: No. We have very limited tools
3 available to the residents, broad guidelines on what are the
4 most risk-significant systems and things of that nature.

5 MR. DAPAS: But it's different than what we did
6 have in the past, which was more deterministic. I think as
7 a result of the Indian Point 2 event, we incorporated more
8 risk perspectives into our event response procedure.

9 DR. POWERS: I'm not sure we can get into it right
10 in this presentation, but one thing that you might comment
11 on, we have discussed this issue of tools, risk tools
12 available to the residents and the wisdom of whether they
13 really want tools, to have more tools or not, because
14 they've got a full-time job as it is, that's maybe adequate
15 if they have risk information resources available to them,
16 the role that normally is played by your senior reactor
17 analysts.

18 But asking a guy a question and being able to look
19 it up yourself are two different things. So this balance
20 between information directly available to them and resources
21 available to them is interesting. I don't know how you make
22 the decisions. If you have thoughts on that, it would be
23 interesting to hear.

24 MR. GROBE: Truly, I don't believe we want the
25 residents doing risk analysis in an event response. They

1 need to be aware of what's going on at the plant, what are
2 the precursors to further severity of the event, making sure
3 that the licensee is focusing in the right areas and
4 providing information to us.
5 But both of your risk analysts are on-call. We
6 got into this just recently with an event. It's difficult
7 to provide risk analysis on any sort of short timeframe.
8 We're trying to develop a concept where within a few hours,
9 they can provide the agency some risk insight, but not any
10 sort of analytical or very technically defensible risk
11 analysis on a period of a couple of hours, to determine
12 whether or not that could provide further insight on the
13 extent of the team that we should send out or the type of
14 response the agency should take.
15 Within a matter of 24 hours, we should be able to
16 provide some fairly defensible risk analysis of what's
17 happened.
18 From a responder point of view, 24 hours is not
19 terribly useful. So there is an interesting conundrum
20 there.
21 DR. POWER: That's really incredibly useful
22 information there, because I'm wrestling with how fast we
23 should be able to do risk information and I think you've
24 given me a key. Clearly 24 hours is too long. Now, what is
25 the appropriate time? It sounds to me like an hour or two

1 is the kind of rate you'd really like to be able to do
2 things in.
3 MR. CALDWELL: Let me clarify something here.
4 What Jack is talking about is the type of follow-up event
5 response we would conduct. The inspector, the resident is
6 still going to go to the site on an event response and
7 they're in the mode of observation. They'll go to the
8 control room, they'll observe operator actions, they'll
9 observe plant conditions, and that information will be fed
10 back to us.
11 But they will not be constrained by some sort of
12 probabilistic review. But our follow-up event response
13 would -- our special inspection or AIT or whatever we decide
14 we might need will depend on the risk of the event itself.
15 MR. DYER: I think the residents need to have a
16 general understanding of the risk models, what are the
17 vulnerabilities at the plant. As they go in and they
18 initially respond, they're not in an inspection mode.
19 They're in a protect public health and safety mode in the
20 incident response, as we all are in that role.
21 And so from that perspective, when they go in,
22 they need to know what are the critical assumptions, what
23 are the vulnerabilities, what are they going to check on,
24 what are they doing, are they following their EOPs, are they
25 staying in their modeled assumptions and that.

1 DR. BONACA: I have a question. RES has been
2 developing plant-specific models, PRA models, they are
3 simplified, or apparently they're getting into a more
4 complex presentation of the plants.
5 Are they available at the region level, those
6 models?
7 MR. GROBE: Sonia.
8 MS. BURGESS: Yes. The models that we are talking
9 about are available in the region. Mike Parker and myself
10 are the ones that have the models here in the region. The
11 residents at the sites do not have the models.
12 MR. DYER: They're going to make a presentation
13 and talk to you later on. So I think the answer is yes.
14 MR. GROBE: The residents understand the
15 risk-significant systems and they understand that their
16 principal focus is do you have the ability to move water, do
17 you have the ability to provide electrical power where you
18 need it, do you have containment through piping systems. So
19 that's what they're focused on, what the licensee is
20 prioritizing as far as their response to the event, and
21 that's where they need to be focusing.
22 MR. DAPAS: I think that's best illustrated -- we
23 had a recent example here with Palisades, where they had a
24 problem with the diesel generator output breaker, where the
25 breaker failed and they could not open it. They had lost

1 control power. The residents responded to the control room
2 to understand what was the impact on emergency A/C power
3 availability and communicated out to the branch chief, and
4 then we had Sonia Burgess involved looking at what's the
5 ongoing risk impact of not being able to open the output
6 breaker and what damage may have been -- when you motorized
7 the generator, was there a problem.
8 So that would provide us a perspective, what's the
9 risk significance of the plant continuing to operate in this
10 condition and should we provide any augmented support to the
11 resident staff.
12 DR. WALLIS: As the technology advances, one could
13 imagine that inspectors in the future could have some
14 handheld computation device which would give them a SPAR.
15 MR. GROBE: We get very anxious when we start
16 talking in that area, because a lot of this is instinctual
17 on how you respond to an event. Let's just say we get
18 anxious.
19 DR. POWERS: Well, I think my own view was that
20 inspectors have more to do with providing the input to risk
21 modeling on a pump than they do running the pump.
22 DR. SEALE: They need to be able to communicate.
23 DR. POWERS: And you'd be -- I mean, all of these
24 things. One of the biggest concerns that I have about the
25 oversight program is it's taking away from hours in the

1 plant to hours at the desk, and that's a tradeoff which
2 ought to be consciously made.
3 And having risk tools to play with, it quickly
4 becomes risk tools that you have to play with and that is
5 just another detraction from eyeballs on the plant.
6 But I'm looking at, at the same time, this guy
7 should have all of the support he thinks he needs in
8 answering questions, in his mind, about risk. So it's
9 really tools for Sonia and her team that I think we're
10 talking about here.
11 DR. BONACA: On the other hand, my question was
12 more in the direction of just part of the maintenance rule
13 now, the operators can take out-of-service multiple
14 components and, of course, there is a requirement for the to
15 evaluate the risk significance and to what extent a resident
16 does a spot-check for a given configuration that he may
17 consider risky enough for him to ask a question, without
18 having to depend entirely on the plant staff.
19 I think that is an important objective long-term,
20 it seems to me.
21 MR. DAPAS: Nora Collins was smiling. She is
22 going to be talking later about on-line risk and I think can
23 provide some insights in that area.
24 MR. CALDWELL: There are a couple of issues
25 associated with the SRAs availability of having the analyst.

1 So we're looking at succession planning for the SRAs, but
2 integral in that is there's a task group they're putting
3 together with NRR and the regions to look at that question.
4 But integral to that is a discussion on training
5 and what types of training that the various levels need and
6 one of the -- the regions, I guess, got together and decided
7 one of the aspects of training that all the inspectors need,
8 including the resident inspectors, was risk inspection
9 planning, which would go to what you're talking about; what
10 things should you look at and when should you look at them.
11 So there is a task group that's going to look at
12 the types of training that should go to the residents, the
13 type of residents that should go to senior inspectors here
14 in the region, and succession planning for the SRAs.
15 DR. POWERS: I think that speaks to the issue of
16 how detailed and how high quality we have to have the risk
17 resources, not necessarily the turnaround time, but the
18 quality and detail, which is an issue in itself, whether the
19 SPAR models are adequate or we need something more detailed,
20 because inspectors tend to look at things at at least one
21 level down on the level of modeling PRAs.
22 I mean, it's the same problem the engineer at the
23 plant has. He tends to work on things that are a level
24 down.
25 MR. DAPAS: For the sake of timeliness here, I'm

1 just going to kind of go through examples of each activity
2 here, but I'll just point out a couple of things.
3 Operability evaluations, clearly, the residents get involved
4 in evaluating the impact of degraded equipment.
5 If a pump is supposed to deliver X amount of flow
6 for the surveillance procedure, it doesn't pass the
7 surveillance test, and then the licensee does an evaluation
8 and says, well, the pump can still perform its intended
9 function, that can lead into a 50.59 evaluation, because the
10 pump operation may be different than described in the final
11 safety analysis report, et cetera. So they get involved in
12 that.
13 Severe weather preparations --
14 DR. POWERS: We're going through a substantial
15 change of 50.59.
16 MR. DAPAS: Correct.
17 DR. POWERS: And there's a high judgmental
18 capacity content to this on what is a minimal change in the
19 impact assumptions, things like that.
20 MR. DAPAS: I think our safety system design
21 inspections get more intrusive into the quality of the
22 50.59. The role of the resident is the licensee conducts a
23 50.59 and they kind of look at does this make sense. If
24 they need more additional help, they can engage DRS
25 inspectors.

1 But looking at it from the programmatic aspect, I
2 think select samples as part of your design inspection.
3 MR. GROBE: I think, if I understand your question
4 correctly, it was what's the staff's reaction to the
5 judgment and the subjectivity that might go into the new
6 decisions in the rule.
7 I think the staff truly was uncomfortable with
8 some of the Draconian outputs of using the rule as it was
9 written before. Some unreviewed safety questions that were
10 really insignificant would result in enforcement action.
11 So on that specific issue, while it involves more
12 judgment, I think the staff is more comfortable. There are
13 a number of areas with the new inspection program that the
14 staff is not as comfortable as what we used to have and we
15 can get into some of those.
16 But that's an area I'm not sure we have a lot of
17 concern with. The implementation we haven't actually seen
18 yet, so we're going to have to walk through that.
19 DR. SIEBER: I think we would like to hear your
20 concerns later on that, so we know what they are.
21 MR. DAPAS: Now I more fully understood your
22 question. Severe weather preparation, with the plants we
23 have located here in northern climates, we get involved a
24 lot in that. In fact, we had an issue at Point Beach
25 regarding freeze protection for a safety injection recirc

1 line, tangible example of where inadequate freeze protection
2 resulted in problems.
3 And problem identification and resolution. An
4 integral part of each inspection procedure is ten to 15
5 percent of that is dedicated to follow-up for problem
6 identification and resolution, and that, of course, is the
7 foundation of new program, corrective actions.
8 And there's two aspects to that. Of course,
9 annual review and then follow-up on issues specific to the
10 area being covered by the individual module, like
11 surveillance testing.
12 DR. SIEBER: In that regard, under the new
13 oversight process and significance determination, they
14 aren't writing as many violations. On the other hand, we're
15 probably writing more non-cited violations, and all those
16 are supposed to go into the CAT.
17 Do you folks follow-up inspecting CAT to make
18 sure?
19 MR. GROBE: Not all of them. There's two. One is
20 that we do a regular inspection of the effectiveness of the
21 corrective action program and that's run out of Merck's
22 division, and we have people on that inspection.
23 In addition to that, we sample a portion of
24 non-cited violations as part of that inspection, but we
25 don't look at all of them, and that's part of the new

1 inspection program that actually makes sense, because the
2 violations we identify are a very small portion of the total
3 number of issues that need to be corrected on a yearly
4 basis.
5 So we'll select a portion of the violations we
6 identify and that were non-cited, as well as a large number
7 of other issues that we focus, from a risk perspective, on
8 trying to get the more important ones.
9 DR. SIEBER: I guess my personal feeling is that
10 NRC gave up something when it moved from deterministic
11 systems into risk-based systems and significance
12 determination. What you gave up was the ability to write a
13 violation and get a written response and a commitment from
14 the licensee that you could follow-up up on and for a given
15 unit that could have been anywhere from five to 20 items a
16 year.
17 On the other hand, once you give that up, you have
18 to put a little more emphasis and follow up with a
19 corrective action program to make sure that it didn't
20 disappear.
21 MR. DAPAS: You're right. That's a balancing act,
22 obviously. The crux of the new program was what's the
23 appropriate amount of regulatory burden. You're writing
24 violations, the licensee has to respond, what is the
25 threshold for that.

1 That's why we -- we put great stock in our problem
2 identification and resolution inspection. We think that's a
3 critical aspect of the new program.
4 DR. SIEBER: Even the Commissioners see that as a
5 key. They're very adamant about that.
6 DR. POWERS: Well, I think the Commissioners see
7 it more than the headquarters staff.
8 MR. DYER: Well, I don't know that. I think it's
9 we -- a lot of the violations, I think, as Jack said
10 earlier, a lot of the violations that we wrote, we were
11 spending a lot of time on correspondence that didn't improve
12 the safety of the plant.
13 DR. SIEBER: Yes. We were on the other end.
14 MR. DYER: So I think the new program does allow
15 -- what we have to do is take significant actions when we
16 find a licensee is not -- when they break that trust.
17 And one of the things we get through here, when we
18 start looking at the new program, that is the importance of
19 the cross-cutting issues, in my mind, as a regulator, and,
20 in particular, the corrective action program.
21 As you said, we are turning a lot over. This will
22 make for a more efficient and effective way of regulating
23 and allow the licensee to prioritize, but they have to have
24 a good program.
25 MR. CALDWELL: There's a major challenge to the

1 licensee that comes out of this. In the past, when we wrote
2 a violation, it came out in our report, they had to respond.
3 Typically, they had to get senior management to agree with
4 the response, so that the managers were heavily involved in
5 those activities, at least the inspection activities that we
6 conducted.
7 Now, it's included in their corrective action
8 program. So the licensee's management has the challenge of
9 staying involved in those issues that occur. They are going
10 to have to be asking more questions and getting more
11 involved in their corrective action program. So it is a
12 challenge.
13 MR. GROBE: Our ability to cause licensee
14 management to engage in issues is diminished under the new
15 inspection program. One of the things that we got good at
16 and our staff gets very good at is appreciating a broader
17 perspective and focusing on root cause.
18 Now, as Jim indicated, the licensee has to take
19 that burden completely on themselves, which is appropriate,
20 but our ability to direct that, unless it results in a
21 risk-significant issue under the SDP, is limited.
22 DR. SIEBER: One final question, which you can
23 answer yes or no. You have exit meetings when you conclude
24 an inspection, either a resident or a specialist inspection.
25 Since the new oversight process and the burden has changed,

1 do you have any idea whether the level of management that
2 attends those exit meetings has changed to a lower level
3 since there is less management involvement?
4 MR. DAPAS: I can actually comment on that
5 specifically. I think there's actually been a higher
6 engagement of management, because we communicate at that
7 exit meeting some issues that may not be documented in the
8 report, and that's a program office policy decision that
9 some issues that don't rise to the threshold of an
10 inspection finding or a green issue, the licensee is
11 interested in hearing about those and those are communicated
12 at the exit meeting.
13 Many times, a site vice president or plant
14 management wants to hear those firsthand.
15 DR. SIEBER: That's good input for me, because I
16 would have expected, just human nature being what it was,
17 that it would have gone the other way. So that's good.
18 Thank you very much.
19 MR. DYER: I think the other dynamic in that is,
20 again, the economic pressures. Licensees realize that the
21 NRC inspection findings that are below the threshold for
22 being documented in the report can, in fact, affect their
23 operation, you know, may provide them an insight or
24 something maybe to address before it -- it's a precursor.
25 In today's environment, that's necessary.

1 DR. SIEBER: Thank you.

2 CHAIRMAN BARTON: Gentlemen, we're going to have
3 to move this along a little bit. Maybe we can have some
4 more questions during the lunch break. We're one-third
5 through item three, which was supposed to be completed at
6 this point. So I think we need to kind of hold questions
7 and have maybe some discussion during lunch. Otherwise,
8 we'll never get through today.

9 MR. DAPAS: The last point I was going to make is
10 performance indicator verification, obviously an important
11 activity the residents are engaged in.

12 We had a number of lessons learned from the pilot
13 program that have been communicated to licensees, and that
14 underscores the importance of consistent application of the
15 performance indicators, and I think we're going to talk more
16 specifically about those a little later on.

17 Next slide, please. This is just a slide showing
18 how the division is organized, as Mr. Dyer said, relatively
19 consistent across the regions. We are currently only one
20 site is staffed at N+1, that's D.C. Cook; of course, our
21 agency focus plant, and we're actively recruiting to fill
22 the reactor engineer vacancies that exist.

23 I'm going to talk a little bit more later on about
24 the challenges that have been presented to DRP in trying to
25 fully staff in the context of the new inspection program

1 requirements.

2 DR. WALLIS: You have four vacancies here at the

3 reactor engineer level?

4 MR. DYER: That's correct.

5 MR. GROBE: What we've done is added overage

6 positions. Several of those positions are overage, and

7 we've done that in operator licensing and both engineering

8 branches and in the reactor engineering DRP. And the goal

9 is to minimize the amount of downtime we have, when we lose

10 a number of the staff.

11 So we're trying to fill those up. Once we fill

12 them, we're going to have a substantial buffer, we hope.

13 MR. CALDWELL: These reactor engineers are not

14 intended to be overage positions. We do have overage

15 positions elsewhere, but we're trying to stay ahead of our

16 -- unfortunately, we never meet our ceiling. And so we're

17 trying to get ahead of the ceiling so that we at least have

18 utilization of all the FTE who are left.

19 MR. DAPAS: We bring the reactor engineer on board

20 and a vacancy occurs at the plant and that's got to be our

21 primary focus, is making sure the sites are fully staffed.

22 So it's an ongoing challenge to try and fully staff the

23 reactor engineer position while keeping the resident program

24 fully staffed.

25 DR. WALLIS: Because if you lose one more, you'll

1 have none, it looks like. Four out of five.

2 MR. DAPAS: We're heading the other direction.

3 DR. APOSTOLAKIS: I have a question. I'm looking

4 at the report from the web site regarding the maintenance

5 rule. It says that you interviewed two licensed reactor

6 operators and three senior reactor operators to determine if

7 they understood the general requirements of the maintenance

8 rule.

9 Is this something that you do routinely? I mean,

10 what if they don't understand it, what would you do?

11 MR. DAPAS: Which -- I'm not familiar --

12 CHAIRMAN BARTON: This is the follow-up to the

13 maintenance inspection report that was done in the regions.

14 Part of that was going in and asking various people on the

15 stations what was their knowledge of the maintenance rule.

16 Remember that part of it?

17 DR. APOSTOLAKIS: Is it still the situation that

18 we will interview people to see if they understand something

19 under the new revised oversight process? Is that part of

20 the baseline inspection?

21 MR. DYER: Not that I know of. That might have

22 been a special inspection. Was that done under a TI?

23 MR. DAPAS: I thought that was associated with

24 implementation of the new maintenance rule.

25 CHAIRMAN BARTON: That's what it was.

1 MR. GROBE: It was a special inspection.

2 MR. SINGH: It was a follow-up inspection to the

3 original inspection.

4 MR. GROBE: Right, where there were open issues,

5 and you go back out, and part of that, I think, was ensuring

6 that the licensee understood performance goals and on-line

7 risk assessment.

8 CHAIRMAN BARTON: A lot of that was going into the

9 control room to ask the SROs, the supervisors, how was their

10 knowledge of the maintenance rule.

11 MR. GROBE: We have one our maintenance rule

12 experts here, Any Dunlop.

13 MR. DUNLOP: The maintenance rule baseline

14 inspections and most likely what this was, there were some

15 open issues that came up during the baseline inspections and

16 what we did at each of the sites, when we had open issues,

17 we would go back and follow-up on them, and that's most

18 likely what this inspection report is discussing, a

19 follow-up inspection to address any open issues that had

20 come up.

21 I'm not sure, I wasn't part of the follow-up. I

22 was part of the original inspection.

23 DR. APOSTOLAKIS: It's not really this specific

24 thing that I'm asking about. I'm just asking, in the

25 future, with the new oversight process, is there room there

1 for us as an agency to see how much the licensee knows about
2 something? Aren't we supposed to be moving towards a more
3 performance-based system? Is there a cross-cutting issues
4 that says try to see how much this operator at the plant
5 knows?
6 MR. DUNLOP: I think the maintenance rule is
7 supposed to be one of our first performance-based rules that
8 we put into effect and I think the purpose of the baseline
9 inspections was to, unfortunately, have a programmatic
10 review of what the licensees know and how the program was
11 actually put together. I know as part of the new A-4 new
12 maintenance rule, there will be some PI developed and we'll
13 be doing some inspections at some of the sites.
14 How much we'll be looking into the programmatic
15 aspects versus the performance-based, I don't that's been
16 determined yet.
17 MR. DUNLOP: I believe that inspection was sort of
18 a -- the baseline and the follow-up was sort of to set the
19 groundwork to then go forward. In the future, I don't
20 believe we're going to be quizzing people on their knowledge
21 level.
22 I think part of the baseline inspection, if I
23 remember correctly, part of it was to see did the training
24 take. When you go in and you took it, when they had
25 implemented a change in the program, part of our inspection

1 is, okay, did the training take, do people understand their
2 responsibilities.
3 And as a basis for that, that was the nature of
4 the questioning and I think that was specifically called out
5 in a temporary inspection, which would be not part of -- it
6 would be a one-time inspection, not part of a routine
7 inspection that we would continue.
8 So it would take the headquarters, if they
9 decided, for some other reason, that we needed to go back
10 out and periodically reverify the training, then we could
11 look at it again, but it wouldn't be part of our normal
12 routine program.
13 MR. GROBE: I was going to say, by contrast,
14 whenever we observe an activity, I expect the inspectors to
15 be assessing the knowledge level of the people that are
16 performing that activity of the procedures and the specific
17 work they're doing.
18 So we would continue to evaluate, if we observe a
19 maintenance activity or a test activity or an operations
20 activity or talk to an engineer about a calculation, we'd be
21 assessing their understanding of what they're trying to
22 accomplish and their understanding of the procedures
23 involved in that.
24 So we will still be getting into assessing the
25 capability of the people to accomplish the work they're

1 trying to accomplish for those activities where we're
2 observing performance.
3 But as Andy pointed out, that was strictly a
4 programmatic inspection. It didn't involve actual
5 implementation of the program as much as on a day-to-day
6 basis, as much as the programs, procedures and training.
7 DR. APOSTOLAKIS: There are similar findings in
8 other places, and I'm not questioning you why you did this.
9 I'm trying to see what the future will be under the new
10 oversight process. We have the cross-cutting issues, of
11 course.
12 MR. DAPAS: We have an individual that actually
13 has probably conducted the resident inspector portion of
14 that and certainly can speak to what the new program entails
15 as far as the maintenance rule.
16 DR. APOSTOLAKIS: While you're getting the
17 microphone. I've made several findings here that really I
18 didn't expect to see. For example, The company nuclear
19 review board members were thoroughly prepared for the
20 September '98 meeting.
21 MR. DAPAS: Does that embody observations and --
22 DR. APOSTOLAKIS: Yes, but is it going to be in
23 the future, are they going to be observe whether people are
24 well prepared. There was a finding later that the expert
25 panel deliberations were not recommended, and so on.

1 And I thought that in the new oversight process,
2 what really matters is the decisions of the expert panel and
3 not whether they document what they're doing.
4 So the question is how much of this is going to
5 change in the future, if any?
6 MR. DYER: I think you'd have to look at either
7 the Quad Cities or the Prairie Island plant issues matrix to
8 get a better understanding as to what the new program is
9 going to look like. Davis-Besse was under the old program.
10 DR. APOSTOLAKIS: I understand. This is old.
11 MR. DYER: And there's a specific module. So the
12 resident inspectors, once every 18 months, had to go observe
13 an off-site review committee, and they do the best they can.
14 MR. COLLINS: I can talk to that. My name is
15 Laura Collins, and I was a resident inspector at the pilot
16 plant, Quad Cities, and did the maintenance rule inspection
17 portions for the residents there a lot.
18 The kind of observations that you're talking
19 about, unless they were to really result in a problem,
20 because we're more results-oriented, are not the kinds of
21 things, I don't think, we would be documenting anymore.
22 But we would still be, if we observed those
23 things, communicating them to the licensee, so that they can
24 learn from them.
25 So if we make those observations, we're going to

1 share everything that we observe with the licensee, but we
2 have higher thresholds for findings. There's got to be some
3 kind of a result of that improper implementation of the
4 maintenance rule.
5 DR. APOSTOLAKIS: So that in the future, then, you
6 would not particularly care about how the expert panel
7 conducts its business. You would just look at the results.
8 MS. COLLINS: That's right.
9 DR. APOSTOLAKIS: Is that the correct perception?
10 MS. COLLINS: We start with the results.
11 DR. APOSTOLAKIS: But you may get back into the
12 thing, I mean, if you want to understand --
13 MR. DYER: I think one of the things that the
14 utilities, the vice presidents, are particularly interested
15 in is if we said we observed the meeting, we have no
16 findings, a lot of times they'll ask you, what did you think
17 of the conduct of the meeting, and that's one of those
18 issues that may be provided below the line, but it's not
19 going to be documented in the inspection report, there's no
20 response required.
21 MR. CALDWELL: And it's not that we don't -- you
22 said we may not care about it anymore. We still care, but
23 we wouldn't document it necessarily. We would communicate
24 it to the licensee, if we felt that would give them some
25 insight.

1 DR. SIEBER: Unless you came away with the feeling
2 that the result was inadequate, and then you may go further
3 to find out why that is.
4 MR. DYER: Now, if we come out with an inadequate
5 safety review, we may take it back to there was an
6 inadequate safety review, it was not adequately reviewed and
7 people weren't prepared, something like that. But it would
8 be tied to the results.
9 MR. DAPAS: Or then the expert panel concluded
10 this system should be -- there should be performance goals
11 established for this system to review its importance and
12 risks, and the licensee didn't address that, that would be a
13 result.
14 DR. APOSTOLAKIS: I agree, but that is clearly
15 within the new rules of the game.
16 DR. BONACA: How do you know if there is no
17 implementation. What I'm trying to say, there are examples
18 there, some examples where the PRA defined some component
19 that's safety-significant, but determined it wasn't really
20 safety-significant and, therefore, they did not report this
21 activity.
22 Now, there is an importance also in the
23 documentation. You've got to make a determination that the
24 decision ultimately was the correct one. Performance-based
25 doesn't mean you're waiting until you have an event. It

1 means that you're performing the right things. So you still
2 have a burden on the processes that you have to inspect and
3 the show of the work.
4 DR. APOSTOLAKIS: See, what confuses me -- and,
5 again, I'm not referring to a specific thing, but is that in
6 Washington, we're being told time and time again that
7 managing the plant and the organizational aspects are really
8 the licensee's responsibility and we should not get
9 involved.
10 In fact, several of the research projects of the
11 Office of Research have been killed on that principle. And
12 then I come here and I see that an appropriate feedback
13 process was in place, operators responded conservatively to
14 plant transients, operators were prepared for the possible
15 closure of feedwater regulating valve surveillance testing.
16 All this is organizational management, isn't it?
17 MR. GROBE: No.
18 DR. SEALE: It's
19 CHAIRMAN BARTON: It's observation of plant
20 operations, George.
21 DR. APOSTOLAKIS: But there is a feedback process?
22 That's their business.
23 MR. GROBE: Well, it's also required pursuant to
24 Appendix B.
25 DR. APOSTOLAKIS: So what we are told there is not

1 entirely accurate. I'm trying to reconcile the views. It's
2 very fuzzy, isn't it?
3 CHAIRMAN BARTON: Especially when you're assessing
4 management's competence and safety culture versus
5 observation of plant operation.
6 DR. APOSTOLAKIS: That's an extreme, I agree. I
7 agree. But having an appropriate feedback process, it seems
8 to me, is an organizational issue.
9 MR. GROBE: I'm not sure what the context of that
10 was. But it's important, though. For example --
11 DR. APOSTOLAKIS: Plant issue matrix of
12 Davis-Besse, dated September 28, '99.
13 MR. GROBE: For example, within the training
14 context, the feedback process is absolutely critical,
15 because on a system-based training process, you have to have
16 that loop. In the training inspection, that's part of what
17 we look at.
18 Within the context of an oversight committee, the
19 engagement of the committee in questioning the quality of
20 the product and understanding it is critical to the outcome.
21 So if we only look at the outcome of the meeting, there may
22 be significant things that they missed because they weren't
23 well prepared for the meeting.
24 And it gets to root cause, really. If we're going
25 to have inspectors in the field observing the activities,

1 those are the kinds of things we expect them to look at. As
2 Laura pointed out, those issues wouldn't find their way into
3 a report today unless they resulted in a risk-significant
4 finding.
5 MR. DAPAS: And that's the key. Regulatory
6 engagement is a product of the consequence of that, but we
7 would still feed that observation back to the licensee.
8 MR. GROBE: Exactly. Both positive and negative.
9 If we found that the people performing a maintenance or a
10 test activity were very qualified and competent and
11 displayed that in their discipline, in the way they
12 approached their job, provide that feedback.
13 DR. APOSTOLAKIS: So the action matrix of the new
14 oversight process, that would not be triggered. That would
15 not be affected by these observations. You just provide the
16 feedback.
17 MR. GROBE: That's right.
18 DR. APOSTOLAKIS: Because there is nothing white.
19 MR. GROBE: That's right.
20 MR. CALDWELL: You also understand we're in the
21 initial implementation phase of this new process, this is
22 what we think, we may learn something as we go along and
23 change our approach, but right now, that would be the
24 outcome.
25 MR. DYER: What we found at the two pilot plants

1 that we've implemented the program in, when we first went to
2 -- we actually applied the SDP to it and we went through our
3 formal exit and said here's our formal observations and the
4 utility management look at us and say is that all, you've
5 been here for a month, you need to give us more feedback.
6 It evolved out of that --
7 MR. GROBE: Tell us what you really think.
8 MR. DYER: Yes. And evolved out of that is we
9 have a formal exit now where we say here is what is formally
10 going in the inspection report, here's our observations that
11 aren't going to make the report.
12 MR. GROBE: Dr. Barton, in the interest of time,
13 let me quickly go through the next six or eight slides, and,
14 Bruce, keep up with me.
15 In the Division of Reactor Safety, we really have
16 five major functions; engineering inspections, health
17 physics and emergency preparedness inspections, safeguards
18 inspections. We also have operator licensing and that
19 includes initial examinations, upgrade examinations, as well
20 as requal inspections, and incident response is one of the
21 major functions of the Division of Reactor Safety.
22 Let me just highlight a few things in the
23 engineering inspection area that are new and exciting. We
24 have a much stronger emphasis today on design inspections.
25 We have an inspection called the safety system design

1 inspection, or the SSDI. We also have an inspection that
2 focuses more heavily on the Appendix R design of the plant
3 and the ability of the plant to sustain a debilitating fire.
4 Those are two inspections that are new, much
5 stronger emphasis in the design area.
6 DR. POWERS: I attended the fire protection forum
7 and it was an interesting complaint. They said, gee, you
8 guys are focusing all your attention on this Appendix R and
9 the safe shutdown and neglecting all this other fire
10 inspection stuff, and it's just not right. The fact is we
11 haven't done the Appendix R safe shutdown inspections in the
12 past to the extent that they probably should have been done.
13 And now we're just bringing things back to some
14 sort of proper balance.
15 MR. GROBE: And we're not disregarding classical
16 fire protection either. That's part of the resident
17 program. But there's a summary on the slide of the types of
18 engineering inspections we get engaged in and we'll go into
19 some more detail later on some of those.
20 In the safeguards area, we look at contingency
21 response, access control and fitness-for-duty primarily,
22 and, as Marc indicated earlier, each component of our
23 inspection program, we look at problem identification and
24 resolution or the effectiveness of the corrective action
25 program.

1 DR. SIEBER: When you do an OSRE, though, that
2 also involves the operations people, right? With strategies
3 and so forth.
4 MR. GROBE: Exactly.
5 DR. SIEBER: But that's not part of your baseline
6 inspection. You're just looking at cameras in the field and
7 --
8 MR. GROBE: Contingency response is actually --
9 DR. SIEBER: Is that in there?
10 MR. GROBE: Yes. It's kind of in there in hiatus
11 right now. OSRE is suspended and we're trying to work with
12 the industry to come up with a better way to do
13 force-on-force drills.
14 DR. POWERS: One of the questions that I've had
15 about that is the extent to which we can use some of the
16 computational tools that have been developed by the national
17 laboratories, among other people, I think, for simulating
18 these force-on-force exercises.
19 They won't do everything that the OSRE does for
20 you, but they would certainly augment or maybe reduce the
21 need to do actual OSRE type activities. Have you looked
22 into this at all?
23 MR. GROBE: I don't know.
24 CHAIRMAN BARTON: It's a civilian industry
25 initiative at this point.

1 MR. GROBE: These are simulation type tools that
2 --
3 DR. POWERS: They were originally developed -- the
4 ones I know about, the ones that were originally developed
5 were Air Force bases in Europe. They became concerned when
6 the Red Army was running around, could they, in fact, defend
7 their weapons systems from an intrusion force, and that
8 would be different than an ordinary military fighting force.
9 And they had done a lot of exercises with these
10 guys with laser rifles and things that had sensors all over
11 them and they computerize it and out of that they come up
12 with what's the optimal strike force against it, what are
13 the vulnerable sites, locations on the facility and things
14 like that.
15 MR. GROBE: I'll look into it.
16 DR. POWERS: They eventually got very
17 sophisticated, but I don't know whether they've gone into
18 the commercial sector or not.
19 MR. GROBE: I have not heard about it.
20 DR. POWERS: They resulted in massive changes to
21 the way they the military protected their facilities. I
22 mean, they were shocked at how easy it was to break in.
23 MR. GROBE: Appreciate that insight.
24 In the rad protection area, three primary focuses;
25 plant protection of the people on-site, radioactive waste

1 and transportation, and protection of the public, effluents
2 and environmental protection.
3 DR. SIEBER: This is probably where Illinois
4 Department of Radiation Safety comes in quite a bit.
5 MR. GROBE: Well, they're much more intrusive.
6 They have reactor safety specialists that are resident at
7 the sites. They are very sophisticated, very impressive
8 organization. Not quite as good as us, though.
9 DR. SIEBER: Well, I knew that.
10 MR. GROBE: In emergency preparedness, we observe
11 exercises, as well as do programmatic reviews on a regular
12 basis. Operator licensing, I mentioned earlier, we do
13 initial exams. Sometimes those are SRO, instant SROs exams,
14 sometimes reactor operator exams.
15 We also do upgrade exams and requalification
16 inspections. In each area, again, problem identification
17 and resolution.
18 Incident response, we maintain and coordinate for
19 the region maintenance of our incident response capability,
20 and that includes exercises, training, equipment and
21 facilities, as well as interface with Federal, state and
22 local, and unique in Region III is some tribal interface up
23 at the Prairie Island plant.
24 The division is broken up into four branches. Two
25 engineering branches, one focusing primarily on electrical,

1 which includes environmental qualification, I&C, fire
2 protection, electrical engineering and analyses; mechanical,
3 which gets into mechanical, civil structural, as much as we
4 do these days, maintenance rule, in-service inspection,
5 steam generator replacement, steam generator tube
6 inspections, things of that nature.
7 An operator licensing branch, which is very busy
8 these days. Unlike some other regions, for example, Region
9 I puts emergency preparedness and operator licensing
10 together in one branch. This branch is strictly focused on
11 operator licensing.
12 DR. WALLIS: Does mechanical engineering include
13 thermal hydraulics?
14 MR. GROBE: Are you talking, for example, of -- we
15 do heat sink inspections.
16 DR. WALLIS: Heat and fluid, yes. Water and
17 steam, where they are and what they're doing, how well they
18 are performing their function.
19 MR. GROBE: Within the reactor, we don't do a lot
20 of inspection from a thermal hydraulic point of view.
21 However, from a heat sink point of view, heat exchanger
22 performance, we do some inspection in that area.
23 Plant support is health physics, emergency
24 preparedness and incident response in that branch.
25 MR. DAPAS: You can get into those aspects,

1 though, like with an operability evaluation, where the
2 licensee is using thermal hydraulic analysis to support a
3 particular conclusion. We might look at that.
4 MR. GROBE: We just completed safety system design
5 inspection at Point Beach and the focus was the service
6 water system, a lot of thermal hydraulic analysis involved
7 in that.
8 That was fired through the scrub oaks on Division
9 of Reactor Safety.
10 CHAIRMAN BARTON: Very good, you did good. At
11 this point, I'd like to break until 10:30.
12 [Recess.]
13 CHAIRMAN BARTON: We're back in session. Marc,
14 are you still on?
15 MR. DAPAS: Yes. The next presentation that we
16 wanted to address was the comparison of the new program to
17 the old program. I think some of you have raised some
18 questions. In the context of the new program, I think this
19 is an opportunity to more thoroughly address some of those.
20 As an example, I know Mr. Seale raised a question
21 about the resource expenditure tracking and we can talk
22 about what challenges that presents.
23 Rather than continue to use overheads here, if we
24 can just go through the slides, if that's okay with you.
25 CHAIRMAN BARTON: That's fine.

1 MR. DAPAS: Great. Starting on page 20, when we
2 looked at the old program, that was pretty much broken up
3 into thirds between the core program, what was previously
4 termed the regional initiative, and special inspections.
5 Special inspections was our mechanism for following up to
6 specific events.
7 And as we talked about a little earlier, we use
8 risk as a gauge in determining what's the appropriate
9 engagement in terms of numbers of folks we send to the site.
10 The regional initiative, of course, involves some
11 subjective judgment about the declining licensee performance
12 in a particular area or aspect of plant operations, and we
13 would send some folks out to do a more intrusive review of
14 that.
15 Under the new program, it's pretty much baseline
16 loaded, and the baseline represents that minimum amount of
17 inspection required to verify that licensee performance is
18 within the licensee response band, whereas under the old
19 program, the core represented that minimal amount of
20 inspection to verify the plant was being operated safely.
21 As you know, whether you're in the licensee
22 response band or regulatory response band, there's still a
23 sufficient safety margin. So it's a little different
24 approach.
25 There is clearly greater flexibility in applying

1 inspection resources under the old program. An inspection
2 procedure could be closed using judgment on whether the
3 intent was met.
4 For example, inspection procedure 71.707, which
5 dealt with operational safety verification, that would
6 include observation of control room activities, an
7 engineered safety system feature walk-down.
8 The inspector could decide, based on reading the
9 inspection procedure, I met the intent of this procedure
10 with X number of hours. Under the new program --
11 MR. GROBE: Before you go on, that's exactly what
12 got Davis-Besse down in the 1,800 hour range. I'm sorry.
13 MR. DAPAS: When you look at the sampling size
14 under the new program, X number of surveillance tests need
15 to be observed, X number of operability evaluations.
16 There's a certain periodicity; for example, looking at maybe
17 a couple samples a month.
18 And under the one-size-fits-all approach within
19 the licensee response band, the baseline inspection program
20 is fairly rigorous in the scope and estimated number of
21 hours to complete the inspection procedure. And as Jack
22 pointed out, that can translate to what is perceived to be
23 an increased regulatory burden for a licensee like
24 Davis-Besse, where there was more flexibility in determining
25 was the intent of the procedure met.

1 In the new program, you have to implement the full
2 scope to satisfy the inspection procedure objectives.
3 MR. GROBE: Philosophically, what we've done is on
4 the side of the angels. We looked at risk, we picked out
5 what are the most significant risk-related activities.
6 Based on the impact on the risk of that activity, we
7 identified those attributes that were important to inspect
8 and we assigned, developed inspection procedures and figured
9 out how much resources it would take to do it, and it came
10 out to, whatever it is, 2,100, 2,200 hours.
11 The challenge, point number one, is that that
12 consumes almost 95 percent of our resources. So the
13 combination of things; the new thresholds to get to a white,
14 yellow or red finding are fairly high. So we don't expect
15 to have much supplemental inspection. But we also have much
16 less capability to respond to a problem of that nature, and
17 we're going to have to depend on other regions and
18 headquarters to supply us resources, whereas in the past,
19 that 33 percent regional initiative, we could target those
20 resources based on management judgment.
21 That made us less predictable, and that was one of
22 the concerns the licensees had.
23 DR. SIEBER: The real opportunity, and I realize
24 it may be a second or third generation in the application,
25 to achieve this is the extent to which you can make the

1 inspections plant-specific, with justification.
2 MR. GROBE: We make all the inspections
3 plant-specific.
4 DR. SIEBER: In terms of coverage, not in terms of --
5 MR. GROBE: In terms of amount of hours, is that
6 what you're saying?
7 DR. SIEBER: Yes.
8 MR. GROBE: We talked about modifying the baseline
9 based on performance. But that gets back to where we were
10 and there is a lot of reticence to do that very quickly.
11 If, after a few years, we find out that they're --
12 DR. SIEBER: Maturing.
13 MR. CALDWELL: But it also is the way the system
14 is set up, we're not capable of doing that right now,
15 because there is not a gradation in green band. That's
16 licensee response band, that's where we stay at. So those
17 folks that are in that band get the baseline inspection
18 program, whether they're at the top of the band or at the
19 bottom of the band. That's the way the new oversight
20 process works.
21 So to try to come up with a way of reducing
22 inspection of one licensee over another is not -- within
23 this current program, that's not possible.
24 MR. GROBE: The pendulum swung to predictability.
25 We are extremely predictable now. The question is whether

1 or not we've taken too much of the judgment out, such that
2 we can no longer predict problems.
3 DR. POWERS: What I worry about, especially this
4 point about the inspectors losing judgment capability, it
5 seems to me that the good inspector can quickly say in this
6 area, I've met the intent here, and there are enough
7 problems for me to worry about here, this other area is more
8 complicated for me to understand, me personally to
9 understand than the average inspector, and there may be
10 bigger issues here, and so I need to spend more of my hours
11 here.
12 That judgment seems to be something that I want
13 him to exercise very much.
14 MR. GROBE: It's been reduced in the new program.
15 DR. POWERS: And it seems like he's -- that that's
16 the flexibility that is a real loss.
17 MR. DAPAS: Let me comment on that. As I
18 understand the new inspection program, the sampling size is
19 intended to be risk-informed. Operability evaluations is
20 clearly going to be a risk-significant activity. If the
21 licensee doesn't adequately evaluate the impact of degraded
22 equipment, will the equipment perform its intended function.
23 That's clearly related to risk. So what is an
24 appropriate sample size to gauge how the licensee is
25 performing in that particular area.

1 In the past, under the old program, you may decide
2 to watch one surveillance test and you felt that you've met
3 the objectives of the procedure. Under the new program,
4 there may be two surveillance tests that you look at on a
5 monthly basis, and that's the risk-informed sample size.
6 So it's more prescriptive in that regard and
7 that's why the hours are more rigorous.
8 Now, I think after the first year of
9 implementation across all the sites, we may end up
10 revisiting the scope of a given inspection procedure and
11 we're also providing feedback on a continuous basis.
12 If the inspector is performing a certain
13 inspection procedure and feels that the scope of the
14 procedure needs to be refined, they provide feedback and
15 that's communicated to the program office.
16 CHAIRMAN BARTON: Well, the intent of the whole
17 initial implementation for one year is to make adjustments
18 after that one year.
19 MR. DAPAS: Correct.
20 CHAIRMAN BARTON: Right, sure.
21 MR. DAPAS: That's my understanding.
22 DR. WALLIS: It seems to very ironic that the
23 reason for all this is to get away from prescriptive
24 regulation. They seem to have moved to more prescriptive
25 inspection.

1 MR. CALDWELL: It's prescriptive in the sense that
2 the inspection size or inspection scope and type were
3 supposed to be, as best we could, risk-informed. In other
4 words, you're focusing your resources in the area where
5 there is the biggest bang for the buck.
6 The desire to make it such that each region and
7 each inspector does it essentially the same way for
8 consistency, but to answer Dr. Powers' question, if an
9 inspector feels they have to spend more time to accomplish a
10 given sample size or given objective, they would take the
11 time necessary to accomplish the objective.
12 So if the inspector felt comfortable in this area
13 and was able to get it done pretty fast, that's what they
14 would do to accomplish the objective of the inspection. If
15 they felt that they needed more time in another area, they
16 would do it, they would spend the time.
17 So the judgment in that respect is still there.
18 MR. GROBE: But they right now don't have the
19 latitude to say I'm going to do 18 operability evaluations
20 versus 24.
21 MR. CALDWELL: Right.
22 MR. GROBE: But in addition to that, there's
23 barriers. We have put -- depending on the types of
24 inspections, the error bands can be up to 25 percent as far
25 as number of hours. To go outside that band requires fairly

1 high approval.

2 So we need to get engaged in what it is that's

3 causing the inspector to have to spend a lot more time, as

4 managers.

5 MR. DAPAS: And that's because we've communicated

6 that the baseline inspection program is that minimal amount

7 of inspections necessary to verify licensee performance is

8 still within that licensee response band.

9 MR. GROBE: We spoke earlier about observing more

10 behaviors and you talked in the context of management.

11 Those are the types of things that would give you confidence

12 that you can make your sample size smaller.

13 If you looked at the procedures and the guidance

14 and you looked at the training and you looked at how the

15 people were engaged in their job, in the past, we -- and all

16 of those things were very positive, so you had a high level

17 of confidence in the competence of the people and how their

18 work activity is controlled, we would feel comfortable

19 scaling back on sample size. Now we don't have that

20 flexibility.

21 DR. APOSTOLAKIS: Do you think that the new

22 oversight process can be modified to accommodate some of

23 these concerns, without affecting its intent regarding

24 predictability, for example, too much?

25 MR. GROBE: It's difficult. One of the things we

1 haven't thrown on the table is that it's my sense that one
2 of the motivators of this predictability was the financial
3 community having confidence in a regulatory oversight not
4 influencing negatively the financial viability of the
5 company, from a stock point of view.
6 So I'm not sure how that would work and we'd have
7 to do that jointly with the industry.
8 DR. SIEBER: What do you do with a plant like
9 Zion?
10 MR. GROBE: Zion?
11 DR. SIEBER: Yes. They still do the -- they
12 haven't applied for decommissioning yet.
13 MR. GROBE: In the decommissioning area, our level
14 of inspection is directly related to the level of activity
15 that the licensee has on-site.
16 DR. SIEBER: So you would cut back on the number
17 of residents you have there.
18 MR. GROBE: There are no residents.
19 MR. CALDWELL: We have inspectors here in the
20 region that go up there, and Zion is not that far away, but,
21 yes, our inspection program is based on the decommissioning.
22 There is actual inspection plan for decommissioning
23 reactors.
24 MR. DAPAS: Which is outside the baseline program.
25 Moving right along. Certainly, under the old

1 program, we used deterministic processes in our enforcement
2 policy to guide our assessment of significance associated
3 with inspection findings.
4 Under the new program, we process findings in the
5 significance determination process, which is based on the
6 probabilistic risk type analysis. I'd just simplify that
7 down into two concepts. You've got frequency of initiating
8 event and then the defense-in-depth regarding mitigative
9 capability and if you have a particular piece of degraded
10 equipment or unavailable equipment, you look at what impact
11 does that have on the mitigative capability.
12 You look at the availability of redundant
13 equipment. You can credit operators for recovery actions.
14 And then there is a plant-specific phase two worksheet that
15 is supposed to bring to the table the specific
16 configurations unique to that plant in terms of equipment
17 redundancy.
18 CHAIRMAN BARTON: Are they all out and back now,
19 are the plants commenting on them?
20 MR. DAPAS: Yes. Sonia, you might be able to
21 speak to that. I'm not sure of the exact status.
22 MS. BURGESS: As far as the agency-wide, no. Our
23 region, yes, with the exception of D.C. Cook. We have put
24 our comments back to Research, who has, in turn, given them
25 to BNL.

1 MR. GROBE: We took a different approach in Region
2 III than some of the other regions took. We had either Mike
3 or Sonia out on each site visit to make sure that we had a
4 clear understanding of the SDP and the licensee effectively
5 integrated plant-specific issues into the SDP.
6 Some of the other regions had Research do that or
7 headquarters staff. As Sonia indicated, she and Mike have
8 finished all the sites, with the exception of Cook, and we
9 need to get on Cook pretty soon here.
10 MR. PARKER: But to be more specific, we don't
11 have the comments back from BNL and back from Research yet.
12 So they're not integrated into the current process.
13 MR. GROBE: We have hand markups of the SDP.
14 DR. APOSTOLAKIS: Are you comfortable with the
15 SDP?
16 MR. PARKER: Am I comfortable with the SDP? I'm
17 very comfortable with the site visits we accomplished and
18 the corrections and the adjustments we made to them, but
19 right now the difficulty we have is working with the
20 residents, because it's not integrated into the formal SDP
21 worksheets.
22 MR. GROBE: It would be interesting to march about
23 a dozen inspectors up and ask them that same question,
24 because there's a lot of -- we use the terms risk-informed
25 and risk-based. The SDP is primarily risk-based.

1 And an excellent example, and if Laura is still
2 here, she can provide some of the details, if I screw up on
3 the details, there was a finding at Quad Cities involving
4 motor-operated valves, where the licensee did not
5 effectively correct problems on a timely basis, the
6 motor-operated valve setup.
7 The end result was that they had a number of
8 deficiencies that, if you take together, made it clear that
9 their motor-operated valve program was not functioning.
10 When I say motor-operated valve program, the setup
11 of the valves to make sure that they could handle
12 differential pressures and all those things.
13 From an SDP point of view, though, at any given
14 time, there was not sufficient valves that were determined
15 at that time to be non-functional, such that you got out of
16 the green band.
17 So it was a green finding, yet, it was clear to us
18 that there were systemic problems in the way the engineering
19 work was done to set up the valves, and that was a green
20 finding. So those are the kinds of issues.
21 We're comfortable with the SDP. It clearly tells
22 us what it's supposed to tell us, and that is whether or not
23 that one specific finding is of risk-significance, given the
24 other situations that occurred at exactly the same time.
25 DR. APOSTOLAKIS: So what you're saying is that

1 the actual finding may be limited to one or two components,
2 when, in fact, there is suspicion that there is a common
3 cause failure that might affect many more.
4 MR. DAPAS: If you have information that there's a
5 common cause --
6 DR. APOSTOLAKIS: This is one possibility.
7 MR. DAPAS: -- that has to be explored as part of
8 the SDP. You have to have clear information that --
9 DR. APOSTOLAKIS: But why couldn't you do that for
10 the MOVs?
11 MR. DAPAS: This was more of a programmatic
12 concern.
13 DR. APOSTOLAKIS: A programmatic common cause
14 failure.
15 MR. GROBE: We have a task group right now working
16 on what we call cross-cutting issues and right now what the
17 agency considers cross-cutting issues are the effectiveness
18 of the corrective action program, the effectiveness of human
19 performance, and the safety conscious work environment,
20 which is really kind of hard to separate from the
21 effectiveness of corrective action program.
22 We've got some concerns in other areas. Being
23 from the Division of Reactor Safety, engineering is a big
24 part of my life, and effectiveness of engineering, we think,
25 is a cross-cutting issue.

1 We are trying to work through those things and we
2 will be, over the next year, trying to more clearly define
3 how you handle cross-cutting issues and this valve issue is
4 a cross-cutting issue.
5 DR. APOSTOLAKIS: But let's come back to the
6 common cause failure. Usually there is a suspicion that
7 there is potential for common cause failure. Very rarely
8 you find all valves down. You look at one or two failure
9 and say, well, gee, this mechanism could have affected the
10 others.
11 MR. DAPAS: That's right. If the torque switch
12 settings weren't set appropriately on valve X, the licensee
13 should try and determine extent of condition, is that the
14 case with other valves, and that could be a potential common
15 mode failure.
16 DR. APOSTOLAKIS: Then you would go to the SDP?
17 MR. DAPAS: Correct, if there is sufficient
18 information to indicate that that is the case. But the
19 example that Jack was talking about, where the licensee is
20 trending valve failures and it has programmatic
21 implications, under the new program, the licensee should be
22 putting that issue into their corrective action program and
23 addressing it.
24 In our annual PI&R inspection, problem
25 identification and resolution, that might be an issue that's

1 part of our smart sample, where we would go in and evaluate
2 did the licensee look at this from a broader context, did
3 they take appropriate corrective action.
4 MR. GROBE: On that specific issue, Mike and Laura
5 -- Mike, you were involved in that, weren't you?
6 MS. BURGESS: I was.
7 MR. GROBE: Pardon me? You were?
8 MS. BURGESS: I was. I sat on the SDP panel and
9 the SDP panel did not believe that that was a common cause
10 failure, that that was a cross-cutting issue thing, but that
11 was not a hardware, there was no evidence that other valves
12 were exhibiting those kind of failures.
13 So each individual -- or this valve had to stand
14 alone and go through the SDP process, which turned out to be
15 a green.
16 MR. GROBE: The threshold for a common cause from
17 engineering issues is very high.
18 DR. APOSTOLAKIS: So when you say the SDP panel,
19 is it you or the licensees?
20 MS. BURGESS: The SDP panel is the NRC. It's one
21 SRA from every region and a branch chief from every region,
22 also, plus the program office.
23 DR. BONACA: Also, if you had a significance
24 determination for a certain event and found it was not
25 significant enough, but you have evidence that it would

1 repeat again, the determination would not -- but then you
2 would refer back to your corrective action program.
3 MR. DAPAS: That gets to how robust is your
4 corrective action program. Each time there is an event, you
5 have to look at the significance, or each time there is an
6 issue or equipment problem, you look at the significance of
7 that associated with unavailability via the significance
8 determination process.
9 And if that reflects a repeat occurrence, that
10 calls into question the licensee's corrective action
11 program. But, again, degree of regulatory engagement is
12 based on the overall significance.
13 For example, you could have repeat issues that are
14 such low significance, it would be inappropriate for us to
15 engage. Now, we expect the licensee to address those,
16 because, of course, the whole premise is the licensee needs
17 to address those low level issues before they manifest
18 themselves in more significant concerns or events.
19 MR. GROBE: I don't want to leave anybody with the
20 impression that we're not committed to make the program,
21 because we are. I want to make sure that we help expose the
22 challenges.
23 DR. POWERS: Understanding that the team that set
24 these programs up were under an enormous time pressure, did
25 a heroic job and did a job under the understanding that

1 there were going to be rough edges.

2 I think these are the kinds of rough edges that

3 are anticipated in this program and getting them all out in

4 the air early is the only way they're going to get

5 corrected.

6 What we're seeing is some resistance to any

7 changes in programs on the licensee side, which is amazing,

8 but I think there are things that have to be done better and

9 managerial and inspector flexibility strike me as you're

10 really losing something if you take that out of the ballgame

11 where that judgment component comes in.

12 I mean, what are we paying these guys to be

13 educated for if they don't use their judgments?

14 DR. BONACA: The reason why I was pursuing that

15 issue before, also, is the fact that on the licensee side,

16 it's been a common defense for a long time that this issue

17 happened, but it wasn't of such significance.

18 And so although it is an important element of the

19 determination, it's also, at times, a defense and an attempt

20 to pick more -- there are other links to other events that,

21 in fact, make it significant because it's a repeat.

22 So I'm only saying that the significance

23 determination process right now doesn't lead you necessarily

24 to assess significance based on the fact that you have

25 repeats, and those are very important because then we have

1 programmatic issues.

2 MR. DAPAS: Well, if you recall, our enforcement

3 policy previously had an allowance to address inadequate

4 corrective action, which there are supposed to be actions to

5 prevent recurrence.

6 But in looking at this and taking a step backward,

7 one of the issues clearly that the industry challenged the

8 NRC on, and ultimately Congress, was that our regulatory

9 activities resulted in unnecessary regulatory burden. And I

10 think, as an agency, we determined the best approach in

11 trying to establish a uniform baseline to determine

12 significance is using risk, and we came up with the

13 significance determination process, and I think that needs

14 -- there's additional modifications that need to be made to

15 that.

16 But I think we concluded that going forward for

17 initial implementation, that exercising that process and

18 engaging, as a regulator, when thresholds were crossed, if

19 that had been sufficiently established to ensure that plants

20 are being operated safely while we continue to refine and

21 further exercise that.

22 MR. GROBE: Any other questions on number three?

23 Because that seemed to be a big focus of --

24 DR. APOSTOLAKIS: Well, I remember when we had a

25 presentation on the significance determination process. It

1 seemed to me there was a lot of room for judgment there and
2 that's why I asked the question whether you are comfortable
3 with it.
4 Given a certain finding, is it a routine matter to
5 determine its risk significance or people are still learning
6 how to do that is understandable.
7 MR. GROBE: The level one and level two reviews
8 should be -- the staff should be capable of doing those.
9 Our risk analysts had primarily gotten involved at the level
10 two as we're learning and their workload has just been huge
11 to try to help the staff learn how to use these tools.
12 When you get to level three, and our risk analysts
13 are engaging with the licensees' risk analysts, you get, I
14 think, a very highly defensible risk position. It takes a
15 lot of effort to get there, several months worth of work has
16 been our experience.
17 But the tools are still in the stage of
18 development and as Mike and Sonia indicated, the level two
19 worksheets, we just have pencil markups on them right now.
20 But the tools should be effective and there is going to be a
21 growing period where the staff learns how to use them.
22 But those tools -- do you want to comment on the
23 adequacy?
24 MR. PARKER: Yes. I guess I'd say I agree with
25 you, George. There is a lot of latitude there and we need

1 to make sure that we apply the appropriate assumptions and
2 that we can validate them and support them.
3 But in a lot of cases, it's very positive for the inspector
4 because an inspector can sit back and say, hey, I've got an
5 issue, I'm going to assume this equipment is out of service,
6 and still results in an insignificant issue from risk, and
7 he can move on without putting more resources into it based
8 on that bounding assumptions.
9 So it could help the inspector out to move on,
10 where, in the past, we might have pursued an issue to the
11 end.
12 Now he can step back and say, hey, this is not
13 risk significant, the licensee is addressing it, and he can
14 move on to other issues.
15 But Sonia and I would work with inspectors, if they have an
16 issue they believe, with some of their conservative
17 assumptions, is going to come out to be potentially risk
18 significant, then we'll try to make sure that we can
19 validate those assumptions.
20 DR. APOSTOLAKIS: It appears, then, from your
21 answer, that item number two would be affected, as well, in
22 that you haven't really lost all the flexibility that you
23 thought you had lost.
24 MR. DAPAS: Let me comment on that. This gets
25 back to Dr. Powers' point about inspector flexibility. One

1 of the things that, in Region III, we have attempted to
2 communicate to the resident staff, as well as the regional
3 inspectors and DRS, is that we've put people out in the
4 field that we think have mature judgment, have experience,
5 and if an issue that the licensee identifies or that we
6 identify doesn't comport with your internal risk meter, you
7 think there are issues there, we should ask those questions.
8 And as you screen that through the SDP and you
9 look at the different assumptions, to understand why or why
10 that is not a risk significant issue, and that's feedback
11 that we would provide to the program office, if we think
12 that the SDP should have an allowance to ensure that this
13 issue screens out.
14 And that's got to be well supported, but that's
15 where, in my view, the inspector judgment is brought to the
16 table and says I think this is reflective of the licensee
17 performance and I think we ought to have a way in our
18 process to capture that.
19 Now, that might be in the context of a
20 cross-cutting issue, that might manifest itself in a change
21 to the SDP, but it gets back to we continue to refine this
22 and we look at lessons learned, is there a particular issue
23 that may be screened out as green that subsequently does
24 manifest itself as a problem before you see a performance
25 indicator threshold change.

1 We need to go in and look at that and say does
2 that mean that the SDP needs to be modified. So I look at
3 it as a continuing work in progress.
4 DR. APOSTOLAKIS: Now, this is done here, right?
5 The SDP.
6 MR. PARKER: The phase one and phase two would be
7 done at the sites or with the regional inspectors or with
8 the resident inspectors and if it screens out to be
9 potentially risk significant as far as the colors go, then
10 Sonia and I would be involved with those activities at that
11 time.
12 But we might be working with inspectors up front
13 because they have some questions or difficulty.
14 DR. SIEBER: We had heard testimony a couple
15 months ago about an incident at a plant, not in Region III,
16 where the significance determination process was used by the
17 staff and it screened green. On the other hand, there were
18 two orders of magnitude difference between the staff's
19 opinion of risk and the licensee's opinion of risk.
20 Are you prepared somehow or other to deal with a
21 contest like that?
22 MS. BURGESS: The agency is part of the process of
23 validating the SDPs. We've done the first phase, where
24 we've actually sat down with the licensee and looked do we
25 have the right mitigating systems down, have we implemented

1 everything in your updated PRA.

2 The second portion of the validation is we would

3 be going to the site with scenarios of a green-white

4 threshold, something that would be -- an issue that would

5 put it in a white issue, a potential risk significant issue,

6 and we will have the licensee run it through their risk

7 program, computer program, to see if they get the same

8 answer.

9 We will also be looking for things that trip the

10 green-white threshold from the licensee's computer program

11 and then use our SDP to say are we getting a green-white

12 threshold or are we still in the green and if we are in the

13 green, yes, we do have a problem, we have non-conservative,

14 and that's what we're trying to avoid.

15 DR. SIEBER: I think part of the problem there was

16 not so much is the model correct or the process correct, but

17 how the model was applied to this particular instance.

18 MR. PARKER: That's possible and that's what I

19 think the new process makes -- makes it a little bit more

20 comfortable, that we're supposed to be entertaining and

21 having dialogue with the utility more sooner than we would

22 in the past, where we would -- on a potential phase two, the

23 residents, the senior reactor analysts will be talking with

24 the PRA organization to try to understand how they've

25 modeled it, they have more sophisticated models, and what

1 did we miss or what perspective didn't we consider or that
2 we might have inappropriately considered.
3 So we're trying to have that before we get to any
4 escalated activities in those areas.
5 DR. SIEBER: Have you and the industry agreed on a
6 set of rules as to how these things will be modeled or is
7 this a case by case basis?
8 MR. DAPAS: Again, the SDP, I think, to answer
9 your question, is a tool that the agency is using to
10 determine the significance of findings, and we want that to
11 be sufficiently conservative that we don't screen out
12 something that has risk significance.
13 My experience with the pilot program and listening
14 to discussions with sites and other regions involved in the
15 pilot program is we concluded that an issue, say, was of
16 white significance based on our application of the
17 significance determination process. The licensee brought
18 more detailed risk information to the table, with maybe a
19 more sophisticated model, with different assumptions, where
20 they had concluded it's not that significant.
21 So I've seen more examples of that versus --
22 DR. SIEBER: This is the one I cited as an example
23 of that and I see that coming to a contest someplace down
24 along the line if you get into civil penalty areas.
25 MR. DAPAS: But before we go there, before the

1 agency is going to make a final risk determination, we
2 afford the licensee an opportunity to engage us and explain
3 here's the results of our analysis, and that's where the
4 senior reactor analyst gets involved in phase three.
5 It essentially affords the licensee an opportunity
6 to bring their risk expertise and assessment to the table
7 and we would consider that. But ultimately we would have
8 responsibility for rendering a decision on the significance
9 and then take appropriate action, per the action matrix,
10 which, again, be it a white issue or yellow issue, doesn't
11 get into civil penalties. It gets into is it a cited or
12 non-cited violation, if it's a regulatory requirement.
13 MR. PARKER: I think the burden is on us right
14 now, though, and we need to be very careful in using SDP.
15 As Sonia pointed out, we haven't validated it yet with the
16 licensees. So it's a licensee -- if we have differing
17 results, we need to step back and look at the reasonableness
18 of theirs and why we have that discrepancy and make sure
19 we're working with the program office and experts and the
20 practitioners back in headquarters.
21 DR. SIEBER: There is some uncertainty, which
22 could be quite large, going into all these things. The
23 question is, is it really different or is the uncertainty so
24 large that they actually overlap. That's the problem you'll
25 have to deal with.

1 MR. DAPAS: And I think that's one of the most
2 important aspects when the licensee brings their risk
3 assessment to the table, is understanding the bounds of
4 uncertainty and that gets back to the assumptions; that any
5 risk conclusion is a function of the assumptions and that's
6 something I think we wrestle with is the uncertainty.
7 DR. SIEBER: I see that as a challenge.
8 MR. DAPAS: Right.
9 MR. GROBE: I went to get back to the flexibility
10 question, because I think that's critical to the ability of
11 our programs to be predictive, and they're no longer
12 predictive, and I'll use a case study, one that I'm familiar
13 with, D.C. Cook.
14 D.C. Cook would have been green and for years they
15 would have been green. Yet, we were never comfortable with
16 their performance and particularly in the engineering area,
17 and we applied a number of -- and this also gets to, I
18 think, your question on lessons learned.
19 We applied a number of special inspections over a
20 period of three to four years, including an operations
21 safety team inspection, what we called a system operations
22 performance inspection, which had an engineering emphasis,
23 and then we re-allocated one of our architect engineering
24 inspections to Cook, because we still weren't comfortable.
25 And it wasn't until we did that that we found the

1 issues. Those wouldn't have been found and they wouldn't
2 have been revealed, I don't believe, through our PIs, at
3 least looking back in history.
4 There was a number of risk significant issues that
5 were found after the plant shut down. This is some of the
6 soul-searching we did and it was emphasized by Chairman
7 Jackson at the time that we do this.
8 And we did two things, the lessons learned
9 specifically on our inspection programs in the area of
10 surveillance, because we didn't find the problems with the
11 ice condensers at Cook, and it had to do with the way in
12 which we were doing some surveillance testing activities.
13 But more importantly, from a programmatic point of
14 view, we looked at how we were looking at engineering and
15 that really resulted in a safety system design inspection.
16 We did not have as strong a design engineering
17 emphasis in our program as we do today under the new
18 program.
19 So hopefully that new design engineering emphasis
20 will help us reveal problems like Cook that we didn't find,
21 and didn't find until we did the architect engineering
22 inspection.
23 MR. DAPAS: Just to clarify, we did do a
24 feasibility study that looked at the inspection issues at
25 Cook and what would that result in terms of the action

1 matrix, but as Jack said, taking that back one step, would
2 the baseline program have resulted in the identification of
3 those issues in order to assess the significance, and I
4 think that's, as he pointed out, the genesis of a more
5 comprehensive look at design via the safety system design
6 inspection, because there is the recognition that
7 performance indicators don't provide you the information you
8 need to really get a good assessment of engineering
9 performance.
10 DR. SIEBER: Now, one of the industry initiatives
11 is to change 303, I guess, so that you can change modes with
12 something inoperable. And if you had an incident at a plant
13 or a condition that's screens green and the licensee shut
14 down, you now would have lost another tool to keep them down
15 until they fixed everything, before they start up again.
16 What would you do in that instance?
17 MR. DAPAS: I'm not sure I fully follow the
18 question.
19 MR. GROBE: Right now, if the licensee finds
20 themselves in a situation where their technical
21 specifications cause them to do something that is
22 unnecessary, we have a process for dealing with that, the
23 enforcement discretion process, and risk is a big
24 contributor to that decision-making.
25 I'm not aware of this initiative to do away with

1 303.

2 CHAIRMAN BARTON: It's 304.

3 MR. CALDWELL: But that would require a change to

4 the tech specs. I mean, if the agency decided to allow them

5 to change modes without certain pieces of equipment, then

6 you're right, we would not have a dog in that fight. We

7 wouldn't be able to restrict them from starting up because

8 of that particular component.

9 But as far as I know, that hasn't occurred yet.

10 DR. SIEBER: I'm thinking about where we should be

11 coming from as this issue matures.

12 MR. DAPAS: The tech specs, as I understand, are

13 to prescribe which equipment is -- whose operation is

14 important to assure you can respond to any kind of transient

15 or impact on the plant.

16 So if equipment is included in tech specs, the

17 operability of that is --

18 DR. SIEBER: Where it is now is where it would be.

19 MR. DAPAS: Right.

20 MR. GROBE: Philosophically, it should be

21 risk-informed, right?

22 MR. DAPAS: Right.

23 MR. GROBE: In which case, mode changes with risk

24 significant equipment out of service shouldn't be committed.

25 MR. CALDWELL: I guess the big concern here would

1 be if we did it generically. I think each plant would have
2 to say they're -- not get rid of 304, but to actually pick
3 out the components they think are no longer required for
4 specific modes and then you would have to do a risk analysis
5 for each of those components.
6 And if the agency were to agree, if the industry
7 came in with a proposal that we shouldn't have mode
8 restrictions based on equipment, then that would be a big
9 concern, because you wouldn't have analyzed each component
10 to see if it had a risk significance.
11 DR. SIEBER: The problem there is that most of
12 those occur between the mode four and the mode three.
13 MR. CALDWELL: Right.
14 DR. SIEBER: Which there's not very many PRAs out
15 there for that. So what do you use for the tool?
16 MR. GROBE: It's an interesting question, because
17 most of the safety systems are required at mode four and yet
18 they're not necessary to mitigate an accident at that mode.
19 MR. CALDWELL: But they -- you're right. It would
20 be a philosophical discussion, because it is now a tool and
21 a lever to make sure the plant is completely back in
22 operation prior to changing modes.
23 If you allowed folks to wait until the exact time
24 when he component was needed, then you're running up against
25 clocks and some people would put it off to the last minute

1 and others wouldn't.

2 Right now it works pretty good because licensees

3 know, in their outage, that in order to come out of the

4 outage, they have to have everything back and working.

5 DR. SIEBER: Right. There's no way out.

6 MR. CALDWELL: It's been, I believe, successful in

7 terms of plants are operating better coming out of outages

8 now than they had in the past.

9 DR. SIEBER: I agree.

10 MR. DAPAS: Moving on to, I guess, insight number

11 four that we offer regarding the new program compared to the

12 old program. The old program involved more direct

13 observation of plant activities. Under the new program,

14 there is an increased emphasis on inspection preparation and

15 office review, with, of course, the exception of testing,

16 where we do continue to have a number of direct

17 observations.

18 I'll give you an example, like maintenance. Under

19 the old program, we might observe the maintenance activity,

20 like a pump rebuild, was the work procedure sufficiently

21 comprehensive, are the steps being followed, et cetera.

22 Under the new program, we focus on has the

23 licensee conducted a risk assessment for that particular,

24 say, on-line maintenance activity. We would evaluate the

25 effectiveness of that risk assessment and licensee control

1 of the maintenance activity.

2 And I thought Laura Collins, who actually has been
3 an inspector under both the old program and then involved in
4 the pilot program, could maybe give another example in terms
5 of the maintenance rule, because I know there were some
6 questions that.

7 MS. COLLINS: We actually have two procedures that
8 we look at maintenance. We have one that is called
9 maintenance rule implementation and we have one I will talk
10 about later, which is sort of our evaluation of their
11 on-line risk assessments.

12 Under the maintenance rule one, which is the
13 resident inspectors' largest number of samples and largest
14 number of hours, that is largely a review of equipment
15 problems that they have had and how they've dealt with them
16 under the maintenance rule, and that's quite a bit different
17 from our previous maintenance observation kind of inspection
18 that Mark talked about.

19 So to me, that's a big distinct difference right
20 there in the area of maintenance.

21 The other one is the area of operations, which we
22 largely reviewed routine operations. Now we focus more on
23 non-routine evolutions and don't look so much at the routine
24 operations.

25 So those are just two examples of how we're not

1 directly reviewing routine activities in the field.

2 DR. SIEBER: And that means much less observation

3 of activities and more going through papers.

4 MR. DAPAS: The focus has shifted a little. It's

5 understanding the licensee's evaluation of risk associated

6 with that activity, their control of that particular

7 activity.

8 Inspection preparation, the inspectors need to

9 understand the risk importance of a particular structure,

10 system or component, or evolution that's being selected for

11 the sample, and that's where there may be more preparation

12 involved in saying, okay, here is a specific testing

13 evolution I'm going to observe because it's important from a

14 risk standpoint, and then the preparation involved with

15 going out and reviewing that activity.

16 But where that presents a challenge, that I'll

17 talk about a little later, is the licensee may be planning

18 to do a surveillance test tomorrow evening. The resident

19 inspector spends time getting ready to observe that and then

20 it's deferred and the inspector was planning to do another

21 activity on Thursday of that week.

22 And we selected that specific surveillance test

23 because it's more risk significant, where, under the old

24 program, you could just pick another surveillance test and

25 observe that.

1 The risk importance was less of an issue, and
2 that's where it impacts inspection planning and resource
3 utilization.
4 MR. GROBE: We're getting way behind schedule. I
5 wanted to make one more observation regarding observation of
6 activities. In addition to some of the resident issues, in
7 the plant support area, EPHP and safeguards, it's had a very
8 significant impact.
9 You can do the new safeguards inspection program
10 from the guard shack. You don't even have to go into the
11 plant. In the area of health physics, much fewer activities
12 being observed in the plants as far as how they're
13 controlling the activities from a radiological protection
14 point of view.
15 In the EP area, during the programmatic inspection
16 it doesn't require you to go into any of the emergency
17 planning facilities. So you don't actually observe whether
18 the facilities are in a state of readiness.
19 A lot of these are compensated for through the
20 PIs, the performance indicators, but in some cases, not very
21 well.
22 So there has been a shift from reviewing
23 activities that have already occurred through looking at the
24 paperwork to -- and away from direct observation in the
25 plant.

1 DR. SIEBER: How do you feel about that?

2 MR. GROBE: Our inspectors are not as comfortable

3 with that as they were in the past.

4 DR. WALLIS: I'm wondering of the public would be

5 as comfortable with that.

6 MR. GROBE: It's a new program and it's dependent

7 on multiple prongs. One of those prongs is performance

8 indicators and another one is effectiveness of the

9 licensee's corrective action system. So we're putting our

10 eggs in different baskets and we need to see how it works.

11 MR. DAPAS: But, also, when you look at the

12 particular inspection procedure, there's associated

13 objectives which are supposed to result in our acquiring the

14 information we need, and that can be arrived at via direct

15 observation or review of, for example, the licensee's

16 control of the maintenance evolution.

17 The key is do you obtain the information you need

18 to make an informed judgment, from my perspective.

19 MR. CALDWELL: There is an ongoing feedback

20 process. These particular issues that Jack talked about are

21 issues that we've fed back to the program office and will

22 continue to feed back.

23 So I expect to see some changes to the program

24 after the first year of implementation. So maybe a year

25 from now, we can talk about it again and see where we come

1 out on this. These are just early observations.

2 DR. SIEBER: Have you made your thoughts known to

3 the headquarters?

4 MR. CALDWELL: Certainly.

5 MR. GROBE: We do that and we've been rather

6 proactive I that regard. I think we've pretty much covered

7 item number five. Why don't we go on to item six.

8 MR. DAPAS: Regarding inspection resources, as

9 we've touched upon, there was more flexibility under the old

10 program, in a couple aspects.

11 In addition to the inspection scope, where we

12 talked about how prescriptive that can be under the new

13 program, we had more opportunity with use of regional

14 initiative, we had N+1 inspector, where you could use that

15 particular inspector to conduct some regional initiative in

16 the area of operations. There was more flexibility with

17 tapping DRS engineering resources to go out and do some

18 regional initiative inspection.

19 Now, under the new program, that DRS resource and

20 that former N+1 resource, which now may be assigned to the

21 region, is fully encumbered by the new program. So there's

22 less flexibility in that regard, which, of course, again,

23 was by design with the new program and the inspection scope.

24 But when you have extended absences or vacancies,

25 that requires back-filling the complete program, and so that

1 results in a greater degree of sophistication in inspection
2 program management. The branch chiefs out in the audience
3 can tell you that they have to plan hours in detail for,
4 say, a six-week inspection period so they can readily
5 identify where there are holes and you can't -- you can only
6 defer some inspection to a limited degree, because that
7 creates the bow-way that you're going to have address during
8 the next inspection period.
9 And when you have sample size ramifications, the
10 number of activities that you need to look at per month,
11 that's where that becomes an issue.
12 So we have to have contingency plans in place if
13 we're going to support a rotational assignment to another
14 program office or we've got a vacancy at a particular site
15 because the individual left for a promotional opportunity or
16 reassignment to the region.
17 In order to implement the new program, we've got
18 to have two fully engaged people at the site. There is some
19 flexibility there, but not a lot. Frequently, you will hear
20 a branch comment that I need some help during this time
21 period because inspector X is going to be involved in this
22 activity, and it causes is to continually focus on what are
23 our priorities and what we can support, because we don't
24 have the latitude right now of saying that we have completed
25 the baseline program with this amount of inspection, like

1 you could under the old program with the core inspection
2 hours.
3 MR. GROBE: I think as far as public awareness, we
4 are greatly aware that the public is taking opportunity,
5 taking advantage of the web site information that's
6 available to them. The PIs are on the web. Our inspection
7 reports are in the web, and that is a significant
8 improvement over the --
9 DR. WALLIS: It's on the web. Do you have a way
10 of counting how many people -- how many times it's actually
11 looked at?
12 MR. GROBE: Actually, Augie Specter counts it and
13 reports on it regularly, in thousands of hits. I can't
14 remember what the numbers are.
15 DR. WALLIS: They actually stay with it. They
16 don't just hit and leave.
17 MR. GROBE: The question I got is how many of
18 those were Augie logging on. But he's counting those. And
19 I headed a public meeting out at Cook, a lady who called
20 herself Auntie Nuke, who had downloaded a lot of stuff off
21 the web. So the public is taking advantage of it.
22 DR. POWERS: One of the things I find -- items
23 that show up that say, in effect, management is very well
24 prepared for the safety review, to be as helpful for me to
25 understand the plant as those that say the operators didn't

1 handle the jumper control very well.

2 The upside and the downside are very valuable to

3 me. Now it sounds like the upside is going to be

4 disappearing.

5 MR. GROBE: No, it's gone.

6 DR. POWERS: It's gone. And somehow I worry about

7 the communication aspect, to me and everybody else.

8 MR. GROBE: We all shared your concerns, but it

9 was the view of the industry that that's what they wanted

10 from the standpoint of communication in our inspection

11 report, and, by definition, that's what goes into the PIM

12 and goes onto the web.

13 MR. CALDWELL: Well, our observations and findings

14 that go into the PIM are supposed to be risk-informed and

15 it's very difficult to risk-inform the positive. So you

16 wouldn't be able to do what you might like to do, and that's

17 come up with a balance. But a positive comment would weigh

18 as heavily as a yellow or a white finding, in which case a

19 positive comment may have little or no safety significance.

20 There is no way to evaluate that.

21 So the decision was made to just --

22 DR. POWERS: Philosophically, George, I think he's

23 hit upon a flaw in this PRA technology.

24 DR. APOSTOLAKIS: No, it has not been used.

25 DR. POWERS: It only gives us good ways to

1 quantify the negative and no good ways to quantify the
2 positive.
3 DR. APOSTOLAKIS: That's what we have done so far,
4 but one can actually say that because they're doing such and
5 such, the human error probabilities that were assumed in the
6 past are actually lower, so there's a positive impact on
7 plant safety, or that the failure rates are expected to be
8 on the lower side.
9 DR. POWERS: Your problem is one of communication,
10 George.
11 DR. APOSTOLAKIS: Why?
12 DR. POWERS: That I can understand, well, a number
13 going from three to four, as in
14 times-ten-to-the-minus-fifth.
15 DR. APOSTOLAKIS: But not from three to two?
16 DR. POWERS: But the other way, the positive -- I
17 mean, how do I understand going from 99 to 99.9?
18 DR. APOSTOLAKIS: It's just that we've never used
19 it that way.
20 DR. POWERS: That's right.
21 MS. BURGESS: But I think you can understand that
22 if a licensee puts -- adds another diesel, then I think
23 everyone can understand they have decreased their risk. So
24 those kinds of things can be put into our report.
25 DR. POWERS: He tells me all the time that I can't

1 assume they've decreased their risk.

2 DR. APOSTOLAKIS: I think that's a good point, but
3 we can say something. The thing is we've never attempted to
4 say how improving things, if we're finding the good things.
5 I wanted to say something, but Dr. Powers destroyed my
6 thinking.

7 DR. POWERS: I've been successful again today.

8 CHAIRMAN BARTON: Yes. Before this deteriorates
9 further, do you want to continue?

10 DR. APOSTOLAKIS: He probably can't even remember.
11 If everything is green, that is a message, right?

12 DR. POWERS: I insist that that's a degraded
13 message.

14 DR. APOSTOLAKIS: And that's why people are trying
15 to --

16 DR. POWERS: When everything is green, then you
17 start looking at what are the shades of green and you see
18 these things where guys plot where they lie on the green
19 band and people start paying attention to that and not
20 paying attention to the fact that it's green.

21 MR. GROBE: What's interesting is green is not
22 good. A green finding is a finding. If you have 100 green
23 findings, that's not better than having one green finding,
24 that's worse, because that might be indicative of a systemic
25 problem.

1 And the colorization, I have a lot of problems
2 with these colors.
3 DR. SEALE: Amen.
4 DR. APOSTOLAKIS: So the ideal is no findings.
5 MR. GROBE: Well, no. If we have no findings, my
6 concern would be that the inspection program is not
7 functioning effectively.
8 MR. CALDWELL: The idea should be that we're an
9 active regulatory body, we're inspecting, we're having
10 findings. The findings are not such that it's outside of
11 the industry response band, which means it's staying within
12 a band that we're allowing them to correct their problems.
13 That is a plus or minus, however you want to look
14 at it. If they drop out of that band, then people can ask
15 questions about their safety.
16 DR. APOSTOLAKIS: But this raises, again, an issue
17 that is a favorite of mine. I've raised it several times,
18 but I don't know that I got a response.
19 CHAIRMAN BARTON: So you're going to try again
20 anyhow.
21 DR. APOSTOLAKIS: Yes. What is the purpose of
22 these inspections? I mean, there are two alternatives, in
23 my mind. One is to make sure that the risk profile of the
24 plant, as we're understanding through the IPE and PRA,
25 remains the same, especially hasn't shifted upwards. So

1 that's a plant-specific finding or determination.

2 The other is to look at it as one unit in the

3 population of 103 units and see whether you are -- I mean,

4 that particular unit is within the industry norm or it's a

5 percentile. These are two very different things.

6 And the third one, I guess, is to make sure that

7 the licensing basis is still met, which is not -- it is

8 related to the risk profile, but it's not the same thing.

9 And I'm not sure that the designers of this

10 process really articulated very well what their objective

11 was. In some instances, I get answers that, yeah, it's

12 industry-wide, we're very interested in what's happening, is

13 this an outlier or not. In other cases, no, we really want

14 this plant to remain the way it was risk-wise.

15 So what, in your opinion, is the objective of all

16 of this? I mean, we have a risk profile, we have in the

17 PRA, you do all these determinations such as PIs and the

18 action matrix and so on, because that's related to the green

19 now, because if everything is green and I can conclude that

20 the risk profile has not changed, then things should be all

21 right.

22 Because then I get into the business of how many

23 greens do I have, how many findings, one versus 100.

24 MR. GROBE: Possibly. I wouldn't suggest you

25 count findings, but what's important is to understand the

1 root cause of the findings and what that root cause can do
2 to the risk profile.
3 DR. APOSTOLAKIS: So the potential for getting out
4 of the green.
5 MR. GROBE: Exactly.
6 DR. APOSTOLAKIS: That's what you worry about.
7 MR. GROBE: Exactly.
8 DR. APOSTOLAKIS: But have you any idea as to what
9 the intent of the oversight process is?
10 MR. DAPAS: Both aspects are addressed. When you
11 have a particular inspection finding, that's got to be
12 placed in the appropriate context of a given plant
13 configuration. You have to bring plant-specific PRA
14 knowledge to bear.
15 I think the performance indicators address that
16 across the industry, where if we set a threshold for number
17 of scrams that would result in regulatory engagement, that
18 threshold is a function of overall industry performance.
19 DR. APOSTOLAKIS: And it shouldn't be, in my view.
20 MR. DAPAS: That may be a few, but that's at least
21 my understanding of the intent of the program.
22 DR. APOSTOLAKIS: The inspection findings are
23 plant-specific, but the PRAs are --
24 MR. DAPAS: Well, the PI is plant-specific, if you
25 will, in terms of you had scram X, you had transient X, but

1 the threshold --

2 DR. APOSTOLAKIS: It's an industry --

3 MR. GROBE: And the same thing with inspection

4 findings in the SDP. The base risk profile of a plant might

5 be five-ten-to-the-minus-five, it might be

6 one-ten-to-the-minus-seven, but the threshold for a green

7 finding is ten-to-the-minus-six, no matter what the base PRA

8 of that plant is.

9 DR. APOSTOLAKIS: But, you see, the fact that the

10 thresholds are so high has made the utilities themselves to

11 have more stringent plant-specific thresholds for internal

12 use.

13 MR. DAPAS: Right. And the reason for that is

14 because we told the industry they shouldn't be using our PIs

15 to manage their plant. I would expect them to have more

16 restrictive, if you will, indicators so that they can

17 address problems before it does cross the threshold.

18 MR. CALDWELL: That goes back to what Marc had

19 mentioned earlier. The basis of this program is an

20 effective problem identification and corrective action

21 program on the part of the licensee. So they have to have

22 in place their performance indicators or whatever they think

23 is necessary to identify their problems early and resolve

24 them before they become bigger issues.

25 That is what we are relying on. We have to see

1 now if that works or not by implementing this program and
2 see how well the licensees' corrective action programs --
3 how effective they are.
4 DR. BONACA: But you said before that D.C. Cook
5 would have been all green.
6 MR. GROBE: It was all green.
7 DR. BONACA: So there would have been no signal
8 coming from the indicators for action. So does it mean that
9 the action at D.C. Cook was successive or does it mean that
10 the indicators really have been a big help?
11 MR. CALDWELL: I missed that conversation. I
12 think Jack is saying the performance indicators may have
13 been all green. I'm not sure our inspection findings would
14 have been all green. Our inspection findings likely would
15 have been something other than green.
16 DR. BONACA: So you didn't check for that.
17 MR. GROBE: No, we did. We ran all the LERs and
18 findings prior to the outage through the -- at that time, it
19 was a very preliminary draft SDP, and didn't come up with
20 any significant findings.
21 I don't know if we came up with any whites, but it
22 wasn't until after the outage that you started seeing
23 yellows and reds.
24 The point I was trying to make was that the level
25 of resource expenditure that we put into Cook, we would not

1 be able to do today. And somebody earlier mentioned that
2 the program is more indicative than predictive, and that's
3 true. We have less capability of being predictive, unless
4 the thresholds are crossed with a specific finding.
5 MR. DAPAS: And that gets back to, if you recall,
6 our discussion with the Commission. One of the fundamental
7 premises that the industry proposes is that performance
8 indicators would be crossed, threshold changes before there
9 is a significant programmatic concern that manifests itself.
10 Right now, I think there are some differing
11 schools of thought and that's why the role of cross-cutting
12 issues, I think, has played such -- the importance of that
13 has been elevated.
14 There is a task force that's looking at human
15 performance and corrective action programs and safety
16 conscious work environment, cross-cutting issues, because
17 not everyone full ascribes to this tenet that you will see
18 performance decline clearly manifested in the PIs before you
19 see risk significant inspection findings.
20 DR. POWERS: The committee has advised the
21 Commission that we consider that an assumption that needs to
22 be validated. You're only reinforcing that opinion.
23 MR. GROBE: The lunchroom across the way gets busy
24 at around noon.
25 MR. CALDWELL: What we're doing is we're having --

1 they're bringing over sandwiches and some salads.

2 CHAIRMAN BARTON: We'll just keep going then.

3 MR. CALDWELL: So I can let you know, it's $10 a

4 person, and we should be bringing -- we'll bring a table in

5 right behind here and you can go over and pick up and eat as

6 you wish.

7 CHAIRMAN BARTON: Excellent. I'd like to get

8 through the SRA process before lunch, then we can take a

9 break, if we can get to it.

10 MR. DAPAS: I've just got one point left to make

11 on the public awareness. I think clearly there has been a

12 public outreach effort associated with the new program,

13 industry workshops, et cetera, which I think is a positive

14 initiative.

15 We have touched upon the DRP --

16 DR. WALLIS: Well, public outreach, how broad is

17 the public that gets involved? Public outreach, how broad

18 is the public involved?

19 MR. DAPAS: We've invited, like, for example, when

20 we've conducted meetings on the new program and we're going

21 forward with meetings at each of the sites within six months

22 of initial implementation. Certain officials, et cetera,

23 we're inviting, but it varies, the degree of public

24 attendance.

25 We're trying to advertise that via web and other

1 communication forums, but it does vary.

2 MR. GROBE: We don't see a lot of public awareness

3 -- public involvement.

4 MR. DAPAS: It depends on the site.

5 DR. WALLIS: Public should not consist only of

6 people with some personal interest, like an economic

7 viability of their plant.

8 MR. DAPAS: Right. Right.

9 MR. CALDWELL: It's strictly -- I think it's

10 strictly related to how interested the surrounding area is

11 in that plant and most of our plants do not have active

12 public involvement. So when we have these meetings, they

13 are not widely attended.

14 But we do put out a lot of announcements to that

15 effect and people could attend, if they wanted. And I

16 suspect if there was an interest, like one of our

17 facilities, Prairie Island, there's an interest in dry cask

18 storage. And so we always get a pretty good attendance at

19 those. But it's really related to how well the public - I

20 look at it this way. If you don't get a lot of public

21 attendance, that means that they feel comfortable with that

22 plant as it is.

23 Otherwise, they would be coming to the meeting to

24 try to understand or express their views.

25 MR. DAPAS: My comment was more in the context of

1 the old program, where really the only public outreach, I
2 would offer, was a meeting to discuss SALP results, versus a
3 more concerted effort.
4 I've touched upon some of the DRP challenges here.
5 One of the challenges we face, of course, is feedback and
6 dissemination of lessons learned on the new program as we
7 attempt to further revise that, and there's a number of
8 forums for doing that.
9 We've got feedback forms, weekly conference calls
10 with the program office, inspector seminars, and then, of
11 course, DRP/DRS counterpart meetings, where Jack and Mike
12 and Geoff Grant attend to discuss some issues with the new
13 program.
14 DR. WALLIS: One measure of success might be that
15 there were lessons learned which were useful when you
16 actually look back at it.
17 MR. DAPAS: Right. Which gets into the
18 self-assessment area. We have been given an opportunity to
19 weigh in and comment on the self-assessment plan
20 development, which includes appropriate metrics, and this is
21 in support of the IOU we have to the Commission to evaluate
22 the new program and report to the Commission in June.
23 And headquarters is currently involved in our
24 inspection report review to help ensure consistency and we
25 do plan public workshops to obtain feedback, which was

1 fairly well received in the pilot program.

2 Unless there are any questions, that pretty much

3 summarizes DRP's involvement in the new and old programs.

4 MR. GROBE: Let me just highlight one challenge

5 that we're going to be talking about a little more later, I

6 hope, in the Division of Reactor Safety. There's a number

7 listed here, but the one that's most significant for us is a

8 change in required expertise.

9 We depended heavily on contract resources when we

10 needed design expertise in the past. We no longer have the

11 financial resources to procure contract resources in that

12 area.

13 So that's a challenge for us. It's a staffing

14 challenge. It's a recruiting challenge, and we're trying to

15 meet that and we'll get into some more detail later.

16 The other issue is risk analysis capability and

17 why don't we just go right into the risk presentation that

18 Sonia has prepared.

19 MS. BURGESS: Here's a little background. In

20 October of 1995, the SRA position was developed to assist

21 the agency in transitioning to a new risk-informed arena in

22 the way we do business.

23 I don't believe that in 1995 the Commission

24 realized what a large leap we were going to make ultimately

25 into getting our whole process into the risk-informed arena.

1 Fortunately, when the transition, the pilots, the
2 new reactor oversight pilot program started, the SRA program
3 was fully staffed in all of the regions and we were fully
4 trained and qualified and certified.
5 I think that has been a big asset in the success
6 we have had in implementing the new reactor oversight
7 process.
8 Some of the bullets highlighted here are just some
9 of the key things that we do here in the region. Our
10 biggest role right now is to support the new oversight
11 program.
12 We were very much involved in the development and
13 the implementation of a pilot process here in the region and
14 we sat on a lot of committees, helped in reviewing many
15 procedures, things of that nature.
16 Our main support now is in the SDP arena. As has
17 been brought up, Mike and I have visited every site in our
18 region, because we think it's imperative that these SDP
19 tools that we have been giving to the inspectors are
20 accurate, that the licensee agrees that they're accurate,
21 and that they are -- although simplified, they are the best
22 tool that we have produced to date.
23 DR. POWERS: The question that often comes up, to
24 my mind, is the scenarios they have are very simplified.
25 Are they simplified by intent or out of necessity?

1 MS. BURGESS: The scenarios on the SDP worksheets,
2 like the loss of off-site power?
3 DR. POWERS: Right.
4 MS. BURGESS: I think, yes, they're definitely
5 simplified out of necessity. We certainly do not have the
6 resources of the capability to model 50 initiating events
7 and that's typical of a licensee's own PRA analysis. So we
8 have narrowed it down to probably ten to 12 initiating
9 events. Has there ever been a demonstration that -- with
10 some rigor -- that narrowing it down to these ten or 11
11 events constituted an adequate description of the risk
12 profile of the plant?
13 DR. POWERS: Yes. And in our site visits, along
14 with the other regions, these scenarios, these initiating
15 event scenarios have captured the majority of the risk
16 contribution from their PRAs.
17 MR. PARKER: I would also add that we started out
18 with, I think, four to six initiators and we did some pilot
19 activities with the program office. One of them was one of
20 our plants in the region.
21 We went there and tried to do some V&V by taking
22 some scenarios, some major systems and correlating it with
23 the licensee's PRA and we found some non-conservative in
24 ours, where the licensee identified it as a fairly high risk
25 activity.

1 And that's where we had to step back, as an
2 agency, and I think it set us back several months, trying to
3 identify additional initiators that were necessary to truly
4 capture the majority of the risks, as Sonia says, that we
5 are right now, that we were able to pick that up.
6 DR. POWERS: I might be willing to concede they
7 captured the CDF. The question is, did they capture the
8 risk.
9 MR. PARKER: That's some of the -- I mean, right
10 now, what we're looking at is internal events and some of
11 the difficulty we have in using the tool is we don't have an
12 effective took in place for containment, for shutdown, for
13 external events. So there's a lot of -- the majority of the
14 risk is still being captured through screening tools that
15 we're trying to put in place right now and when we have
16 those type of issues, that Sonia and I have to get involved
17 with it, we have to get involved with the licensee's IPEEE,
18 and we have to work with headquarters in a lot of cases if
19 it involves external events, it's just a screening basis in
20 IPEEE.
21 So we might not be able to capture all that
22 ourselves.
23 MR. DAPAS: A good example of that is a recent
24 issue we had at Quad Cities with -- what is it, Marc -- safe
25 shutdown makeup pump and that being unavailable and how you

1 bring the external event fire risk into play. There's not a
2 tool used. We used risk achievement worth, I think, and CDF
3 to come up with an overall risk assessment.
4 We discussed it as part of the significance
5 determination panel. We communicated that to the licensee
6 as the most appropriate tool we have right now and then the
7 licensee is going to come to the table with their assessment
8 of the risk impact in terms of fire risk.
9 DR. POWERS: So you don't even have things like
10 five available to you.
11 MR. PARKER: No.
12 MS. BURGESS: No.
13 DR. POWERS: One of the -- an anecdote, to which
14 I've never had a resolution, is I believe it's Brown's Ferry
15 that uses ORAM for outage management and they were showing
16 me how it worked. I know a little bit about ORAM.
17 And they said, well, look for this particular
18 outage, we set up a configuration that had this red region
19 and by manipulating things around, we were able to change
20 the way we did our outage, so that instead of having a red
21 region and everything else green, we had two orange regions
22 and everything else green.
23 And I have puzzled and puzzled to understand how
24 one concludes that two oranges is better than one red.
25 MR. PARKER: That, I think, is some of the

1 difficulty in ORAM, is it's mainly a deterministic tool and
2 you're looking at defense-in-depth and most utilities don't
3 have a probabilistic shutdown model.
4 I think some of the plants are going there and we might be
5 able to look at it a little closer, but you pointed out some
6 of the difficulties we have with our tools. The licensees
7 are trying to suppress and reduce their overall risk and
8 from their perspective, they didn't enter a red, which was
9 prohibited, and it's very subjective and that's
10 decision-making.
11 DR. WALLIS: When you compare with the licensee's
12 PRA, you just compare with the results or you compare with
13 the details?
14 MR. PARKER: You're talking about SDP?
15 DR. WALLIS: Yes.
16 MR. PARKER: When we're looking at findings?
17 DR. WALLIS: Looking at your model versus the
18 licensee's. You have a simplified model. How much of his
19 PRA do you have access to?
20 MR. PARKER: We have very little access to most of
21 the PRAs, but when we did some of our benchmarking, we
22 wanted to get the cut-sets and the importance from there so
23 we can extract that and figure out what were the dominant
24 cut-sets that were affecting our SDP model.
25 DR. WALLIS: It's a peculiar kind of detective

1 work, or maybe there are some assumptions made that you
2 don't know anything about.
3 MR. PARKER: That's right.
4 DR. WALLIS: Which is reducing the licensee's
5 result. Don't you have a way of finding out what they are?
6 MS. BURGESS: Only if there is an issue or a
7 finding in that. I mean, we don't have a PRA inspection.
8 MR. PARKER: I think you're stepping back to what
9 I would call the infrastructure. We still haven't even
10 established a PRA certification. But on the other hand, we
11 are basing our SDP as closely as we can to the licensee's
12 IPE or their updated PRA model, and we haven't validated
13 that model yet.
14 So I understand and appreciate your comment and I
15 think the agency is pursuing that, but, again, we're
16 progressing slowly. Maybe there's different things we need
17 to prioritize in this arena, too.
18 MR. DAPAS: There is a conceptual issue here,
19 though. I think we -- if a piece of equipment is failed or
20 unavailable, we run that through the SDP, we communication
21 the results of that, then the licensee can bring to the
22 table more risk-specific information from their PRA.
23 Now, obviously, when we've got an issue and we're
24 running it through the SDP, the licensee is doing the same
25 thing, because they understand the SDP, we've communicated

1 to them, 0609 defines specifically what that SDP tool is.
2 If it looks like this is going to screen out as a
3 white finding, they're rather proactive in communicating to
4 us their assumptions and what their PRA model says. So
5 there is that dialogue.
6 DR. WALLIS: Assumption is the key word, because
7 assumption really is not worth anything unless it can be
8 challenged and defended. And if there is some mysterious
9 assumption you don't know about, that's like magic. It's
10 just like getting whatever you want.
11 MR. DAPAS: We should challenge that.
12 MR. GROBE: Your point is very good, and that is
13 that we don't know what the assumptions are in the model.
14 The IPE that the staff reviewed a number of years ago was
15 many generations earlier than what is currently being used
16 at the sites.
17 So to a large extent, we have to depend upon the
18 -- that there has been an intelligent evolution of the model
19 that the licensees use.
20 DR. BONACA: On the other hand, the event,
21 whatever you're evaluating, it's a fact. So you know what
22 you're going to check inside the model. It's not
23 hypothetical issues.
24 In general, you may question their assumptions in
25 the model to represent the --

1 DR. APOSTOLAKIS: Do we --

2 DR. BONACA: But now the fact that you have a
3 specific event happening, it allows you to go back and
4 verify the assumptions.

5 MR. GROBE: But they don't have it here. Is that
6 part of the SDP, the phase three?

7 MS. BURGESS: Phase three. Phase three will
8 challenge the licensee's assumptions, where we're different,
9 and take a look at what their program does, what their
10 assumptions are, and the validity of those assumptions.

11 DR. APOSTOLAKIS: What, in your opinion, would be
12 the ideal tool that should be available to implement a
13 risk-informed regulatory system, especially the oversight
14 process? What would you like to have?

15 MS. BURGESS: Personally, I think that some kind
16 of standard for a PRA is just essential.

17 DR. APOSTOLAKIS: But you would also like to have
18 a plant-specific PRA on the computer.

19 MR. PARKER: Right now we have safety monitoring
20 and I guess my perspective is to be able to have access to
21 the licensee's plant models and be able to manipulate them
22 and understand them. But we need to start where Sonia says,
23 that we certify your PRA or have some level of certification
24 to say this PRA meets certain thresholds and standards.

25 DR. APOSTOLAKIS: Let's take a specific plant,

1 like Davis-Besse. What PRA information do you have?

2 MS. BURGESS: In fact, I was there two weeks ago

3 to do their SDP worksheets. They have gone through an

4 extensive PRA update. Prior to my visit, the only thing we

5 had was what was documented in late 1980s.

6 DR. APOSTOLAKIS: But do you have --

7 MS. BURGESS: We have the docketed IPE here, which

8 is --

9 DR. APOSTOLAKIS: The PRA as they changed it.

10 MS. BURGESS: I was able to bring back, from my

11 visit of two weeks ago, the executive summaries, some of the

12 system notebooks that are used in the service water systems,

13 component cooling water. I was able to get risk achievement

14 worth, a lot of importance measures of systems, things like

15 that. They give us a better idea of how they have changed

16 their --

17 DR. APOSTOLAKIS: I don't understand why they

18 don't give you the whole PRA.

19 MR. PARKER: Because we haven't mandated it. It's

20 not required through the regulations and no utility --

21 DR. APOSTOLAKIS: The risk achievement worth is

22 not required either.

23 MR. PARKER: I understand, but I guess what -- you

24 said this is our chance. I would like to see us have some

25 type of requirement or standard where the utilities are

1 providing us their routine updates, no different than they
2 would on an FSAR. That's a difficulty we're having right
3 now with our SDP tool.
4 The SDP tool was put together by BNL, Brookhaven
5 National Lab, using the IPE and the SRAs are having to go
6 out and reevaluate that based on the licensees' current
7 models. So significant changes are taking place.
8 DR. APOSTOLAKIS: We have been told by some
9 licensees that they have -- especially the ones who have
10 risk monitors -- they have PC versions of their PRA, they
11 can see the impact of the change within a minute.
12 MR. GROBE: On-line risk monitor.
13 DR. APOSTOLAKIS: Sure. Would you like to have
14 something like that?
15 MS. BURGESS: Yes. Now, we do have -- like Mike
16 said, we do have safety monitor. Unfortunately --
17 MR. PARKER: We have the program.
18 MS. BURGESS: We have the program and we have the
19 eight models, which are like the Westinghouse tool for a
20 Westinghouse four-loop or things like that. We do not have
21 plant-specific models.
22 Now, some plants in our region -- as a case in
23 point, Kewaunee has given Research their program, their
24 model, and Research has given it to INEL and INEL is in the
25 process of converting it to SAPHIRE. So we have their

1 actual model.

2 DR. APOSTOLAKIS: Now, wouldn't the SPAR models

3 eventually meet the needs you have when INEL completes --

4 MR. PARKER: I think there is a potential that it

5 could meet most of our needs. The difficulty is going to be

6 they're working on low power shutdown models. They're

7 working on some containment and those have -- a lot of that

8 activity has been deferred because of the SDP activities in

9 progress that we can't -- we weren't able -- there are

10 competing resources.

11 So I don't see us getting there for several years.

12 MR. GROBE: We're significantly resource

13 constrained.

14 DR. APOSTOLAKIS: But you mentioned that the

15 licensee is under no obligation to give you the PRA. But

16 isn't it in their best interest to do that?

17 MS. BURGESS: We believe it is.

18 DR. APOSTOLAKIS: I mean, if they want

19 risk-informed regulation, we can't do it without risk

20 information.

21 MR. GROBE: We've been able to encourage several

22 licensees, just from an efficiency point of view, of

23 interacting with the staff, encouraged them to give us some

24 of their risk analyses.

25 The problem is, as Sonia and Mike have pointed

1 out, one, is that there is no standard. So you have widely
2 differing approaches, and second is there is no requirement
3 to provide it.
4 So it's only a phone call from Steve or myself
5 that says, listen, our interface would be much more
6 efficient if we had such and such and then we'll get some
7 documents.
8 DR. WALLIS: I'm not sure you need the standard.
9 If I look at thermal hydraulic codes, it used to be that the
10 staff would simply look at some codes provided by licensees.
11 But now in reviewing thermal hydraulic code, the staff is
12 moving to the position we want the code, we want the source
13 code, we want to be able to run it, we want to be able to
14 try things with it and see what it does.
15 MS. BURGESS: Many licensees are very reluctant to
16 put their updated PRA on the docket.
17 DR. WALLIS: But ideally that's what it should be.
18 It should be completely open.
19 MS. BURGESS: They just do not wish to have it on
20 the docket.
21 DR. POWERS: If you can think about the headaches
22 it would involve when it's updated, it's a significant
23 process.
24 Let me ask you. You've mentioned this need for
25 certification a lot and there is an activity going on with

1 the standards committee to set the standard for the PRA, and
2 I think NRC has a limited voice in that committee setting
3 that up.
4 Do you have a voice with those representatives on
5 that committee?
6 MS. BURGESS: The regions?
7 DR. POWERS: Yes.
8 MS. BURGESS: No, we don't have a particular
9 voice. Research is the member of that committee and I would
10 characterize their participation as much more than just a
11 minor committee member.
12 DR. POWERS: Mary Drouin and her troops.
13 DR. SEALE: That confirms what we found out from
14 them last week.
15 MR. DAPAS: We're not precluded from providing
16 input there. If Mary Drouin is the representative, I've
17 worked with Mary, I know Sonia. We'd have no problem
18 calling her up and saying, hey, we think this needs to be
19 considered.
20 So we are not precluded from that opportunity, but
21 there is not an outreach effort, if you will.
22 DR. SEALE: You're not getting timely information
23 on what the status of that -- the evolution of that
24 so-called certification process.
25 MR. DAPAS: Nobody else is either. Other than

1 what I read in the PRA implementation plan updated
2 Commission paper.
3 DR. POWERS: It seems to me that -- I think
4 there's a wealth of information at that tend of the table on
5 what the minimums ought to look like, just because of the
6 pain, it's knowledge that's been gained by pain.
7 I'm wondering if we can't find a mechanism to do a
8 download so that there is some hope that maybe that gets
9 represented in the standard, because the last thing you want
10 to do is get a standard back that's no good to you, that
11 doesn't standardize the things that you want standardized.
12 DR. SIEBER: It's harder to undo that kind of a
13 thing than it is to write it in the first place.
14 DR. APOSTOLAKIS: Will you have an opportunity to
15 comment on the ASME standard? I mean, the public is
16 welcome, so you are welcome, too.
17 MS. BURGESS: I believe the region will have a --
18 MR. PARKER: More than likely, Research has been
19 very accommodating in requesting our resources to comment
20 and provide feedback to all the new inspection processes and
21 generally the NUREGs that are coming out, too. So I would
22 see no difference in this regard.
23 DR. APOSTOLAKIS: There is a workshop, as you
24 probably know, on the 27th of this month. Do you plan to
25 attend?

1 MS. BURGESS: No.

2 DR. POWERS: They've got more than they can keep

3 up with as it is.

4 MS. BURGESS: Yes. We've been very busy.

5 MR. DAPAS: But, George, not to convey we don't

6 think that's an important activity. Like verification and

7 phase two workshops we think is a high priority, as well, so

8 that we can ensure we're capturing the licensee

9 plant-specific information.

10 So there's competing priorities we're trying to

11 wrestle with.

12 DR. APOSTOLAKIS: Is it fair to say that we risk-inform the

13 regulations with very limited risk information on our part?

14 MS. BURGESS: Yes.

15 DR. POWERS: When you look at this risk-informed

16 regulation, only a third of it is risk-informed. The rest

17 of it is something.

18 MR. GROBE: It's all risk-informed, it's to a

19 degree.

20 DR. APOSTOLAKIS: It's not quantitative.

21 DR. POWERS: This is the argument I sometimes make

22 with the gentleman to my left and say we've always done

23 risk-informed regulation, we didn't write these regulations

24 because we didn't think there was any risk there.

25 DR. APOSTOLAKIS: That's right, and I have been

1 persuaded, as always when I hear a reasonable argument.

2 CHAIRMAN BARTON: All right. Where are we here?

3 DR. APOSTOLAKIS: I think Sonia is telling us --

4 the last four bullets, we understand that you're doing that.

5 Do you want to move on to --

6 MS. BURGESS: One initiative that we actually -- I

7 did want to make a point, the initiative that we are doing

8 that we are going to -- we're doing outage risk assessments.

9 The plant is in an outage, Mike and I will go out to a site,

10 sit down with the scheduling people of the outage from the

11 licensee, understand where their risk significant evolutions

12 are and helping to focus the resident staff on what to look

13 at out, what to be observant of, what the most risk

14 significant issues and evolution is.

15 DR. POWERS: Do you have an understanding of what

16 the risk significant evolutions are during an outage, can

17 you tell me?

18 MS. BURGESS: Quite honestly, I think that our new

19 inspection procedure for outage work is pretty good on

20 hitting PWR/BWR risk significant evolutions, from a broad

21 perspective, to give, I think, excellent guidance to the

22 resident staff.

23 DR. POWERS: I'll look at it.

24 MR. GROBE: What we found is that the licensee's

25 risk analysts aren't getting involved early enough in

1 looking at the outage plan. We have been prepared to go out
2 and look at the outage plan and the risk analysts, in some
3 cases, haven't even started looking at it.
4 Are you asking the question because we haven't
5 really developed a shutdown risk model yet?
6 DR. POWERS: The committee has had the chance to
7 review a proposed rule in the area of shutdown regulation,
8 and rejected it, fairly sternly, on the basis that we didn't
9 feel like we had risk information about shutdown sufficient
10 to know what to regulate, and asked that Research undertake
11 a study to develop a risk profile during shutdown
12 operations, not only planned outages, but unplanned outages,
13 as well, and that has not progressed.
14 So as a result, I don't have the kind of
15 information base of what constitutes risk-significant
16 evolutions during outages that I have for normal operations
17 gained from things like the beginning of WASH-1400 and up to
18 NUREG 1150, and even the IPE insights document I find a
19 wonderful source of information about what is risky in a
20 plant during operations.
21 But I don't have that for outages. I've got a
22 huge inventory of, which I seem to now have a hobby of
23 collecting, of incidents that occur during various types of
24 outages and I know the kinds of things that get you in
25 trouble and I'm sure I could write a regulation to make sure

1 those things never happen again and I find, in general, they
2 don't ever happen again, people correct things.
3 But I don't have a feeling for how you get into
4 these problems and what kinds of things to look for.
5 MR. PARKER: And you bring up a good point.
6 That's what we're trying to do is look at those issues,
7 those risk insights that we have some knowledge on, but
8 we're using the tools defense-in-depth and some of the NEI
9 guidance to say, hey, mid-loop operation and different
10 operations like that are highly risk significant conditions
11 and that's the one tool we have.
12 But to go back to your point, the one opportunity
13 that we have is Perry is developing the shutdown model and
14 they intend to put that on their safety monitor, where they
15 will be able to have a probabilistic on-line risk monitor,
16 and it will be very interesting to be able to tie that into
17 their outage coming up next February.
18 But they hope to have it in place so they can use
19 it for their outage planning activities and that will be a
20 unique opportunity for us in the region to be able to see if
21 there's any insights that come out of that and share it with
22 other plants.
23 DR. POWERS: I think these things are all good. I
24 wish that you would have the kind of data that's in the PRA
25 community about the details of these models, because I know

1 that we have substantial questions about how you go about
2 modeling human error in these kinds of situations, which are
3 very different from operational situations.
4 And I don't see the kind of debate between
5 gentlemen, such as on my left, and his peers on how you go
6 about doing that modeling that I have seen in connection
7 with operational events and see the way that you set up the
8 structure, the fault trees and event trees for shutdown
9 events and the detailed discussions and the philosophy that
10 I see for operational events.
11 And so these things get created, I'm glad, and
12 they're going to help a lot, just like you said, but I would
13 -- I'm not sure they raise my comfort level an awful lot.
14 MR. PARKER: Well, that's what stirred up my
15 interest as far as certification. When we went out and did
16 the SDP activities, to look at some of the human performance
17 that we're crediting in our SDP that we have generic values,
18 ten-to-the-minus-one for a high stress and
19 ten-to-the-minus-two, and then we see the utility call it a
20 ten-to-the-minus-four for the same thing, we haven't
21 validated that and we're very uncomfortable and headquarters
22 is stepping back and looking, is it appropriate to use the
23 licensee's numbers versus ours.
24 And when we have an issue that results in a human
25 performance, how do we deal with that and where do we go; do

1 we step back and look at the licensee's assumptions and
2 their basis and validation behind that.
3 So there's a lot of questions in that area where
4 human performance becomes a real issue.
5 MR. DAPAS: That underscores the need for some
6 type of standard, in my view. From my perspective, your
7 comments are clearly valid about we have limited
8 risk-informed our processes. You're attempting to use the
9 tools you have. If the licensee is proactive, like they are
10 at Perry, you want to learn from that.
11 I think in the interim, though, we've tried to
12 come up with the SDP, recognizing its limitations, and we
13 have some tool to use to assess significance until we maybe
14 develop some standard where the licensee says here is my PRA
15 and we have confidence that it's sufficiently rigorous and
16 we can use that in our determination of risk.
17 Right now, we have this --
18 DR. APOSTOLAKIS: But will the licensee say here
19 is my PRA?
20 MR. DAPAS: They don't have to right now.
21 DR. APOSTOLAKIS: So does the Commission know that
22 you are a little bit constrained in your efforts?
23 MS. BURGESS: Yes.
24 MR. DAPAS: I hope so.
25 DR. POWERS: They should understand the

1 limitations of the SDP.

2 DR. APOSTOLAKIS: But, I mean, in order to

3 understand -- if we are the only ones, it doesn't work.

4 DR. POWERS: They have asked for us to talk to

5 them on the SDP, on whether the PIs are truthfully risk

6 significant. I don't think they're ready for the answer

7 we're going to give them. And since I get to be the

8 messenger, I may be dead next week.

9 MS. BURGESS: Slide 28 just highlights three

10 bullets, that the SRAs in the region are extremely involved

11 in the new process, very active and very busy just resolving

12 findings and issues that inspectors from DRS and DRP are

13 bringing to the table, running through the SDP process.

14 Since these worksheets are not yet completed, done

15 with the revisions, the SRAs are involved in almost every

16 issue.

17 DR. POWERS: I understand people are looking into

18 expanding the workforce of SRAs.

19 MR. GROBE: We can talk about that a little bit.

20 MR. DAPAS: That's one of the staffing challenges

21 Jack mentioned.

22 MR. GROBE: Yes. Could we hold off on that?

23 DR. POWERS: Sure.

24 MR. GROBE: Because we have another staffing

25 issue. There is one thing we haven't touched on with Mike

1 and Sonia that we talked about briefly earlier was how the
2 SRAs and risk analysts are going to get involved in event
3 response. We've only had one substantive event since the
4 new program went into force, and that was at Palisades.
5 And what we found was that there was a disconnect
6 between management's expectation of what could be provided
7 and what we actually had the capability to do.
8 So why don't you guys talk a little bit about how
9 Palisades went and what we expect to be able to perform in
10 the future, how we expect to be able to perform?
11 MS. BURGESS: With any event, preliminary
12 information is just that, preliminary, and it seems to
13 change minute by minute. So with the best information that
14 we get, based on a senior resident at the site giving us, we
15 were able to probably within an hour or an hour and a half
16 give a rough big picture estimate of the situation of the
17 event, conditional core damage probability.
18 DR. POWERS: I just have to interject an anecdote.
19 In the hours following the Chernobyl accident, they called
20 Moscow to explain they had an accident and the guy on site
21 says, well, they've had accident here, but things don't look
22 too bad.
23 That shows you how good preliminary information
24 can be.
25 MR. DAPAS: Pretty gross estimate.

1 DR. SIEBER: It's all relative.

2 MR. GROBE: But our residents have a little bit

3 more flexibility to speak what's on their mind.

4 MS. BURGESS: So we're able to give -- we have

5 limited tools with the SAPHIRE model and the GEM model and

6 obviously our model is not as extensive as the licensee is

7 being able to model certain components and that, but I think

8 we are able to provide a rough estimate, for event response

9 purposes, of whether we need to send a special inspection or

10 an EIT or an IIT.

11 I think in a lot of cases, definitely IIT is going

12 to be self-revealing anyway.

13 DR. POWERS: You're saying that you've got enough

14 information that you can provide information to management

15 to make these kinds of decisions.

16 MR. DAPAS: Right. Do we need a special

17 inspection? Are we comfortable that we have the big deal

18 threshold or do we have time to acquire additional

19 information and then maybe we need to send another inspector

20 from another site versus --

21 DR. POWERS: When you decide, you make a decision

22 and say I'm going to send a special inspection team to get

23 to the bottom of this. You give that team a charter.

24 MR. DAPAS: Correct.

25 DR. POWERS: And you have enough information to

1 give a charter.

2 MR. GROBE: The charter is developed within the

3 first couple hours.

4 DR. POWERS: But when they do their best, they've

5 had their week or maybe a weekend, they never occur at good

6 times, right? You've had -- and they've brought forth what

7 they need. Can you write what you would say is a good

8 risk-informed charter from one of these AITs or IITs?

9 MS. BURGESS: I believe we can. Just in the past,

10 before the probabilistic risk insight was used, we also used

11 deterministic risk insights. And our charters were very

12 right on the money when we sent out a team and I don't see

13 any difference now that the probabilistic risk insight is

14 added.

15 I think we can do a very capable job of giving a

16 real good charter to the team.

17 MR. DAPAS: But I think we would focus on things

18 like is the licensee evaluating the risk significance, is

19 the licensee trying to determine extended condition, is the

20 licensee conducting a root cause, and, if not, we would

21 challenge the licensee. And, again, that assumes that there

22 is clearly risk significance associated with this that

23 prompted us to send the special inspection.

24 MR. SINGH: I want to ask a question. SRA is a

25 part of the AIT team most of the time?

1 MS. BURGESS: Not necessarily. It's dependent.
2 MR. GROBE: The last time we went an SRA out was
3 the tornado that hit Davis-Besse. That was a year and a
4 half ago or so.
5 MR. PARKER: The flexibility is in the program
6 that if they think that there is a potential that there is
7 some uncertainty or some concerns that we have, that they
8 can --
9 MR. SINGH: How about, say, if you have an
10 inspection team inspection, do you have an SRA as part of
11 the team?
12 MR. GROBE: We certainly have that flexibility.
13 But generally, usually, a special team is our lowest level
14 of response. Generally, that's very targeted on equipment
15 problems, root cause, things like that.
16 MR. CALDWELL: But I guess the answer, we haven't
17 had a special inspection in this new process yet. So we're
18 telling you what we think.
19 MR. SINGH: Because the reason I ask, I asked the
20 question to Region IV when they had a fire at Diablo Canyon
21 last month, and they had a special inspection and they sent
22 the SRA up there.
23 MR. GROBE: That was a significant, complicated
24 event.
25 DR. POWERS: One of the things the committee has

1 to do is advise the Commission on where it should be
2 spending its research resources and we're wondering if they
3 are under-investing in developing these tools to be used by
4 the SRAs.
5 MR. GROBE: We're clearly resource constrained
6 right now. Almost all of our agency resources are going
7 towards the SDPs and as they pointed out, the shutdown
8 model, low power model, containment model --
9 MR. DAPAS: Risk-informed PIs is another
10 initiative that Research has embarked on.
11 MR. GROBE: The interesting, I get anecdotal
12 feedback, but I understand that the industry is not
13 interested in risk-informed PIs. That the amount of money
14 that it would take to implement it doesn't give them
15 sufficient payback.
16 DR. POWERS: What had been proposed up till now, I
17 agree with industry on that.
18 DR. APOSTOLAKIS: But if we couple this with the
19 maintenance rule, will it be much easier to define those
20 PIs? They already did a lot of it for the maintenance rule.
21 So there seems to be a distance or gap between the
22 maintenance rule and risk-informed regulations and using the
23 PIs. I don't understand why. I mean, what I don't
24 understand is why didn't the staff at headquarters say, when
25 they were establishing the oversight process, that the PIs

1 were plant-specific and the licensees should propose the
2 thresholds.
3 They did it with the maintenance rule.
4 MR. DAPAS: I think the licensee, in many regards,
5 has weighed in on the thresholds here.
6 DR. APOSTOLAKIS: But they have their own.
7 MR. GROBE: Not plant-specific.
8 DR. APOSTOLAKIS: They have their own.
9 MR. DAPAS: There was a strong emphasis with the
10 PIs to minimize the dollar cost of implementation. So they
11 depended very heavily on indicators.
12 DR. APOSTOLAKIS: Now they'll pay the price for
13 the severe criticism that everything that is expected to be
14 green and they don't mean anything and this and that, and it
15 seems to me that there was an easier way of approaching it.
16 DR. WALLIS: Dana was asking about tools and I
17 think you gave an answer about resources. Tools, to me,
18 enable you to do more with fewer resources.
19 MR. GROBE: That's what I was talking about; that
20 is, the resources are currently focused on other tool
21 development and our ability to develop all these tools is
22 resource constrained.
23 MR. DAPAS: From a regional perspective, I would
24 offer we are certainly interested in any tools research can
25 provide us.

1 DR. WALLIS: It may be we could get some
2 resources, or someone, to RES to develop things for you,
3 that's a different kind of resource.
4 MR. DAPAS: As long as they don't come from the
5 region.
6 DR. WALLIS: Yes.
7 DR. POWERS: That's another question.
8 Unfortunately, the ACRS has no role to play in that. That's
9 an NRC management function. But it's one we certainly worry
10 about, because it doesn't do any good to pay Peter by taking
11 from Paul.
12 DR. SIEBER: Well, I think there is one other
13 point, and that is that recently in the development of a lot
14 of the criteria involved with license renewal, there was a
15 notable contribution made by some people from one of the
16 regions in helping to put together part of that approach. A
17 lot of us, at least I personally am convinced that the
18 Commission would do itself a great favor if it would make
19 greater use of the talent that exists within the regions
20 and, in particular, those people who are the senior
21 inspectors, who have real knowledge of how the plants work,
22 when they put together some of these proposals and ideas.
23 And so to that extent, we may be doing you the
24 disfavor of suggesting that you be a greater participant,
25 but I hopefully would believe that that's, in the long run,

1 a productive thing rather than counter-productive. I mean,
2 we have to be frank with you on that.
3 MR. GROBE: We're one agency, though, and what's
4 best for the overall safety of the industry is where our
5 focus is.
6 DR. SIEBER: Yes.
7 DR. POWERS: My boss used to say that he was
8 giving you an opportunity to exercise your management
9 talent.
10 MR. CALDWELL: I think you're exactly right that
11 there are resources in the regions that would help out a lot
12 of the development of new programs, et cetera, but there
13 needs to be a shift in resources, because typically the
14 development is in headquarters.
15 So in order for that to work effectively, then we
16 need to shift some resources to the regions so that the
17 regions have that flexibility to interact or get involved in
18 the development activities. Because right now, it's the
19 program office that does all the development and they
20 resources for that. But we wouldn't disagree that we think
21 the talent we have in the regions could help that process.
22 It's just that we are base-loaded right now.
23 DR. SIEBER: Every time we've had a blood drive in
24 this organization, the people who have contributed have been
25 research and the regions. You don't understand.

1 MR. CALDWELL: I understand. I have to say,
2 though, that the program offices have taken some pretty
3 significant cuts and tried to prevent those cuts from the
4 region. So we have fared reasonably well in the past; in
5 fact, most recently.
6 My point is that if we're going to use regional
7 resources for developmental programs, then you have to
8 recognize that in the budget.
9 DR. SIEBER: I agree.
10 MR. CALDWELL: And take some of the developmental
11 resources from the program office and put them in the
12 regions. We are perfectly happy to do that and be involved.
13 It's just that we have to be careful that we have enough
14 folks.
15 DR. WALLIS: You can be very involved in defining
16 what are the problems, what could be the solutions, what
17 would help you. You're the customer for something. I don't
18 see you being quite so involved as a resource in developing
19 something, but very involved in being articulate and somehow
20 expressing what it is you need, what the characteristics
21 have to be of something which comes out of some research
22 activity.
23 MR. CALDWELL: A lot of the details of this new
24 program, though, were developed by regional resources.
25 MR. GROBE: That's right. That happened under the

1 old program, so we had some flexibility and we sent a lot of
2 folks into headquarters.
3 MR. DAPAS: Task groups, et cetera.
4 CHAIRMAN BARTON: Since lunch seems to be out the
5 door, we'll break for lunch from now until 1:15.
6 [Whereupon, the meeting was recessed, to reconvene
7 this same day at 1:15 p.m.]
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1 AFTERNOON SESSION

2 [1:15 p.m.]

3 CHAIRMAN BARTON: We've got till 3:00. We don't
4 want to miss anything that you want to tell us you feel is
5 important, but try to get wrapped up by 3:00.

6 MR. GROBE: Well, why don't I fly through the
7 training analysis, then.

8 CHAIRMAN BARTON: Okay.

9 MR. GROBE: I mentioned earlier that in the area
10 of engineering inspections, that we've had to evolve our
11 expertise and that's because we're doing more design
12 inspections and we can no longer rely on contract resources.

13 CHAIRMAN BARTON: Right.

14 MR. GROBE: In addition, we've got a fairly high
15 turnover rate. A number of our individuals have left the
16 jobs with utilities, as well as we had a number of
17 retirements.

18 So we've been in a fairly strong recruiting mode
19 and we've been trying to emphasis recruiting of individuals
20 with a stronger design expertise.

21 That's different than the expertise we've had in
22 the past in the region. We've had some design expertise,
23 but not a lot.

24 CHAIRMAN BARTON: Are those people hard to find
25 now?

1 MR. GROBE: Absolutely. Absolutely. And we had
2 some folks go out to the east coast out of Region I to try
3 to find out if there was anybody interested in joining up.
4 But basically it's the engineering firms,
5 utilities and military that are our recruiting pool.
6 The safety system design inspection is five
7 engineers for three weeks and, again, if we're going to be
8 successful in those inspections, they have to be qualified
9 with design experience, mechanical, electrical and I&C
10 system engineers.
11 The Appendix R inspection, the fire protection
12 inspection is three multi-disciplined engineers, and, again,
13 they have to have very unique experience. They have to be
14 experienced in Appendix R inspection capability, and we're
15 going to talk a little bit about the kind of training that
16 they --
17 CHAIRMAN BARTON: Are they ongoing or is that a
18 one-shot deal?
19 MR. GROBE: We had inspections early, following
20 publishing the rule, through the '80s, that were, at that
21 time, intended to be one-shot inspections. Since then, the
22 inspections were suspended. Now, under the new program,
23 we've re-initiated some inspections.
24 For a while, we were doing inspections out of --
25 that had the acronym FPFI, fire protection functional

1 inspections, those were done out of headquarters and they
2 were not programmatic in nature in the sense that they were
3 mandated to be done at every plant.
4 But this is not an FPFI. It's not at that level
5 of detail. But it does touch on the same elements that a
6 fire protection functional inspection touched on.
7 You need somebody with fire protection engineering
8 capability. We don't have a fire protection engineer, but
9 we've trained one of our engineers to assess those kinds of
10 attributes of the licensees' design.
11 We also need an I&C or an electrical engineer, but
12 it's unique expertise in evaluating Appendix R types of I&C
13 issues. And then you need a system operations engineer to
14 look at how the licensee would implement procedures
15 post-fire and whether their plans are feasible.
16 DR. POWERS: Do you have plans to do induced
17 station blackouts?
18 MR. GARDNER: Yes. I'm not saying Region III has,
19 but there are some in the country, that because of the fear
20 of not being able to contain spurious operations, they go
21 into a station blackout condition, and that's a concern,
22 obviously.
23 MR. CALDWELL: We don't have them.
24 MR. GARDNER: Not that I'm aware of in Region III,
25 that's what I said. I'm not sure there are any in Region

1 III. We'll find out.

2 MR. GROBE: We should introduce Ron. This is Ron

3 Gardner. Ron is my electrical engineering branch chief. We

4 do our fire protection inspections out of the electrical

5 engineering branch.

6 DR. POWERS: The induced station blackout is a

7 problem, it's a recovery.

8 MR. GARDNER: Well, it puts you into a condition

9 that you don't want to get into.

10 MR. GROBE: Just to touch briefly on what we've

11 been able to accomplish to date, we hired a Ph.D. I&C

12 engineer who had 12 years of experience designing control

13 systems for fighter jets, digital control systems for

14 fighter jets. We're trying to turn him into a nuclear power

15 plant I&C inspector.

16 We hired, he's on yet on board, but he's accepted

17 our offer, an I&C engineer who was one of the co-chair of

18 the Appendix R BWR owner's group. So extensive Appendix R

19 experience.

20 We hired an electrical engineer that had extensive

21 experience in the industry, as well as prior inspection

22 experience, and we just brought in a mechanical engineer,

23 he's a former senior resident inspector, into the mechanical

24 engineering branch.

25 The area that we're having trouble is mechanical

1 design, piping stress analysis, that sort of thing. We're
2 still looking for that resource and we're still looking for
3 another electrical engineer. But we've had some success in
4 this area. They are hard to come by.
5 I want to talk a little bit about training. Ron?
6 MR. GARDNER: In the 1980s, when we did the
7 64-100, I don't know if you remember that number, baseline
8 inspections, that were actually to make sure licensees were
9 meeting their required date for implementing 50.48 and
10 Appendix R, we had degreed fire protection engineers in just
11 about every region and we augmented our people with NRR
12 resources and contractors.
13 We had a very good team. Unfortunately, since the
14 1980s, we've lost those fire protection engineers. We lost
15 one to NRR, one went to actually OI. And then the FPFIs
16 came back, and I can talk about how we got to where -- some
17 of that's with Generic Letter 92-18, you might be aware. So
18 you know how we've gotten there.
19 In any case, unfortunately, today, with the
20 baseline program introducing the FPI, we don't have degreed
21 fire protection engineers. We have inspectors that were
22 doing the base fire protection inspection and that is a far
23 degree of difference between that and design of fire
24 protection systems.
25 As Jack indicated, we have started training a fire

1 protection engineer. We had a training session that NRR put
2 on, two sessions each a week in Brookhaven, you may have
3 heard of that. We're having a follow-up training session in
4 the region here in September, one day, unfortunately.
5 For the first couple of inspections, we're having
6 a contractor assist. We're doing an inspection right today,
7 the last day of the inspection is Friday, at Braidwood, fire
8 protection inspection.
9 We have two Brookhaven contractors. That's OJT
10 that we're getting from them. We have NRR technical expert
11 also on that team that's also giving them some training.
12 So through a combination of OJT and classroom
13 training, we are attempting to reach a level that we feel
14 comfortable with as far as the technical capability of our
15 people in this area.
16 As you know, it's very complex, though.
17 MR. GROBE: For a period of six months, we've
18 gotten limited contractor resources in the fire protection
19 area, and for about 18 months in the design area, to put one
20 contractor on each inspection team. And the goal of that is
21 to develop some on-the-job training.
22 In addition, we're doing some internal course work
23 on heat sink, thermal hydraulics, somebody mentioned heat
24 transfer earlier, because we have a new inspection we hadn't
25 done before, it's called heat sink. What it primarily

1 focuses on is the viability of heat exchangers.
2 And we're exploring the TTC in other regions,
3 discipline-specific course work in heat transfer, set-point
4 methodology, instrument loop uncertainties. We hadn't
5 focused a lot in the past in these areas, so we're looking
6 at developing some internal course work in those areas.
7 CHAIRMAN BARTON: TTC?
8 MR. GROBE: TTC is the technical training center,
9 currently in Chattanooga. I would expect most of this is
10 stuff we're going to do.
11 MR. SINGH: I have a question. Before you
12 suspended the inspections back in the '80s, did you ever do
13 the triennial inspections in fire protection?
14 MR. GROBE: No. We didn't do one in this region.
15 MR. SINGH: You did not.
16 MR. GROBE: No. There were, I think, only three
17 done in the entire country.
18 MR. SINGH: No. There were lots of them. I did
19 all of them in Region IV.
20 MR. GROBE: Oh, did you?
21 MR. SINGH: Yes.
22 CHAIRMAN BARTON: How many did you do in Region
23 IV?
24 MR. SINGH: Eight. So nothing was done. Thank
25 you.

1 MR. GROBE: Any other questions in engineering?
2 MR. DAPAS: I just wanted to touch upon, starting
3 with slide 42, some of the staffing challenges in the
4 resident inspector program. We've experienced a relatively
5 high turnover rate and consequent with that is the challenge
6 to fill vacancies.
7 You have to post the vacancy, go through the
8 selection process, and then train the individual, and with
9 the qualification process, it can be several months before
10 we have a fully engaged resident inspector replacement once
11 we've identified the vacancy.
12 CHAIRMAN BARTON: The primary reason for the high
13 turnover rate or does it vary?
14 MR. DAPAS: It varies. It can be promotional
15 opportunity for the resident inspector that may go on to be
16 a senior resident inspector or come into the regional
17 office. It can be -- and that goes for both resident and
18 inspector and senior resident inspector.
19 It's a bit more limited for the senior resident
20 inspector in terms of promotional opportunities, but there
21 have been a number of residents that have received
22 promotions, or requests for lateral transfers. We had a
23 resident inspector that wanted to go back to NRR to be a
24 project manager and we supported that. He, of course, had
25 family in that area and that seemed to be a win-win.

1 And in addition to that, there's attractive salary
2 offers out there in the industry. Some of these plants that
3 were in extended shutdowns, like Cook and others, plants
4 that are merging, there's opportunities for experienced
5 resident inspectors and you're dealing with signing bonuses,
6 et cetera, and lucrative salary offers, that's been an
7 attractive draw.
8 MR. CALDWELL: Was your question -- were you
9 trying to get to whether there's dissatisfaction? I don't
10 think we have -- I mean, there's always going to be some
11 folks.
12 CHAIRMAN BARTON: But 12 percent is pretty high
13 turnover.
14 MR. CALDWELL: I think most of the folks that left
15 went for either geographic, promotion, or something that
16 benefited them, either money or whatever. I don't think we
17 lost anybody that just --
18 MR. DAPAS: Or early-out, I don't think so.
19 MR. CALDWELL: -- didn't like the program anymore.
20 MR. DAPAS: And that's one of the things we try
21 and probe, was there some concern with or dissatisfaction
22 with your working environment or et cetera.
23 DR. POWERS: But if the inspection program is
24 going to turn them into automatons and eliminate
25 discretionary and judgmental aspects of it, are you going to

1 lose people?

2 MR. DAPAS: I'd challenge that characterization of

3 the new program, but --

4 DR. POWERS: I put the worst spin on it I can

5 here.

6 MR. DAPAS: I think we are asking the inspectors

7 to bring judgment to bear and as I said, in the context of

8 what revisions do we need to make to the program, I know

9 that Jim and I have had a lot of discussions, we place a

10 high value and premium on experienced individuals with

11 mature judgment and we value that and we're going to

12 consider that input.

13 And we -- divisional meetings or one-on-one

14 discussions with the residents, we go out to the site, we're

15 continuing to encourage them to flush issues up to branch

16 chief management, so those can be considered and evaluated,

17 and not get locked into this, well, the new program doesn't

18 allow me to do X or Y.

19 CHAIRMAN BARTON: One of the concerns I have is

20 they do an SDP and they get frustrated because in the past

21 it was the findings of violation and now you do it and it's

22 --

23 MR. GROBE: It's an issue that we're having to

24 focus some management attention on, because we've completely

25 perturbed all of the structures that the staff had to

1 demonstrate their own --

2 CHAIRMAN BARTON: Exactly.

3 MR. GROBE: -- in terms of value. So we're
4 building what is currently called a significant reactor
5 finding. We're going to rename it, but we're doing more
6 internal recognition of inspection issues that add value,
7 but don't get to a white, yellow or red threshold, add value
8 because they provide insight to the licensee or provide
9 insight to us as far as inspection techniques or other
10 issues that other plants can look at.

11 So we're trying to find ways to give the staff
12 anchors for their value, but it is a challenge.

13 MS. NESTON: Does this 12 percent also include the
14 rotation out of a particular plant because they've been
15 there for so long?

16 MR. DAPAS: I'm not sure on that.

17 MR. CALDWELL: In the range, it could include
18 someone who has rotated back to the region, because either
19 their time was up or we've had individuals who didn't stay
20 the full seven because they were grandfathered with the
21 five. They came up to their five and decided they wanted to
22 do something different and rotated either back to
23 headquarters or here.

24 MS. NESTON: And they would be included in that 12
25 percent.

1 MR. CALDWELL: They would be included in that.
2 MR. GROBE: In honesty, we haven't had a lot of
3 folks that have been -- that have moved because they've
4 gotten to their time limit. That's the exception, not the
5 rule.
6 MR. DAPAS: That's with the extension to the seven
7 years. But I think, and I view this as a positive, I think
8 we've had a number of instances where feedback we've
9 provided to the program office, discussion that we've
10 generated in the different forums to discuss the new program
11 has resulted in some change, and we try and build upon that
12 as positive examples for the inspection staff, where
13 expressing their views has resulted in revisiting of a given
14 approach.
15 So we are encouraging that across the board as we
16 go into initial implementation. The pilot program, we had
17 input from really two branches, and now we've got input from
18 all the branches, and there is a learning curve that they go
19 through. Some of the feedback we're able to address as a
20 result of lessons learned from the pilot program and then
21 there's also additional insights that are communicated that
22 we discuss and forward to the program office.
23 So I view that as kind of healthy. There's a long
24 training period, as I mentioned, for qualification. You
25 have to attend the BWR, the PWR series, plant-specific

1 system knowledge, on-the-job training, that's certainly a
2 large aspect of the resident qualification program, and then
3 the emergency preparedness responsibilities, understanding
4 the licensee's emergency response plan, the NRC
5 responsibilities.
6 And I caveat this, appropriately. Some PRA
7 training that the residents receive so that they can
8 understand the use of the SDP process and how risk impacts
9 inspection activities, and then they go through a course, an
10 oral qualification board, where we have various branch
11 chiefs that sit and ask questions to test knowledge in the
12 regulatory perspective.
13 CHAIRMAN BARTON: What happens if they fail the
14 oral board? Do they get another shot?
15 MR. DAPAS: We have had a couple individuals, in
16 my experience in the region, that we felt needed another
17 qualification board. So there were particular areas where
18 they had to concentrate and devote some additional study and
19 then they were successful in their second board. But the
20 branch chiefs, I think, are fairly successful in not
21 offering or sponsoring a resident for a qualification board
22 until they're pretty confident that they've acquired the
23 requisite knowledge to be successful.
24 So we've had limited experience where that has
25 occurred.

1 MR. SINGH: Do you also have an oral board for the
2 regional inspectors?
3 MR. GROBE: Absolutely. Every inspector goes
4 through an oral board.
5 MR. DAPAS: And then when we looked at the pool of
6 experienced resources, that's a bit limited. Obviously, we
7 draw from the Navy or shipyard or licensee operational
8 experience.
9 DR. POWERS: If the Navy keeps working its folks
10 as hard as they are right now, you'll have a big pool of
11 people.
12 MR. DAPAS: We get some applicants that have a lot
13 of experience in the nuclear power program that the Naval
14 Reactors runs and that's because they are downsizing. So
15 they're looking for other opportunities.
16 But this does require an aggressive recruiting
17 program, because as I said, the competitive salaries and the
18 signing bonuses in the industry, the lengthy process we have
19 to go through for selection, rating panels and interviews,
20 et cetera. So that can sometimes -- where employee X can
21 say here, we're offering you a job here.
22 Sometimes we've been in the process of going
23 through the selection and we're ready to forward an offer
24 and individual X has said, well, I just took an offer a
25 couple weeks ago with company Y. So sometimes we're

1 confronted with that and we look for ways to streamline
2 that.
3 One of the things that we're also looking at is
4 the entry level program, and that certainly is a resource
5 investment, but we want people with experience. But, again,
6 that can be limited, so we look and explore the entry level
7 program.
8 MR. CALDWELL: Mark is going to try to hustle up
9 here so we can get into the fire protection stuff, but I
10 want to make sure, before he gets out of this, if you have
11 any questions on this, because it is probably one of the
12 most important programs we have; not necessarily because the
13 other aspects, what we do is not important, it's because
14 these are the folks that are on the site that are there all
15 the time.
16 What they do is -- what I saw as the biggest
17 change in the way the agency worked was that licensees now
18 expect to have somebody there, so that they don't operate
19 differently than they would if an NRC presence wasn't there.
20 I talked to some staff people and they told me
21 that in the old days, when they knew the inspection team was
22 coming out, they changed their mode of operation for that
23 week and then changed back after they left.
24 So the resident program has provided a routine
25 presence which keeps folks from operating differently when

1 we're there.

2 CHAIRMAN BARTON: It keeps them honest.

3 MR. CALDWELL: Well, I didn't want to say it that
4 way, but that's essentially it. I didn't mean to interrupt
5 you, Marc.

6 DR. POWERS: Well, there's another thing that you
7 have to bear in mind, that all of us have to bear in mind,
8 that there is a very, very crucial role that they play and
9 this SDP process is their process for screening their
10 findings and whatnot. So their level of responsibility, to
11 my mind, has actually gone up in this new procedure and some
12 of these things I worry about are responsibility and
13 judgment, notwithstanding I think there are still concerns.

14 MR. GROBE: The SDP is not limited. The residents
15 obviously have a role in evaluating their findings, but the
16 region-based inspectors also use that, that the value to the
17 inspection program that the residents add is -- I can't
18 remember the number -- but several hundred hours of their
19 time is allocated to what we call plant status and that --
20 it's 650, and that's supposed to be a risk-informed
21 assessment of what's going on, so that they can engage
22 themselves in the right activities and also engage the
23 region-based folks that come out in the right activities
24 from the risk perspective.

25 MR. CALDWELL: I cut Marc off and I apologize.

1 MR. DAPAS: One of the things we talked earlier
2 about is the impact of the training courses at the technical
3 training center, when they're offered, but branch chief X
4 has a vacancy and is successful in filling that, but the
5 annual PWR course just completed, that individual has to
6 wait till the next year to pick that up.
7 CHAIRMAN BARTON: So it's only given once a year.
8 MR. DAPAS: Right, and I guess that is a function
9 of the demand that they have when you look across all the
10 regions and all the offices, that they were only able to
11 justify one course a year, but sometimes that does have an
12 impact depending on when your individual reports on board.
13 And we already talked about absence from the site
14 for an extended period. If you're attending a seven week
15 course in Chattanooga, you're going through the
16 qualification process, that impacts baseline program
17 execution and site coverage and that requires pretty
18 involved branch management of the inspection --
19 CHAIRMAN BARTON: You bring another inspector on
20 board for that period of time, right?
21 MR. DAPAS: Right. We were looking at like a
22 contingency plan. A good example is in an outage. The
23 licensees are short during outages. There's I forget how
24 many hours associated with the resident inspection portion
25 of the outage. Do you recall, Laura?

1 MS. COLLINS: Eighty.

2 MR. DAPAS: Eighty hours. Doing that at what
3 might be a 22-23 day period can be a real challenge if
4 there's only one inspector on-site and branch chief X might
5 ask the other branch chiefs can you help me out with sending
6 someone during this outage period.

7 And as I mentioned, on-the-job training is a large
8 part of the program. And the experienced SRIs look at
9 resident inspector development as a high priority and their
10 responsibility. It's kind of like I'm training my
11 replacement coach. So they place a premium on that and I
12 think we get a lot of value-added.

13 And the other thing, as I mentioned, we look at
14 reduced training length when hiring high quality individuals
15 who can hit the ground running. We have had some interim
16 certifications in selected areas of the inspection program
17 because an individual comes on board that has an extensive
18 operations background.

19 And then the extensive cross-training. I was just
20 looking yesterday at the number of residents and senior
21 residents that have both PWR and BWR training, and so
22 they're fungible to go to other sites without having to take
23 the specific series course.

24 And the other aspect of this cross-pollinization is between
25 DRS and DRP. We've had a resident inspector go to operator

1 licensing and a senior resident that reported to operator
2 licensing, as well as an individual from the engineering
3 branch going out and being a senior resident.
4 So there is some cross-pollinization between
5 divisions which we think is real beneficial.
6 If there are any questions.
7 CHAIRMAN BARTON: Do resident inspectors get
8 overtime?
9 MR. GROBE: Yes.
10 CHAIRMAN BARTON: Are they paid overtime?
11 MR. GROBE: Absolutely. Let's move on to risk
12 training. What I'd like to do -- do you folks have any
13 questions about the SRA training program? Are you familiar
14 with that?
15 CHAIRMAN BARTON: No, I'm not familiar with it.
16 What slide are you on, Sonia?
17 MS. BURGESS: I'm on 46. There's Region III is no
18 different from the other regions. There's two SRAs in each
19 of the regions and there is consideration of an additional
20 risk trained person and that can take the form of a couple
21 of different options.
22 One is using existing inspectors with additional
23 risk training, so they can do it part-time, and another
24 person that's dedicated to assist the SRAs in the analysis
25 of risk.

1 CHAIRMAN BARTON: Have you been in a position of
2 trying to assess what your needs are?
3 MS. BURGESS: Yes.
4 CHAIRMAN BARTON: You need another warm body or do
5 you need an assistant?
6 MS. BURGESS: We have. The SRAs have put their
7 input in and what we would desire, what we think we would
8 need. We definitely think we'd need at least one additional
9 risk person.
10 CHAIRMAN BARTON: A lot of times people will have
11 one slot and they say, well, what I'll hire is a new senior
12 reactor analyst. Point in fact, they've got enough senior
13 reactor analysts. They need an assistant for them to help
14 them carry out their jobs, and I'm just wondering if you had
15 thoughts on that.
16 MR. CALDWELL: There's no plans to have an
17 additional SRA slot. As I mentioned earlier, there's a task
18 force that, in fact, the meeting starts -- the first meeting
19 is on the 26th, of the four regions and headquarters, to
20 talk about SRA succession planning, and that really is to
21 talk about the type of training that you would give one,
22 two, three, four, five individuals, I'm not going to
23 prejudge how it comes out, but a number of individuals who
24 would not be fully SRAs, but would have additional training
25 that they could support the SRAs and the region in risk

1 assessments.

2 Not a short-term thing. I mean, the two SRAs are
3 going to be just up their necks in work, but it's a
4 recognition that there needs to be some more expertise in
5 that area and a recognition that that you need to have
6 somebody in the pipeline unless an SRA gets promoted or
7 decides to leave.

8 DR. POWERS: They better not.

9 MS. BURGESS: That's a great segue into the next
10 slides.

11 MR. GROBE: I was going to say there's a lot of
12 personnel barriers associated with this, because the SRA
13 position is a higher graded position than any other staff
14 position we have in the region.

15 So there's a lot of issues that come up in the HR
16 area.

17 MS. BURGESS: On slide 47 is the SRA training
18 certification program or process is an 18 to 24-month
19 program. It's divided into classroom and rotation and I've
20 listed some of the technical training, the statistics, PRA
21 training, and then the NRC PRA computer modeling training.
22 That, in itself, can be up to 27 weeks of training.

23 CHAIRMAN BARTON: Where do they get the PRA
24 training?

25 MS. BURGESS: In headquarters. And most of the

1 time, much of the training is contracted out. Brookhaven,
2 INEL. So just the classroom portion of the training is a
3 significant amount of time.
4 Rotations, there's nine months of rotation. Mike
5 and I did five months in NRR in the PRA branch, we did three
6 months in the Research PRA branch, and then we did one month
7 at another region to get on-the-job training, with the
8 assistance of an existing SRA, to see what their job duties
9 were and how they conducted business in the region, and took
10 that back to our region.
11 MR. CALDWELL: And that's one of the areas that
12 we're going to look at. Now that we have experienced SRAs
13 in the region, we may not need these extensive rotational
14 assignments. They'll just spend their time with the SRAs in
15 the region to get their on-the-job training. But the
16 classroom training that she was talking about is extensive.
17 It's not a short-term fix if somebody leaves or
18 you need additional help. It's something that we're trying,
19 for the long-term, and come up with a plan that will keep
20 people in the pipeline and bring up the whole level of the
21 region's expertise of risk.
22 DR. POWERS: It also offers the opportunity for
23 substantial job satisfaction improvements there, the guy
24 feels like he's going into modern technology.
25 MR. GROBE: I think we've covered slide 48. Why

1 don't we go on to 49?

2 MS. BURGESS: Slide 49 just highlights some of the
3 training that the regional inspector and the resident
4 inspector would receive. This first bullet is a two-week
5 class. It's a combination of the PRA basics plus we have
6 how integrated the SDP process and now the PRA and the IPE
7 all integrate into the SDP process. That's a two-week
8 course.

9 An then also we've given extensive training on the
10 SDP process itself. We've had a lot of workshops and with a
11 lot of examples of issues from other regions and that's
12 helped the inspectors put some practical use to the SDP.

13 MR. GROBE: Any questions in the risk training
14 area? Before we get into the fire protection area, there
15 were two questions that you asked earlier that we didn't
16 really get a chance to answer, and I'll just give my
17 perspective and open it up to Jim and Marc.

18 One had to do with power up rtes. We don't have a
19 lot of insight on power up rate, other than the fact that I
20 could share with you a concern that I have. Jim Dyer
21 mentioned Quad and Dresden are going to be coming in for
22 some fairly significant power up rates and you indicated
23 Duane Arnold is, and that has to do with secondary side
24 capability and the ability of the operators to operate the
25 plant in a higher, significantly higher power level, and

1 whether that's going to impact on initiating event
2 frequency.
3 I don't have any more insight to share with you,
4 other than that's a concern that we have, and I'd throw that
5 open to Marc and Jim.
6 MR. DAPAS: The power up rate, I guess from the
7 resident inspector perspective, I think you would get
8 involved, the resident inspectors get involved in looking at
9 if there's any tech spec ramifications. Many times, the
10 tech spec package that comes out, headquarters is
11 considering, the residents will be asked to review, to offer
12 any perspective procedural implications.
13 So it's just really changes to the tech specs and
14 procedures that result from the power up rate. I can't
15 really envision any other area where the residents might be
16 engaged.
17 CHAIRMAN BARTON: With a number like that, you're going to
18 have to make some hardware system changes when you go in
19 that level.
20 MR. CALDWELL: Right. Set point changes that have
21 to be made and they have to be made as they go up.
22 MR. DAPAS: Which are captured in the tech specs.
23 CHAIRMAN BARTON: Yes, but they actually have to
24 make changes in the plants. You have to -- because the trip
25 set point stays the same, but the 100 percent power, as it's

1 calculated, changed, and so the trip set points have to be
2 changed in the instrument and control.
3 But what Jack mentioned is something that I don't
4 know that we have any insights into, but some licensees find
5 that they get the up rate and they just don't have the
6 capacity we have any insights into they tripped their auto
7 valves or their turbines aren't set up, at least the way
8 things are set up, to handle that type of --
9 CHAIRMAN BARTON: Fermi is a good example of that.
10 MR. CALDWELL: Right. So those are things that
11 they have to kind of inch up to and that's what we will be
12 watching, how they do that, how they control it, and most
13 licensees, at least today, had done it very slowly and very
14 deliberate.
15 DR. SIEBER: These major up rates, though, they're
16 really talking about a new front end on the turbine and the
17 things like that.
18 MR. CALDWELL: Yes.
19 DR. SIEBER: Which really changes the physical
20 plant.
21 MR. DAPAS: But I'm not aware of any prescribed
22 inspection activity where we would go out and verify that
23 what the licensee communicated in their licensing submittal
24 is, in fact, the case in terms of equipment modifications.
25 MR. GROBE: It would be an opportunity through the

1 affirmative plant mods inspection and the safety system
2 design inspection to target some of those areas.
3 DR. SIEBER: But you know that the stress level on
4 the plant is going to be higher.
5 The other you raised earlier was license renewals and we
6 haven't had any in Region III, but we've seen that train
7 coming down the tracks, and we assigned a project manager to
8 stay aware of what's going on in the other regions and
9 headquarters.
10 The inspection program for that activity is fairly
11 significant and while it doesn't have any direct impact on
12 the baseline program, it doesn't change anything we do in
13 the context of baseline.
14 It's resource intensive and as we shared with you
15 earlier, we don't have a lot of resources.
16 It's also a fairly unique expertise that's
17 necessary. There is discussion underway right now, and
18 maybe, Ron, you can expand on this, too, to capture that
19 inspection activity out of headquarters or currently it's
20 out of the regions.
21 Why don't you talk about what we've done as far as
22 trying to gain insights in this area?
23 MR. GARDNER: As Jack indicated, we have a
24 principal inspector that we've assigned to get with the
25 other regions who have started down that path, to find out

1 what they've done, how they did it, what worked, what
2 didn't, to try to get to the point where when we get our
3 opportunity, we're not starting at ground zero, that we've
4 already built on what other people have done and tried to
5 make improvements.
6 AS Jack indicated there is some discussion about
7 who will do what. There's a big portion, as you might
8 imagine, of environmental qualification questions that come
9 into life extensions of license renewal.
10 And I have been part of one of the research
11 working groups, for years I was on that, on aging of
12 materials and such. So I have an acute background in that
13 also.
14 So I think we have the wherewithal to do the
15 inspections, the challenge will be finding the resources to
16 do it.
17 MR. GROBE: What's the total number of inspection
18 hours we've seen?
19 MR. GARDNER: I can't remember.
20 MR. GROBE: My recollection is on the order of 700
21 and something.
22 MR. GARDNER: I thought it was 800, roughly 800.
23 MR. GROBE: It's a very significant impact,
24 because it has to be done a very short period of time.
25 DR. POWERS: We have a statutory responsibility

1 for all those and we're looking at a major tidal wave coming
2 in at us and it could literally consume everything we do.
3 MR. GROBE: I think that captured all the
4 questions that I had written down earlier. I think what I'd
5 like to do now is go into the fire protection issues and
6 turn it over to Ron Gardner. I know that you're going to
7 have some questions. I suspect you're going to have some
8 questions.
9 MR. GARDNER: As Jack indicated, my name is Ron
10 Gardner. I'm the Chief of the Electrical Engineering branch
11 in DRS and fire protection falls in my branch.
12 What I've tried to do is make a presentation that
13 would address where the new program is going with fire
14 protection, not only triennial, but also the more day-to-day
15 review of fire protection and the normal fire protection
16 things that the regions have been doing over the years.
17 We didn't stop that. We're just doing it in a
18 different manner.
19 The first thing, I guess, on slide 55 that I want
20 to emphasis is the risk contribution of a fire. It is
21 significant and if you stop and think, with the fire, you
22 can have a plant transient, you could have a reactor trip,
23 you could have a loss of off-site power, you can -- we
24 talked about self-induced station blackout.
25 All those require fairly significant reactor

1 operator actions. You can go beyond that, though, with the
2 high-low pressure interface problem or a stuck-open PORV, a
3 spurious operation of an SRV, and you enter a LOCA
4 condition.
5 Compound that with a loss of off-site power and
6 you've got very numerous operator actions. Then with a
7 fire, you may have smoke, which could inhibit or prevent
8 operator actions. You have flooding, you have the heat of
9 the fire.
10 The fire itself is a very significant area of NRC
11 historical perspective and it looks like it's going to
12 continue, that we're going to maintain our focus on this.
13 There were a number of years where we backed off.
14 Information Notice 92-18 and the subsequent problems we had
15 with the implementation of that, that was regarding
16 motor-operated valves and the potential for spurious
17 operation and control room fires, to have the valves not
18 only go to the wrong position, but to be destroyed
19 mechanically because of the bypassing of the torque
20 switches.
21 Also, we had some FPFIs that failed, with
22 significant findings.
23 So going on to page 56, I wish there was a silver
24 bullet where we could say here is the fix, that we could say
25 the risk of fires has gone away by just doing this one

1 thing.

2 No one has been able to find that silver bullet.
3 So that instead, what we find is the best approach and
4 licensees have found the best approach is the definition
5 methodology or mentality. It starts off by preventing
6 fires, and I'll talk more about that when we talk about what
7 the resident does and how we try to gauge how licensees are
8 doing in preventing fires.

9 Then we have the part of rapidly detecting,
10 controlling and putting a fire out. Great success, if you
11 remember the Fermi turbine explosion, it released thousands
12 and thousands of gallons of oil, EHC fluid, et cetera, and
13 distributed it all over the plants, with all the water
14 systems that were ruptured, and the fire was extinguished
15 and rapidly extinguished, and that could have been a very,
16 very significant fire and it didn't happen.

17 So that says that in that case, the rapid
18 detection, control and extinguishment of the fire worked,
19 and that involved obviously even the hydrogen system for the
20 generator.

21 DR. SIEBER: One of the problems is, though, that
22 when you have a big fire in the plant that involves
23 operations, it's the operators who are the fire brigade.

24 MR. GARDNER: Often, and I'll about it. They have
25 a lot of manual actions, too, sometimes to mitigate the

1 fire. One of the things that the licensees are required to
2 do is for any fire area, is to dedicate or to preserve
3 enough equipment to safely bring the plant to cold shutdown,
4 and the performance goals they're trying to make is
5 reactivity control.
6 They want to make sure the plant is no longer
7 critical. They want to have makeup. They want to have
8 decay heat removal. They want to have enough indication for
9 the operators to know which manual actions to take or which
10 actions and EOPs to follow. And a support system.
11 So that's quite a lot that you have to maintain
12 regardless of whatever fire you can postulate. To do that,
13 you have barriers, suppression, safe shutdown procedures,
14 and you have a number of equipment and systems that are
15 dedicated just for those operations that have to survive in
16 the event of a fire in any given postulated fire area.
17 Unfortunately, there are no performance indicators
18 existing today, and this is slide 57, to provide insights or
19 to help us to say that we don't need to do an actual
20 inspection.
21 And we haven't given credit for self-assessments.
22 One of the reasons, and I'm not saying a significant reason,
23 but one of the reasons was when we were doing the FPFIs,
24 Prairie Island did a self-assessment. When we did the FPFI,
25 we gave them credit for it. So our FPFI was focused on

1 determining the adequacy of their self-assessment.

2 When we went out there and looked around the

3 plant, we found a number of issues that their

4 self-assessment had missed, and they weren't small issues.

5 I don't have -- if you look at the inspection report, you

6 could see them.

7 They were fairly substantive issues, and we were

8 surprised. I'm not sure if that had a major contribution to

9 the fact that the NRC wants to at least start down the road

10 of doing our own inspections, but it probably didn't help

11 the licensee's cause any, because I know NEI was looking to

12 see if they could have more credit for self-assessments.

13 MR. DAPAS: Didn't we also, though, Ron, have some

14 have some real significant inspection findings in that area

15 and that has furthered the point that we should

16 independently verify.

17 MR. GARDNER: Right. Now, a number of licensees

18 are doing self-assessments and they are finding significant

19 issues, and that's to their credit. It's just whether or

20 not we are comfortable with saying they are to the point now

21 where they can find the amount of problems that we think are

22 there still, and that's an unfortunate statement, but that's

23 true, unfortunately.

24 Now, as I was indicating, it's not just a

25 triennial or design inspection. We have a constant focus on

1 fire protection that's brought about by the residents.
2 On a quarterly basis, residents tour six to 12
3 areas of the plant, and they're looking at the classical
4 fire protection features. They're making sure that the
5 licensee doesn't have extensive combustibles or ignition
6 sources for those combustibles in the plant.
7 The licensee has requirements for storage of
8 combustibles, et cetera, they're looking at that. They're
9 making sure that the material condition of the fire
10 protection systems is up to par, that they're not degrading.
11 Operational lineup, say, for a C02 or a halon system,
12 they're making sure it's properly lined up, so if there is
13 an automatic initiation, it would function.
14 They look at operational effectiveness of the
15 equipment and of the licensee's fire brigade and fire
16 barriers.
17 CHAIRMAN BARTON: Are those quarterly inspections
18 what you require to be done during an outage?
19 MR. GARDNER: Required to be done during an
20 outage.
21 CHAIRMAN BARTON: Yes.
22 MR. GARDNER: I'm not sure that the procedures
23 differentiates between an outage and a non-outage condition.
24 CHAIRMAN BARTON: The only reason I bring it up,
25 because in outage, you've got an opportunity to bring in a

1 lot more fire loading combustibles.

2 MR. GARDNER: That's why the residents are out

3 doing this, because they're there during the outages and

4 not. Usually, the region stays away from an engineering

5 type inspection during an outage, the residents are there

6 anyway.

7 MR. SINGH: This question came up last week when

8 we were got in the NEI conference on fire protection. They

9 don't want it during the outage, because there's too many

10 combustibles, too many --

11 MR. GROBE: They don't want us to do an

12 inspection?

13 CHAIRMAN BARTON: Yes, that's why.

14 MR. SINGH: They emphasized the point that they do

15 not want the NRC doing inspections in the outage.

16 DR. APOSTOLAKIS: Do you have any IPEEEs yet?

17 MR. GARDNER: Any I what?

18 DR. APOSTOLAKIS: IPEEEs.

19 MR. GARDNER: We have the Generic Letter 88-20,

20 Supplement 4, IPEEEs that the licensees have been providing.

21 DR. APOSTOLAKIS: So you have their IPEEEs.

22 MR. GARDNER: Yes, we do. If you recall, in fact,

23 several years ago, Quad Cities released their

24 5E-to-the-minus three that really stirred up the region to

25 take action on that.

1 DR. APOSTOLAKIS: I wonder whether you can
2 prioritize these fire areas that you're inspecting according
3 to their --
4 MR. GARDNER: And I'll get into that in a minute,
5 if I could, because that's one of the things we do as part
6 of our triennial and it's also done by the resident
7 inspectors when they are looking in their areas.
8 MR. GROBE: Step back for just a second. That's
9 one of the reasons that we have to spend more time preparing
10 for these inspections, because everything we do has to be
11 risk-focused. So something as simple as selecting which
12 plant fire areas to look at would involve some consideration
13 of the risk significance of fire areas.
14 DR. APOSTOLAKIS: That's a one-time job, though.
15 After you've done it, you have it for that time, correct?
16 Unless something dramatic changes.
17 MR. GROBE: That's correct.
18 DR. APOSTOLAKIS: So it's an initial investment in
19 a new process.
20 MR. GARDNER: No. What we find, and I'll go into
21 that. It's changing. It's not a static. It's a dynamic
22 number --
23 DR. APOSTOLAKIS: But the critical locations,
24 unless you really change the plant, it's where the cages
25 come together.

1 MR. GARDNER: Evidently there's other things. We
2 have found that it's changing, and I'm going to that in a
3 minute.
4 DR. APOSTOLAKIS: Okay.
5 DR. POWERS: There's a little problem in using the
6 IPEEEs as the basis for prioritization.
7 MR. GARDNER: Right.
8 DR. POWERS: Because there are some crucial
9 assumptions that some licensees have made in screening
10 things out, I mean, things that just don't appear in the IPE
11 have gotten screened out because though there's a high
12 combustible loading, you can say, well, there's no ignition
13 source. I can screen this area out.
14 Well, that's all well and good. What happens when
15 an ignition source gets introduced?
16 MR. GARDNER: And I hope to get to that point,
17 too. That's one of the subtle aspects of the new program
18 versus the old, in that when we postulate a fire that can
19 affect safe shutdown equipment, we have to be able to
20 demonstrate how the combustibles, whether they be cables,
21 scaffolding, whatever, how it can ignite, what is the
22 ignition source, and then how you can get the fire to
23 migrate from one part of the fire area to another.
24 In the past, we used to assume it just happened.
25 We just say you have to assume it happens. Now we have to

1 develop a scenario to show reasonably that it will, in fact,
2 because of the heat plume and of the effects of that plume,
3 it will transverse the fire area.
4 So if I don't get into that further, if you need
5 more when I go through it, let me know.
6 DR. POWERS: There are other subtleties in there,
7 as well, because a lot of the IPEs have been done saying,
8 well, the fire barrier penetration seals are 100 percent
9 guaranteed absolutely effective. And I don't know of
10 anything that's that guaranteed.
11 It's just one of these problems. You just can't
12 look at an IPEEE and say, well, this is truth, it's truth if
13 one person saw it.
14 MR. DAPAS: Ron, do the inspectors look at the IPE
15 to understand the assumptions before they go out?
16 MR. GARDNER: Yes, and that's what I'm going to
17 get into in just a couple slides.
18 On page 59, if we can go to that one, we shift
19 from what the residents are doing on a monthly and a
20 quarterly basis to an annual inspection.
21 It's always important to understand how the
22 licensees fire brigade can perform. It may come down that
23 they are the last of the defense-in-depth for a given fire
24 area. So we hold them to a high standard.
25 DR. POWERS: We usually just assume that

1 defense-in-depth. In the good old deterministic days of
2 Appendix R, we just assumed that fires aren't out until the
3 fire brigade goes in to put it out.
4 MR. GARDNER: That may be true. I don't recall
5 that.
6 DR. POWERS: Automatic suppression systems were
7 assumed only to control fire and to actually put it out, you
8 had to have somebody walk in there and put it out.
9 MR. GARDNER: At 3G, it gives credit for
10 separation and if you don't have separation, for suppression
11 and detection.
12 DR. POWERS: It's just suppression. It's not
13 putting it out. The fire's not over until somebody actually
14 goes in there and declares it out.
15 MR. GARDNER: From a design approach, it gives
16 credit for suppression.
17 DR. POWERS: Under the new program, we weigh
18 suppression. We have a fire mitigation frequency, I don't
19 know if you're familiar with the new SDF, significance
20 determination process for fire protection, and there is a
21 formula for SMF which includes fire barriers, ignition
22 frequency, and automatic suppression, manual suppression,
23 and CC, which is common cause.
24 So that is figured in to the equation. Again, on
25 the resident inspection portion, on an annual basis, they

1 check certain aspects of the fire brigade. What they would
2 probably do is not ask for the fire brigade, but find one
3 that is routinely scheduled and observe it.
4 The triennial inspections do not demand that a
5 licensee do a fire brigade just for the triennial. We would
6 get information from the residents about whether their
7 perception of the fire brigade's adequacy was, as well
8 reading what licensees are finding and documenting their own
9 critiques of their fire brigade drills.
10 Now, on page 60, I shift to the triennial team
11 inspection. This is not a classical fire protection,
12 looking for combustibles. It is more focused on design.
13 And in the preparation aspect, we talk or
14 communicate, get with the SRAs, the regional SRAs; if they
15 are tied up, we get with headquarters SRAs, and we get the
16 risk rankings for different fire areas, and we have found
17 that the IPEEE can give you some numbers.
18 We go out to the site and we find that those
19 numbers may have changed. That just happened at Braidwood.
20 The numbers changed. I don't have all the reasons as to why
21 it happened, I just know that it did happen.
22 We also look at the transient sequences. All of
23 this is done in conjunction with the SRAs to assist us in
24 saying which of these fire areas would probably be the best
25 for our inspection to focus on.

1 One of the things we may stay away from, by the
2 way, is the control room. The control room is so analyzed
3 and has so many people in it that some of the other rooms,
4 sometimes we think would be more bang for the buck, so to
5 speak, to look at than the control room, which a licensee
6 automatically assumes they're going to evacuate anyway.
7 But that is a case by case basis, we'd have to
8 look again and look at the rankings.
9 We have a very important two to three day full
10 team information gathering visit. That's where the full
11 team goes to the plant. They walk down the fire protection
12 systems, safe shutdown systems. They look at the P&IDs.
13 They determine what might go wrong. They say that the
14 licensee is relying on HPSI for makeup and they may look and
15 say, okay, let's see if we can find a valve that, if it were
16 to close, would isolate HPSI from the water supply it needs.
17 And then they would check that cable or that valve
18 to see if it's been protected or not. They would look at
19 spurious operations, et cetera.
20 So that first two or three days is a very
21 important aspect of our inspection. Obviously, we look at
22 risk rankings, we look at things like that.
23 Then we come back into the region for a week, the
24 whole team does, take that information that they gleaned
25 from that two to three day bag trip, we call it, and

1 determine their inspection plan.

2 They've finalized the areas they're going to

3 inspect. They determine some cables, some areas of question

4 they're going to focus on, and they get just about ready to

5 go out there and start the inspection as if they had a very

6 limited time, which they do, by the way.

7 CHAIRMAN BARTON: Wouldn't an inspector go look in

8 the corrective action system to see how many outstanding

9 items there are against fire protection system, deficiencies

10 that haven't been corrected or are backlogged?

11 MR. GARDNER: We don't go into the licensee's

12 corrective action program in detail. We have a small

13 percentage of our inspection that looks at that.

14 What we try not to do is mind the licensee's

15 corrective action program. We try to do an independent

16 assessment of the licensee's fire protection program.

17 DR. APOSTOLAKIS: On 60, it says that you select

18 three to five plant areas important risk for inspection.

19 MR. GARDNER: Right.

20 DR. APOSTOLAKIS: Then on 58, you said that you

21 are inspecting six to 12 fire areas on a quarterly basis.

22 MR. GARDNER: On page 58, I was talking about the

23 resident inspections. That's covered on a monthly or

24 quarterly basis.

25 MR. GROBE: And that's just looking at classical

1 fire protection, combustibles, controlled ignition sources.
2 DR. APOSTOLAKIS: But the question is why can't
3 these six to 12 plant fire areas be ranked according to risk
4 so you focus on the risk significant areas?
5 MR. GARDNER: We do under the triennial design
6 inspection. We pick the most risk significant --
7 MR. GROBE: Laura, did you guys, when you did this
8 module, did you use IPEEE insights to focus risk?
9 MS. COLLINS: We did.
10 CHAIRMAN BARTON: So even the six to 12 areas are
11 among the --
12 MR. GARDNER: Yes, sir. They are also risk-based
13 or risk-informed. Excuse me.
14 DR. APOSTOLAKIS: The areas are risk-based. They
15 come from the PRA.
16 MR. DAPAS: The inspections risk-inform, though,
17 when they're selected in the areas.
18 DR. APOSTOLAKIS: That's right.
19 MR. GARDNER: The triennial inspection shifts from
20 the classical fire protection to a design focused
21 inspection.
22 DR. APOSTOLAKIS: Are these areas, though, you
23 take them from the licensee's risk assessment.
24 MR. GARDNER: We look at the IPEEE, we talk to the
25 SRAs and we get the licensee's assessment of the relative

1 risk.

2 DR. APOSTOLAKIS: So you may decide there are additional

3 that require a tool, even though the licensee may have not

4 found them to be a not very significant safety.

5 MR. GARDNER: That could happen. I'm not saying

6 it's going to happen, but it could happen, certainly, if we

7 found a basis for it. The resident inspector may have a

8 reason for us to go to a particular fire area based on what

9 they've been seeing.

10 DR. APOSTOLAKIS: See, that's where the standards

11 w discussed earlier this morning become very important,

12 because many licensees have used screening methodologies and

13 unless you really look carefully at the assumptions that

14 they have made, you may have missed important five areas.

15 The IFPI-805 is going to solve that, right?

16 That's why ASME and ANS are not looking at fires. It's an

17 IFPI that will do it. That means there's something fishy.

18 You have to understand means this. Go ahead.

19 DR. POWERS: IFPI's expertise in fire risk

20 assessment, just the personnel on the committee, it's just

21 very, very limited. It's like one guy that really knows a

22 lot about fire risk assessment. He may be the only guy in

23 the country who a lot about fire risk assessment.

24 So to say that we will have a standard that means

25 that you can look at a five analysis and have some

1 confidence that you don't have to go plowing into the
2 assumptions. I think that's overly optimistic.
3 DR. APOSTOLAKIS: So they should have given to the
4 ANS then.
5 DR. POWERS: We haven't see any product from ANS
6 at all.
7 DR. APOSTOLAKIS: Yes. They are more experienced
8 fire analysts there.
9 When are we going to review this?
10 MR. SINGH: August 28.
11 DR. POWERS: That's when the committee meeting is.
12 DR. APOSTOLAKIS: Do I have it? You gave it to
13 me.
14 MR. SINGH: Yes, so you do have it. I have a
15 question. Did you have a chance to provide a comment on the
16 NFP-805?
17 MR. GARDNER: I did. I believe I did. It was
18 some time ago, I believe, and I think I remember --
19 MR. SINGH: Let me ask you another question. When
20 I was at the conference last week, they discussed this
21 NFP-805.
22 Did you realize that they have taken out the high
23 pressure enthalpies from the core and also the -- it's
24 really watered down.
25 DR. APOSTOLAKIS: The agency is going to endorse

1 it for sure.

2 MR. GARDNER: Isn't it true that 805 will not be

3 required to be endorsed? Is NFPA-805 going to be required

4 to be endorsed or is it going to be --

5 MR. SINGH: It's not required, but they are

6 forcing the NRC to look at it.

7 MR. GARDNER: But licensees will have an option as

8 to whether they choose to enforcement.

9 DR. POWERS: And I suspect the number of licensees

10 that will pick it up is going to be zip.

11 MR. GARDNER: That's my point.

12 DR. APOSTOLAKIS: I don't know about that. If

13 it's nice and doesn't get into too much detail and it's a

14 national standard, I think the licensees are going to push

15 for it.

16 DR. POWERS: It makes Appendix R look like a

17 cavalier off-the-cuff document. It's like doing Appendix R

18 with a risk assessment.

19 DR. APOSTOLAKIS: That's tragic.

20 MR. GARDNER: Okay. Slide 61, the triennial team

21 inspection has about 200 hours direct inspection and Region

22 III is doing it in two weeks, other regions are doing it in

23 a one week time period. And Region III is an outlier.

24 We think that two weeks gives us more time to

25 develop our inspection questions and to have the licensee

1 give us the answers in a more deliberate fashion, so that we
2 feel like we've accomplished what we need to accomplish.
3 DR. POWERS: One of the issues that came up at the
4 fire protection forum, and if you're not attending those, I
5 would really encourage you to attend. They are great
6 meetings that are put on by NEI, but they have lots and lots
7 of information coming in about lots of things.
8 One of the questions they had, when you take this
9 bag visit, people have been through this, said, gee, it
10 works a lot better if the whole team comes for the bag
11 visit, not just a few guys.
12 Is that what you're planning to do?
13 MR. GARDNER: Yes, sir. In fact, we had the first
14 plat, which was Braidwood, they questioned us as to why we
15 had more than a team leader coming. They thought that just
16 the team leaders only should show up and for the reasons I
17 spoke to earlier, it's of great benefit for the whole team
18 to be there, and that's what we plan to do.
19 DR. POWERS: And I think that's the experience in
20 industry. It makes life a lot easier for them, and actually
21 NRC got some pretty high praise for the people running these
22 things, saying that they had -- they get a letter that says
23 assemble the entire universe of documentation on fire
24 protection, that the team leaders have been very effective
25 in whittling that down to what actually was needed and

1 used. So NRC got some real strokes from the licensees on
2 that, triennial inspections.
3 MR. GARDNER: Going on. We look at the fire area
4 boundary design. Some plants have been forced, because of
5 the vintage of the plant, to use huge areas. Quad Cities,
6 originally, based on their design, used practically a whole
7 turbine building as one fire area.
8 They and most licensees, through further review,
9 are trying to narrow the scope of the fire areas to make it
10 more user friendly, so to speak, for themselves and for the
11 inspectors.
12 MR. DAPAS: That's because Quad Cities had to use
13 bounding assumptions, because they didn't know the cable
14 routing configuration.
15 MR. GARDNER: Yes, and also because unfortunately,
16 when the first plants were built in the '60s, they didn't
17 understand that it may be better to have more concrete walls
18 than fewer, that those concrete walls could, in fact, be
19 natural fire barriers. Brown's Ferry hadn't occurred yet,
20 in other words.
21 Safe shutdown system selection adequacy. We see
22 if the system they chose to have for makeup or for heat
23 dissipation is functional during the fire or after the fire,
24 et cetera.
25 System separation evaluation, we look at the 3G2

1 aspects. Any questions about those, I can enumerate on
2 them. There's three basic ones.
3 When you're doing the inspection, you do a fire
4 suppression -- slide 62 -- fire suppression.
5 DR. APOSTOLAKIS: What happened to 61? I have a
6 question.
7 MR. GARDNER: Yes, sir.
8 DR. APOSTOLAKIS: The separation, as I recall from Appendix
9 R, it says that trace carrying cables or redundant trains
10 should be separated by at least 20 feet.
11 MR. GARDNER: There are three criteria, 20 feet is
12 one,. No intervening combustibles, and automatic suppression
13 and detection, if you use that method.
14 MR. GROBE: That's one exam criteria. Plus
15 suppression and detection, plus no intervening combustibles.
16 The 3G2A says --
17 DR. WALLIS: So this is 20 feet in the horizontal
18 direction.
19 MS. BURGESS: Right.
20 MR. DAPAS: Right.
21 DR. APOSTOLAKIS: But in a PRA context, though, if
22 they are 20 feet apart, that will, of course, inhibit spread
23 of fire from one tray to the other, but there is a fire in
24 the room and they're near the ceiling. Does it matter if
25 it's 20 feet or 30?

1 MR. GROBE: That's why it requires -- the 20 feet
2 is permitted, but only with suppression and detection. So
3 you've got a sprinkler system to knock down the heat, you've
4 detection to bring the operators in promptly or the fire
5 brigade.
6 DR. APOSTOLAKIS: But these are all the
7 defense-in-depth measures. But the separation criteria
8 means nothing to identification, because you have a layer
9 that tries --
10 MR. GROBE: It's somewhat of a compromise. There
11 is a three-hour barrier or 20 feet horizontal with
12 suppression and detection and no intervening combustibles.
13 The staff concluded that those were approximately
14 equivalent in protective capability.
15 DR. APOSTOLAKIS: But if I have the suppression
16 capability, then why do I need the 20 feet? Why is that
17 important if I have --
18 MR. GROBE: Defense-in-depth. Probability of
19 failure.
20 DR. SIEBER: If they're right up next to each
21 other, suppression isn't going to help you.
22 DR. APOSTOLAKIS: I think they had in mind only
23 propagation from one tray to the other. The fact that you
24 will have a layer of gases that are hot.
25 MR. GARDNER: Well, if you have the 20 feet of

1 separation, you don't have intervening combustibles, and you
2 have detection and suppression, we don't affect that the
3 fire will affect both redundant trains and we will give you
4 credit and say you are successful, you have protected
5 adequately.
6 DR. APOSTOLAKIS: If there is a fire somewhere
7 else in the room generating hot gases, then both the trays
8 will be --
9 MR. SINGH: No, George.
10 DR. APOSTOLAKIS: No?
11 MR. SINGH: If the fire is in the corner, you
12 still meet the 20 feet criteria.
13 DR. APOSTOLAKIS: If I have the trays 20 feet
14 apart, near the ceiling.
15 MR. SINGH: Right.
16 DR. APOSTOLAKIS: And there is a fire in the
17 corner. Very quickly, if you have enough combustibles,
18 you're going to have a hot gas layer there.
19 MR. DAPAS: You have a sprinkler system.
20 MR. SINGH: You have a sprinkler system and you
21 have a detection system.
22 DR. APOSTOLAKIS: So then why isn't the sprinkler
23 system relevant if the separation is only ten feet? See, we
24 selectively use it when it's --
25 MR. DAPAS: We can only conjecture what was in the

1 thought process. Some of us were around when that happened.
2 DR. APOSTOLAKIS: I think that you do not
3 anticipate the hot gas layer from a third fire, that what
4 they had in mind was spreading from one to the other, in
5 which case all these measures make sense.
6 MR. DAPAS: We could only conjecture what was in
7 their thought process.
8 DR. APOSTOLAKIS: There is one fire in the corner.
9 You don't need a second fire. It is too hot. The reason
10 I'm saying this is because the first time it was pointed out
11 was after the first fire PRA was done and people said, yes,
12 that is correct.
13 MR. GARDNER: Again, though, if you're going to
14 use 20-foot, you can't have intervening combustibles. If
15 you get into a diesel generator room, you're probably going
16 to have to use a three-hour or a one-hour fire barrier.
17 So, you can't just blindly pick 20-foot. It
18 depends on whether or not there's a chance that a fire that
19 could occur as you were postulating in the middle. Then
20 both drains go, but if that can happen, don't try to use the
21 20-foot. Use another one. Okay? That's where we'd be
22 looking.
23 One of the things -- on the first slide -- the
24 first point on slide 62 is the fire suppression damage
25 assessment.

1 This is the part where, when we come into a fire
2 area that we've picked and we do the what-if scenario, what
3 could go wrong, in other words, how likely is it, and then
4 what are the consequences of it, that's the basis of our
5 inspection.
6 Licensees would have protected, let's say, through
7 20-foot separation, three-hour fire barrier, whatever. We
8 don't find a problem with the barrier and we don't find a
9 problem with the 20-foot, our rule indicates it's 21-foot,
10 whatever.
11 We still don't stop, because what we find is that
12 -- let's say, again, the licensee for a fire in that area is
13 relying on a charging pump.
14 They have reliance on the BCT to be the initial
15 source of water.
16 DR. WALLIS: How do you use this ruler when the
17 conduits aren't parallel?
18 MR. GARDNER: We can take a average plane, a
19 vertical plane, and walk that off. We can do it. We look
20 at the valves from the DC-2 -- in fact, we've got this
21 question at Braidwood.
22 The licensee had a cable for one of the valves on
23 the BCT that ran through the fire zone and was unprotected,
24 and it had been overlooked.
25 So, that's the kind of things we look at.

1 Sometimes the licensee has manual actions in a
2 fire area, and they have -- in their procedure, the operator
3 will come in and operate the valve manually.
4 At Braidwood, we found they were going into a room
5 that was going to be 178 degrees. Our question was is this
6 going to be a good idea?
7 They said water packs, and we said, well, it looks
8 like he has to be there for cold shutdown. That's 72 hours.
9 You know, most water packs will start boiling, if you're not
10 too careful, after so many hours at 170-some degrees. It
11 won't be boiling, but they'll be darn hot.
12 So, we have issues like that. That's the kind of
13 thing we do through every fire area we pick, even when the
14 barriers look pristine.
15 DR. POWERS: The step at which you have to assess
16 the level of degradation of these is a step I've never
17 understood very well.
18 MR. GARDNER: What level of degradation?
19 DR. POWERS: Okay. When you come in and you look
20 at either manual fire capability or the fire suppression and
21 detection capability, you have to make some sort of an
22 assessment on the level of degradation -- high, medium, or
23 low.
24 MR. GARDNER: Right.
25 DR. POWERS: And that's the step I've never

1 understood.

2 What constitutes high and what constitutes low?

3 MR. GARDNER: It is somewhat subjective. I'm not

4 sure it is completely objective.

5 Let's say you found the BCT valve and now you say

6 I have a potential fire area degradation; I want to run it

7 through a SDP screening.

8 Phase one, which would be just a cursory, is there

9 a potential for any significance, you whip right through and

10 say yes.

11 You go into a phase two and you have to calculate

12 the fire mitigation frequency, which uses, then -- which

13 requires you to have first an ignition frequency for

14 whatever combustibles are in that room, it looks at the

15 barriers, and if there is degradation of the barriers,

16 starting with the fire barriers, you do a moderate or --

17 what's the term? -- highly degraded, I think, and those have

18 numbers that adjust the risk.

19 That's somewhat subjective.

20 DR. POWERS: Yeah. I mean the numbers that are in

21 there, that you actually plug into the formula -- I even

22 actually found out where they came from, and they come out

23 fine, but you have to make the subjective judgement on these

24 things, what's the level of degradation here, and that was

25 the step I never understood, and I have a set of notes from

1 the BNL course to see if I could understand better just that
2 exact issue.
3 MR. GARDNER: I went to the BNL course, and I
4 don't think the notes will help you.
5 What will happen is this -- whatever method -- and
6 we usually are fairly conservative -- you go to, you will
7 come out with, let's say, a white issue. That doesn't end
8 the process. That's when you start refining the level two
9 evaluation. You'll get the SRAs. The licensee will get
10 their own SRAs in there.
11 You will elaborate to the licensee what
12 assumptions you used to come to a white conclusion. One of
13 them would be that you're assuming significant or high-level
14 degradation to the fire barrier or the manual suppression,
15 whatever it may be that you're doing in that part of the
16 calculation, and the licensee would obviously come back and
17 say they think it's moderate, and the difference between
18 moderate and significant can make you from a green to a
19 white, as you know.
20 DR. APOSTOLAKIS: But shouldn't the ultimate
21 criteria, though, be, really, the relative speed with which
22 a fire is expected to spread, how quickly you can stop that.
23 That really should be the ultimate criteria.
24 MR. GARDNER: That's a part of it. It's much more
25 complicated than that.

1 DR. APOSTOLAKIS: Like what else?

2 MR. GARDNER: Well, ignition frequency -- okay.

3 First of all, you have to postulate --

4 DR. APOSTOLAKIS: Oh, you mean when you deal with

5 --

6 MR. GARDNER: -- the plume and that there is a

7 potential for --

8 DR. APOSTOLAKIS: But suppression deals with a

9 fire that's already there.

10 MR. GARDNER: Yes.

11 DR. APOSTOLAKIS: So, Dr. Powers asks how do you

12 decide that degradation is significant. What I'm saying is

13 the criterion really should be can you arrest the growth of

14 the fire before it does damage.

15 DR. POWERS: That's not the way the thing is set

16 up, George.

17 DR. APOSTOLAKIS: I know it's not, because it was

18 not done using risk assessment.

19 DR. POWERS: Yeah, it was. It was done using your

20 wonderful fire technique.

21 DR. APOSTOLAKIS: No. No. We very clearly have

22 an equality there. The time to damage has to be less --

23 greater.

24 MR. GARDNER: I think if you're familiar with the

25 fire protection SDP process, you can see that they have

1 tried to make --

2 DR. APOSTOLAKIS: It's very hard to do.

3 MR. GARDNER: -- a mathematical estimate of the
4 significance, and I think the fire protection is less
5 subjective than the internal events. It makes it more
6 difficult and it makes the people that use it have to be
7 more sophisticated in their capability to understand risk
8 and how to use it, but it's not perfect, and we're going to
9 use it, and just like with the other one, we'll probably be
10 revising it before long.

11 Continuing on with operator recovery action, when
12 the fire has been somewhat put out, there's still smoke
13 removal, de-watering.

14 At FERMI, we had six or seven hundred thousands of
15 gallons of water to -- because of surface contamination --
16 to decontaminate, and you'd be surprised at the public
17 outcry when you tell them you're going to put it through
18 filters and send it out to the lake.

19 DR. POWERS: I'm not going to be surprised.

20 MR. GARDNER: That's quite tricky.

21 Control re-unitization -- you try to re-establish
22 your power systems that you've lost, get all your systems
23 back now, instead of the ones that got you to safe shutdown,
24 and return to service.

25 We also do a manual fire-fighting capability

1 assessment just to assist us with the SDP if it becomes an
2 issue.
3 As parts of the design aspect we're looking at --
4 and that's slide 63 and 64 -- we're looking at electronic
5 circuit analyses common enclosure, high-impedance faults,
6 spurious circuits.
7 If you want to discuss a high-impedance fault,
8 it's an arcing fault.
9 Any of those things I could talk to you about in
10 specifics, but in general, just for the purpose of what we
11 do, is we're looking -- as electrical engineers, we're
12 looking at common enclosure, associated circuit faults.
13 We're looking at common power supply. This goes
14 into breaker coordination, fuse coordination.
15 A high-impedance fault is not your classical
16 volted fault. It's not the one where you're estimating the
17 contributions of your inductive motors. As they start
18 stopping, they will actually feed faults, and when you're
19 doing a normal fault analysis, you have to get all your
20 contributions.
21 In this case, you're just doing a -- assuming that
22 the fault is what they call a arcing fault, and that
23 actually can be of more problem than a volted fault.
24 DR. APOSTOLAKIS: How can you have a spurious
25 signal from an open circuit? Can you give me an example?

1 MR. GARDNER: If you have a circuit that's
2 supposed to be open and you have a dual ground -- first
3 ground on one side of the contact that's open and then you
4 ground the other side, you now create a bypass around that
5 closed -- an open circuit.
6 DR. POWERS: The Europeans, in testing their new
7 modern cable insulation, found out that open circuits became
8 closed circuits, because there was some copper oxide in the
9 material that got reduced by the boric acid or borate that
10 they put into it, and open circuits all became closed. I
11 mean it was a conduction pathway.
12 MR. GARDNER: Sure.
13 DR. POWERS: And so, needless to say, they've kind
14 of redesigned that new super insulation.
15 MR. SIEBER: Why are high-impedance faults more
16 significant sometimes than volted vaults?
17 MR. GARDNER: If you can visualize the fact that
18 you have a distribution panel -- let's say it's feeding
19 125-volt DC and you're feeding, let's say, three loads that
20 are part of your safe shutdown, and then you have four or
21 five loads that aren't, but unfortunately, those four or
22 five loads run through the fire area, and we will postulate
23 that you will have multiple high-impedance faults on each
24 one of those loads that runs through that fire area.
25 Each one of them could be an arcing fault, which

1 means the current of that fault will be slightly less than
2 its breaker.
3 So, the combination of all of those currents can
4 equal the tripping of the supply breaker to the whole
5 distribution panel, which cuts off the power to the one you
6 needed to suppress the fire or to deal with the fire.
7 MR. GROBE: We have about 30 minutes left. We're
8 still in fire protection, and then we had a discussion of
9 on-line maintenance.
10 Is your preference to stay with fire protection?
11 DR. POWERS: I would like to.
12 MR. GROBE: Okay. And if we have a few minutes --
13 Laura, I'm kind of cutting you off, but -- Laura and Mike.
14 If we have a few minutes, we'll talk about on-line
15 maintenance; if not, then we'll just conclude with fire
16 protection. And we'll skip the break.
17 MR. GARDNER: Any other questions about hot
18 shorts, open circuits, high-impedance faults, common
19 enclosure?
20 DR. POWERS: Well, you'll never get a resolution
21 on that between the NRC and the licensees.
22 MR. GROBE: Well, you're not going to get it from
23 us.
24 DR. POWERS: I understand. I'm asking for
25 prognostication, not resolution here.

1 MR. GARDNER: I think you're talking about the
2 classical question that's confronting us about whether a
3 licensee has to assume multiple hot shorts versus a single.
4 That issue we wrote a TIA on, which is a task
5 interface agreement, and we have not seen the definitive
6 answer yet.
7 There have been meetings between the staff and NEI
8 and the owners groups.
9 I believe, in talking to the staff, they're pretty
10 sure that our position is going to be the position, but I'm
11 sure if I talk to NEI, they'll probably tell me the
12 opposite.
13 DR. POWERS: Are your licensees in this particular
14 regional happy with that, or are they resisting?
15 MR. GARDNER: No, but Braidwood -- Commonwealth
16 Edison is one of the licensees, and they were the basis for
17 our task interface agreement. They emphatically said one.
18 MR. GROBE: Put some time-frames on it, Ron. The
19 TIA was based on Dresden, wasn't it, and that was about four
20 years ago?
21 MR. GARDNER: Yeah, four years ago, I'd say, we
22 wrote that, right.
23 MR. CALDWELL: I think we were the first region to
24 really address the issue.
25 MR. GARDNER: It might have been, yeah.

1 MR. SINGH: Hey, Ron? Does Perry have that same
2 similar problem?
3 MR. GARDNER: Who's that?
4 MR. SINGH: Perry?
5 MR. GARDNER: As far as their position?
6 MR. SINGH: No, I mean do they comply with their
7 hot short issue?
8 MR. GARDNER: When you're talking about hot
9 shorts, you mean do they assume multiple hot shorts?
10 MR. SINGH: Yes.
11 MR. GARDNER: I'm not sure. We're getting ready
12 to go to Perry, and one of the next two inspections will be
13 Perry, and we'll find that out.
14 I didn't keep a catalog of who does what. We're
15 going to pick them up on the FPI, and hopefully that will
16 give NRR an opportunity to come to one position or the other
17 when we find it during these inspections.
18 MR. CALDWELL: I think we scheduled our fire
19 protection inspections to target those plants where we
20 thought we would probably have the most question in terms of
21 their approach, if I recall correctly.
22 MR. GARDNER: We did Braidwood partially for that
23 reason. That was the first one. Perry is number three, and
24 we're going to be looking at that.
25 Actually, we also picked Quad-Cities in December,

1 because Quad-Cities will complete, we hope, all of the
2 modifications necessary to establish full compliance with
3 Appendix R by November, which would make our December
4 inspection like just in time, and if you have any questions
5 on Quad --
6 DR. APOSTOLAKIS: Was there a high number?
7 MR. GARDNER: Yes.
8 DR. APOSTOLAKIS: The result of wrong analysis,
9 very conservative analysis, or are they actually doing
10 anything about it?
11 MR. PARKER: It depends on who you ask.
12 DR. APOSTOLAKIS: See, that's why I'm asking.
13 MR. PARKER: The licensee pointed out that there
14 were some over-conservatisms in their analysis. So, they
15 had to make some bounding assumptions.
16 So, that was part of it, and then they did
17 implement some compensatory actions and were making
18 modifications, because they did agree that their plant had a
19 high fire risk vulnerability, but they claimed the 5 times
20 to 10 to the minus 3 was really over-stating the full
21 as-found condition, if you will.
22 MR. GROBE: You have to appreciate that the
23 refined analysis with significant improvement is still 5 10
24 to the minus 5. It's not low-risk, but it's equivalent to
25 their --

1 DR. APOSTOLAKIS: Just from fire.

2 MR. GROBE: Yeah, just from fires.

3 We have two more topics. One's the SDP, which I
4 sense a lot of familiarity with. The other is -- we've put
5 together some slides on Quad, if you guys are particularly
6 interested in Quad.

7 DR. POWERS: I think we can get Quad from another
8 route.

9 MR. GROBE: Okay.

10 MR. GARDNER: Okay.

11 I can finish the last two slides, then.

12 Sixty-five is where I was headed.

13 The next, baseline use of risk information at the
14 baseline fire protection inspection -- and as I tried to
15 state earlier that both the triennial and the resident
16 inspections are using risk information to guide where they
17 look and how significantly and deeply they look when they
18 pick those areas; also, that the fire protection
19 significance determination process is in its own
20 compartmentalized document, and it's IMC-0609, Appendix F,
21 and that's a good document to have available if you're going
22 to be following fire protection issues.

23 DR. POWERS: At least in the version they gave us,
24 there's an egregious typographical error in Appendix F.
25 When you go through the calculations, you come up with --

1 depending on how you read the typographical error, either
2 with astronomical numbers for any plant or minuscule numbers
3 for any plant.
4 MR. GARDNER: We had tried it a few weeks ago at
5 Brookhaven, and we didn't find any errors like that, so
6 maybe the version we had was a later version.
7 Slide 66.
8 We would expect that the resident inspector, with
9 their understanding of the fire protection issues and the
10 complexity of the SDP, would only be involved in phase one
11 screening.
12 If it looks like it had to go further, they would
13 engage the region and the SRAs.
14 The inspection team, however, will do a phase one
15 and a phase two, and if, in fact, we find that the phase two
16 is heading us towards other than green, we would continue to
17 do that, and that would be a more protracted evolution, with
18 inputs from the licensee and more refinement with the SRA in
19 helping us to look at our assumptions and seeing if we were
20 overly conservative.
21 That was all I had prepared.
22 Jack indicated I have some material on Quad, but
23 you indicated you didn't need that.
24 So, any questions you have on this material, I'd
25 be glad to discuss.

1 MR. SIEBER: I think your presentation was very
2 good.
3 MR. GARDNER: Thank you.
4 MR. GROBE: You can tell, this is about as excited
5 as Ron gets, but this and the SSDI inspection we feel are
6 very meaningful inspection efforts. You can really find
7 stuff with this kind of inspection, and we're excited about
8 both of those inspection efforts, very detailed,
9 design-oriented, intrusive-type inspection.
10 If there's a problem, we could find it with this
11 type of inspection.
12 MR. PARKER: I hope all our inspections are
13 meaningful, though.
14 MR. GROBE: Yeah, but these are new tools that we
15 didn't have before.
16 DR. APOSTOLAKIS: There are no performance
17 indicators. They are planning to --
18 MR. GARDNER: No, sir. I think we haven't --
19 we're not smart enough to figure out which ones would be
20 relevant.
21 DR. POWERS: Great men have tried.
22 MR. GARDNER: That's right.
23 DR. APOSTOLAKIS: How about fires, the number of
24 fires?
25 DR. POWERS: It just turns out to be meaningless.

1 MR. SIEBER: They're mostly wastebasket fires.
2 MR. GROBE: And they're fairly frequent. You'll
3 have a couple of fires a year.
4 DR. SEALE: Any good performance indicator is
5 something that is not so rare that, in itself, it's a
6 catastrophic event. So, you want something that happens
7 every once in a while as a performance indicator.
8 DR. POWERS: Yeah, but wastebasket fires just
9 aren't going to do anything.
10 DR. SEALE: I agree with you. I'm saying the
11 frequency is not the problem. It's the wastebasket.
12 MR. GARDNER: I think we're also concerned,
13 though, that a low number might lull you into a false sense
14 of security.
15 So, there's some danger on taking any number and
16 saying that is going to make your determination as to
17 whether you're there or not as far as defense-in-depth.
18 DR. POWERS: With NFPA, when they tried to do it,
19 they ended up putting in this incredible core of Appendix R,
20 essentially, kinds of inspections and deterministic
21 activities, because there was no way to say, okay, if
22 they're doing all this, this indicator will indicate that.
23 MR. GROBE: I think you could develop an indicator
24 that could result in your ability to cut back in the
25 classical fire protection inspection area, but this and the

1 SSDI are very design-oriented, and I can't think of any
2 performance indicator that could result in you giving
3 justification to cut back in this area, because this is
4 focusing not just on ignition sources or initiating events,
5 those kinds of things. I think we could develop an
6 indicator in those areas. It's focusing on did your
7 engineers do a good job designing it, in a very complex
8 design.
9 DR. POWERS: And are your people maintaining it
10 and subverting it inadvertently?
11 MR. CALDWELL: Right. In actuality, the
12 performance indicator is the results of the inspections over
13 a period of time.
14 DR. POWERS: Yeah, that may be it.
15 MR. PARKER: When we met in Region II to discuss
16 inspection resources and how we were going to implement the
17 new program and what is the appropriate estimated number of
18 hours, there was discussion about the frequency of these
19 inspections, and I think there was the recognition across
20 the regions that the safety system design inspection and the
21 fire protection inspection were -- the two inspections where
22 probably the most risk-significant findings will emanate,
23 and as a result, do you want to continue with that intrusive
24 inspection, versus looking at performance indicators, and
25 so, there was that discussion.

1 DR. POWERS: One question, in thinking about
2 smoke, are you staying aware of these difficulties people
3 are having with their assumptions on how well-sealed their
4 control rooms are?
5 MR. GARDNER: You mean to keep the smoke out of
6 the control room?
7 DR. POWERS: Yeah, leakage rates.
8 MR. CALDWELL: The control room habitability has
9 been a problem as long as I've been in this agency.
10 DR. POWERS: We're seeing occasions of enormous
11 discrepancies between what's assumed in the FSAR and what
12 the actual tracer gas types of mixing are. I mean they're
13 just not even close. I mean it wasn't even a good guess.
14 And it's really because the FSAR is writing about what
15 somebody drew up on a piece of paper.
16 MR. GROBE: That in-leakage is when the door is
17 closed. If you have an event, that door is going to be
18 opening and closing on a regular basis.
19 DR. POWERS: That's another question that comes up
20 on the leakage test, is there's a lot of other things
21 happening. The HVAC system gets manipulated around and
22 changed, may be off, and whether the test actually relates
23 to the environment during an accident, but over and above
24 that, even with the test and the conditions you have, we're
25 seeing huge discrepancies.

1 MR. SIEBER: Well, the duct work is like a furnace
2 duct in your house, and it deteriorates, too. They use
3 those Pittsburgh seams to hold them all together.
4 MR. GARDNER: Well, there's also an over-reliance
5 on IEEE-383, I think, cable fire tests, to say that that's
6 the end-all to say I won't catch fire.
7 In reality, all that does is raise the ignition
8 temperature, but once it's ignited, it burns faster and
9 hotter than a non-IEEE-383 cable.
10 DR. POWERS: I've heard that.
11 MR. GARDNER: It's true.
12 DR. POWERS: I have not seen the data, but that's
13 definitely what I've heard.
14 MR. GARDNER: Yeah.
15 DR. POWERS: But on the other hand, we also find
16 that aging cables are less combustible.
17 DR. SEALE: They've already evaporated.
18 DR. POWERS: It's actually a cross-linking thing
19 and you get rid of the plasticizers, which are the real
20 flammable part.
21 MR. GARDNER: It's the oxygen scavenging from the
22 neutrons, yeah.
23 MR. GROBE: Any other questions?
24 Laura, you're on.
25 MS. COLLINS: We can be brief. We don't have that

1 many slides. I'll answer whatever questions you have.
2 DR. POWERS: If you haven't learned by now, the
3 ACRS has an infinite supply of questions.
4 MS. COLLINS: I'm going to talk on the topic of
5 risk associated with on-line maintenance, and we have a
6 procedure in the new baseline inspection program that's
7 carried out by the resident inspectors, and it's actually
8 7111.13, titled "Maintenance Risk Assessments and Emergent
9 Work."
10 Part of that inspection, we would sample between
11 five to eight maintenance activities per quarter, and that's
12 dependent on a unit size, and I'll say right up front that
13 this is a lot more emphasis on reviewing these types of
14 assessments than we had under the old core program.
15 The concept is to evaluate the effectiveness of
16 the licensee's risk assessment and control of the
17 maintenance activities.
18 That's the objective, and this was really
19 developed because we knew (a)(4) was coming, (a)(4), the
20 requirement of the maintenance rule, which, really, under
21 (a)(3), we previously said they should do a risk assessment,
22 and they were for the most part, but we didn't have -- it
23 wasn't really a requirement, so now it's becoming a
24 requirement.
25 Since we knew it was coming, we put it in a

1 baseline inspection program and we've been doing it kind of
2 ever since then, but I will say, because of that, and
3 because (a)(4) isn't fully in effect, we really anticipate
4 more changes to this procedure.
5 We've had two throughout the pilot program. The
6 guidance is changing. My understanding is that NRR is even
7 going to come out to the region and do a temporary
8 instruction, go out to the licensee's facility and really
9 see what they're doing and what we should be looking at, to
10 help us, I think, define what a finding is going to be in
11 this area.
12 On the next slide, I've just written down the
13 inspection objectives from the inspection procedure.
14 We looked at planned work. We also look at
15 emergent work, and then the last bullet is verifying that
16 the licensee has adequately identified and resolved problems
17 in this area, and that's just a standard thing we have in
18 all of our inspectable areas.
19 If they come up with some kind of problem in this
20 area, we can select that and go in and see what they do
21 about it to fix it.
22 MR. BONACA: Some of the emphasis in -- you know,
23 in the rule is manage risk. Any consideration to limit the
24 risk? That's a question which is somewhat open, because in
25 absence of criteria and in absence of tools to quantify the

1 risk, I mean it seems to me like there is some option there.
2 We were shown yesterday that, you know, increasing
3 risk from a baseline of about a factor up to 10 is not
4 considered high enough increasing risk that you have to go
5 to management for approval. It's a judgement. It depends
6 on how low your baseline is.
7 So, any sense on how this is being implemented at
8 the sites?
9 MS. COLLINS: Well, we can go on to the next
10 slide, where I start to talk about our inspection
11 techniques.
12 MR. BONACA: Okay.
13 DR. WALLIS: I was going to ask you -- I see
14 you're evaluating effectiveness several times and you're
15 looking at adequacy. Is there a lot of judgement involved
16 in this?
17 MS. COLLINS: Absolutely.
18 DR. WALLIS: It's all judgement.
19 MS. COLLINS: It's all judgement at this point,
20 and we're looking forward to new guidance and new
21 information from NRR, as I said a minute ago, to what would
22 be a finding in this area.
23 Even right now, we have preliminary information in
24 our inspection procedure that I understand is from the NEI
25 guidance which we're endorsing with our reg guide, and

1 there's different levels with increase in CDF and increase
2 in CDP, and I had an inspector call me recently because I
3 was in a pilot program and say, well, I'm here at this plant
4 and they don't calculate increase in CDP, they only do CDF,
5 what do we do about that?
6 I don't know what we do about it at this point.
7 You know, we're going to -- those are the kinds of
8 questions and some of the feedback, I think, that we've been
9 giving throughout the pilot program to the program office,
10 that not only do we need guidance for licensees, but we need
11 the guidance for the inspectors to say what is really an
12 issue in this area?
13 DR. APOSTOLAKIS: Now, the NRC staff developed
14 this upper bound on the CCDP of 5 10 to the minus 7, I
15 believe. Why can't we use that here?
16 I mean instead of having a licensee say, well,
17 gee, I'm really managing risk, because under exceptional
18 circumstances, all I'm doing is raising the CDF by a factor
19 of 3 and I'm already very low, but in the context of, what
20 was it, allowed outage times, they came up with this number
21 of 5 10 to the minus 7, which means about three hours you
22 have a CDF of some value.
23 Can that be -- you know, lacking anything else,
24 why can't that be a starting point for evaluating or
25 verifying how the licensees manage the risk?

1 MR. PARKER: There are some thresholds in some of
2 the documents. The problem I think Laura is pointing out is
3 there's no requirement.
4 So, if the licensee were to exceed those and the
5 residents and the SRAs or challenge the utility, what do we
6 do with that and how do we address that?
7 DR. APOSTOLAKIS: The 5 10 to the minus 7 is one
8 of the Region V risk-informed regulatory guides. It may not
9 be a requirement here.
10 DR. POWERS: It's an allowed outage time.
11 DR. APOSTOLAKIS: Yeah. Well, it's an increase,
12 an increase in CCDP.
13 MR. PARKER: But I think Laura's point is that
14 this task group is looking at the maintenance rule,
15 implementing procedures associated with (a)(4) here. We
16 would assess that, you know, what is a finding.
17 If we identify that the licensee did a CCDP and
18 determined it was greater than 5 times 10 to the minus 7, in
19 what context do we put that on the table, what's our
20 assessment of that, etcetera.
21 DR. APOSTOLAKIS: I'm not saying this is the
22 answer. I'm saying at least there is a starting point there
23 where somebody thought about it and came up with a footnote
24 that is really very nice. We don't know what to do, but
25 let's assume this.

1 MR. BONACA: Yeah, because -- in part, also, is
2 because -- I mean the risk increases associated with how
3 many components you're taking out of service and what kind
4 it is.
5 Now, especially for those power plants that are on
6 24-month cycles, they have plenty of time over two years to
7 do maintenance on-line without taking multiple components
8 out of service.
9 So, what does it mean, this managing risk? I mean
10 does it mean that since I can go up to whatever I want, I
11 can take five components out of service simultaneously.
12 There is a balancing act there that I don't think
13 has been properly defined, and that's why I was asking those
14 questions.
15 DR. APOSTOLAKIS: Maybe that will be the next
16 round of refinement. We haven't really had a chance to
17 think about these things.
18 MR. CALDWELL: First of all, at least there's a
19 recognition that they have to put something in place to do
20 an assessment of it.
21 I guess I'm a little removed from the inspection
22 program, but what Laura is saying -- we don't have the
23 criteria or guidelines yet to do an assessment of it. But
24 at least we're requiring them to do an assessment.
25 As we get smarter, those licensees that -- they

1 actually know what is good and what's bad. Those licenses
2 that -- because we don't have the tools yet or the whip or
3 whatever, the lever -- that want to push the envelope will
4 be the ones that we catch as we get smarter and come up with
5 our criteria.
6 Those that are good and smart and know how to do
7 this -- they'll already have set themselves a limit that
8 will be within where we end up.
9 DR. APOSTOLAKIS: I think the staff, though, at
10 headquarters should think a little bit about this, because
11 this is very important.
12 Now, yesterday, as Dr. Bonaca said, we were shown
13 some spikes in the core damage frequency, but I don't recall
14 any discussion of the duration.
15 MR. BONACA: There was no duration.
16 DR. APOSTOLAKIS: There was no duration. It was
17 just the core damage frequency went up, and then they said
18 themselves, regions -- you know, we told them to change
19 their names, but they call them now very high risk, high
20 risk, and so on.
21 But they were prepared to go up by a factor of 10.
22 Now, you might say, well, gee, they're already
23 starting at 5 10 to the minus -- no, 1.5 10 to the minus --
24 so, why can't they go to 10 to the minus 4 or a little
25 higher?

1 MR. BONACA: And they implied that they could
2 higher if they get management approval.
3 DR. APOSTOLAKIS: I guess the issue you're raising
4 is, even if the CDF goes up by some number, it's still not
5 clear that adequate protection is still preserved.
6 MR. BONACA: Absolutely.
7 DR. APOSTOLAKIS: I mean that's even higher.
8 MR. BONACA: The other issue is, even if you stay
9 within a certain limit, wouldn't just limiting the number of
10 components you're taking out of service mean good
11 management?
12 I mean there is the other issue that it doesn't
13 say that you have the liberty to go wherever you want, as
14 long as you don't meet a certain number. There is another
15 way to do it, which is to only limit the number of
16 components you're bringing out of service.
17 DR. APOSTOLAKIS: But then again, you are going
18 back to the deterministic way. I would be reluctant to do
19 that. I would like to explore the CDF and CCDP first.
20 Instead of calculating probabilities of minimal cut-sets,
21 count the number of events in there. So, let's be
22 consistent in our evolutions.
23 I think we should explore the CDF and CCDP issues,
24 see how far we can go with those, and if necessary, then
25 we'll go back and limit it more.

1 MR. CALDWELL: For those licensees that have real
2 strong management, that are interfacing with the plants on a
3 day-to-day basis, they're no different than we are, and
4 they're old school, too, deterministic approach.
5 For those licensees, they'll probably do that.
6 The manager is going to say I don't want the diesel -- I
7 don't want these six components being taken out at the same
8 time, I don't care what it says, that doesn't feel good to
9 me, and you know, until we have a better approach, we're
10 going to have to rely a lot on licensee management in order
11 to keep their plant safe.
12 MS. COLLINS: Some of them are pretty developed.
13 I mean they already have these kinds of limits. The limit
14 I've seen in the guidance that's coming out -- CDF -- it
15 says something like 10 to the minus 3 should not normally be
16 entered.
17 Well, the procedure I'm familiar with is not even
18 close to that. So, they're already way far away from that.
19 The other thing that I think is kind of
20 self-limiting is resources, taking these systems out of
21 components. Oftentimes, they have LCOs that -- they don't
22 have enough resources to take all this stuff out, equipment,
23 so I think it's naturally limited that way.
24 DR. APOSTOLAKIS: Let me ask you a question. In
25 your view, should the criteria be bounds on CCDP or CDF?

1 MR. PARKER: Our procedure has both in it.
2 MS. COLLINS: Yeah.
3 DR. APOSTOLAKIS: Very good.
4 MR. PARKER: It has a threshold of the ICCDP of
5 less than 10 to the minus 5 and ICCF less than 10 to the
6 minus 3.
7 So, it's asking the inspectors to look at that if
8 they exceed either of those thresholds, because some
9 utilities, like Laura pointed out, are using CDP, some are
10 using CDF.
11 But you want to -- CDP, I believe, would be
12 looking at the duration, and you want to factor that in
13 there.
14 DR. APOSTOLAKIS: If you say that you have an
15 ICCDP of 10 to the minus 5, that's almost two orders of
16 magnitude greater than what the NRC staff had proposed.
17 Now, you are NRC staff, too. The other staff.
18 Yeah, we have to really work on those things and
19 make sure that we have some consistency.
20 MR. PARKER: That's instantaneous, too.
21 DR. POWERS: When you look at these plants, do you
22 find them taking out multiple systems at the same time?
23 MS. COLLINS: We do find that there are multiple
24 systems or multiple components at the same time.
25 DR. APOSTOLAKIS: What's multiple?

1 MS. COLLINS: There could be two or three, but --
2 DR. APOSTOLAKIS: Two or three systems?
3 MS. COLLINS: Yeah.
4 MR. PARKER: Some plants may have divisional
5 outages and take out all their divisional equipment or any
6 maintenance on a particular division at a time.
7 MR. DAPAS: Train outages. They'll take out maybe
8 RHR and the charging pump, let's say, associated with the
9 same train.
10 DR. APOSTOLAKIS: But that doesn't defeat the
11 whole system, does it?
12 MR. DAPAS: Sure.
13 MR. GROBE: Sure. They'll do maintenance on
14 several systems on the same train.
15 MR. CALDWELL: Multiple systems within a given
16 train.
17 DR. APOSTOLAKIS: Is it fair to say, Laura, that
18 there is a need for guidance in all three bullets?
19 MS. COLLINS: Oh, yes, absolutely, and we know
20 that there are major changes coming to this. I mean we
21 already know that.
22 Of all the procedures that we have, this is
23 probably the one that is sort of newest to the resident
24 inspectors and where they need additional guidance, and I
25 think that's a well-known fact.

1 DR. APOSTOLAKIS: Okay. Thank you.

2 MS. COLLINS: When we go to slide 70, though, and
3 talk about inspection techniques, kind of the way -- what we
4 do -- we would probably select a planned work week, a week
5 or so in advance, or if it's emergent, you know, we don't
6 have that time, and we focus on that work that does involve
7 the risk-important systems and components.

8 We also tend to focus, I think, on unique
9 activities or first-time evolutions, and then we take that
10 safety assessment, we try to understand what the assumptions
11 are, we talk about the licensee's PRA staff, and their
12 operations staff, and the next week, perhaps when the work
13 is going on, we evaluate the plan and the safety assessment
14 against, really, the conduct of the work to make sure that
15 it's consistent, and this also applies to shutdown risk
16 assessments, where configuration of the plant is changing,
17 and we try to know up front what the assumptions are, this
18 has got to be back in service before we take this out.
19 Those are the kinds of things we would go out and check.

20 MR. CALDWELL: Laura said something about we'd
21 focus in on first-time evolutions.

22 I can tell you that once on-line risk started, the
23 majority of the transients or events that were caused were
24 because they transitioned from an activity they did while
25 shut down to an activity while they were operating and

1 didn't fully evaluate how they were going to get there, and
2 they either didn't tag out a component correctly or they
3 operated a piece of equipment the wrong way or whatever that
4 resulted in a transient.
5 So, it is a good area to focus on as they're
6 moving to on-line risk.
7 DR. APOSTOLAKIS: Let's say you have a plant
8 that's a 18-month cycle. If I look at a random -- at the
9 plant at a random time during that 18-month period, is there
10 a high probability that some on-line maintenance is going
11 on?
12 MS. COLLINS: Yes, every week.
13 DR. APOSTOLAKIS: Every week.
14 MS. COLLINS: Yes.
15 DR. APOSTOLAKIS: So, I wonder, then, whether the
16 -- what so-called baseline CDF is meaningful anymore. We
17 should revise it to take into account this plant's on-line
18 maintenance.
19 MR. DAPAS: Supposedly, the SDP accounts for that.
20 DR. APOSTOLAKIS: No, no, no, the baseline, the
21 PRA itself.
22 MR. DAPAS: When you look at, if a component is
23 out of service, what's the additional contribution to the
24 baseline CDF, and there's some assumed amount of
25 out-of-service time associated with that.

1 DR. APOSTOLAKIS: What I'm saying is you don't
2 have a baseline. If your baseline is moved to the point
3 where you have something --
4 MR. SIEBER: You already have assumed a certain
5 amount of outage time per component.
6 DR. APOSTOLAKIS: Not with on-line maintenance.
7 MR. GROBE: With on-line maintenance, if you look
8 at the fault tree, there's some component for equipment out
9 of service time, which can be on-line, can be shutdown.
10 DR. POWERS: What George is saying, I think, is
11 that that's gotten kind of averaged over the entire year,
12 and in truth, it's peaked, it's spiked, and so, now he's
13 moving from spike to spike with maybe a little trough in
14 between or something like that.
15 DR. APOSTOLAKIS: What we used to call baseline
16 CDF perhaps is not baseline anymore.
17 MR. DAPAS: It may not truly capture the risk
18 posture of the plant at the time a piece of equipment is
19 taken out of service.
20 DR. APOSTOLAKIS: This is a very interesting
21 thing.
22 MR. BONACA: If they showed that they were
23 integrating that value, as I've seen other plants do, to
24 assure that you stay within the assumed unavailability in
25 the IPE. So, I mean there is a self-controlling mode.

1 DR. APOSTOLAKIS: No, but what they showed us was
2 that there was a line that said this is 1.5 10 to the minus
3 5, our baseline, and here we had a spike because we did
4 this, then we had another spike because we did something
5 else.
6 Now, Laura is telling me that actually they should
7 have spiked every week.
8 MR. PARKER: There are typically spikes every
9 week, but I think you're right, they generally --
10 DR. APOSTOLAKIS: If you have a lot of spikes,
11 then --
12 MR. PARKER: It has to balance out, because
13 they're looking at the availability and the un-availability,
14 and that all should be modeled appropriately within the
15 scope of the PRA.
16 I understand what you're saying as far as the
17 spikes, and we need to look at it in a different context.
18 MS. COLLINS: The other part of the maintenance
19 rule is sort of their annual assessment where they're
20 supposed to be looking at that, and we also go in -- and the
21 concept of balancing the unavailability and reliability,
22 which I guess we assume that, if they meet their performance
23 criteria for those systems and components, that they've
24 achieved that goal.
25 So, that's under a different inspection procedure

1 that's done by Division of Reactor Safety. They do that
2 once a year.
3 DR. APOSTOLAKIS: Okay. I got the answer.
4 MS. COLLINS: Okay.
5 Page 70, the last bullet, I say consult with
6 senior reactor analysts. If we have some kind of an issue
7 -- and I say we haven't really decided what a finding in
8 this area is -- the SDP doesn't apply to these findings.
9 So, my understanding is that there is a SDP for these kinds
10 of issues under development in NRR.
11 To date, we've just been using our best judgement
12 and the judgement of the SRAs.
13 DR. POWERS: Your understanding is our
14 understanding, and you've apparently seen just as much as we
15 have.
16 MS. COLLINS: Okay. But I guess the good thing
17 is, throughout the pilot program, we've seen pretty good
18 programs with risk assessments, and we haven't identified
19 what we believe to be any significant issues.
20 DR. POWERS: That does seem to be what we see.
21 For these planned outages, they're doing good work, they're
22 doing real good work, and there's an economic incentive,
23 because people that do well-planned, well-thought-out work
24 have short outages, costs less money to get more done.
25 The difficulty is what about unplanned and what

1 you call emergent events, and how well is that going to be
2 done, and I don't have a handle on that.
3 MS. COLLINS: I think in our experience we've seen
4 it done pretty well, but we don't know what's coming.
5 DR. POWERS: Your experience is extremely
6 important to me, because you have an experience that I
7 don't, and so, I take your word very sensitively.
8 MR. DAPAS: There is a spectrum of performance
9 depending on the licensee.
10 DR. POWERS: I'm sure that's true, but I mean if
11 the general feeling is, hey, they're doing a pretty good job
12 here, then I'm going to worry a lot less about it than oh,
13 my god, can I tell you some horror stories.
14 MS. COLLINS: There are a couple of areas that I
15 think are of interest to us, and that is how the licensee
16 might evaluate initiating event frequencies or
17 probabilities, which is kind of what I'm seeing in the
18 guidance.
19 Other than weather-related, impending weather kind
20 of problems, I don't necessarily see a lot of that, and I'm
21 not sure how that will be done. So that's another area that
22 I think we'll explore.
23 On page 71, inspection observations, again, I said
24 --
25 DR. APOSTOLAKIS: Yeah, the second bullet -- would

1 you elaborate a little bit? We don't have to go through all
2 of them.
3 MS. COLLINS: Right. We have seen where the
4 duration of the maintenance exceeds the planned duration,
5 but if it doesn't exceed an LCO, there isn't much
6 involvement we have other than a comment.
7 DR. APOSTOLAKIS: But this is common? Is this a
8 common occurrence?
9 MS. COLLINS: No, I wouldn't say it's common.
10 MR. BARTON: It happens occasionally, yes.
11 MS. COLLINS: But we've seen it.
12 MR. BARTON: Because you have a system outage
13 scheduled for 36 hours and it ends up 42 for some kind of
14 problem, and that happens not too infrequently.
15 MR. DAPAS: And I just wanted to comment -- this
16 has brought to bear an issue where the procedure would ask
17 us to assess is the actual time to execute the maintenance
18 greater than planned, okay?
19 You're asked to look at that as part of the
20 inspection procedure. Then what do you do with that,
21 because does that really translate to an increase in risk,
22 and they're within the LCO time and they may be within the
23 time assumed as part of your baseline CDF.
24 What do you do with that, and that's one of the
25 questions that we've been wrestling with with the program

1 office.

2 MR. BARTON: I think you understand why it is it

3 happens, and if it's the same cause that always happens,

4 then you've got an issue.

5 MR. DAPAS: You're right, but again, the result of

6 that has to be some increase in CDF that crosses some

7 threshold where you can land that issue with the licensee

8 and engage them, versus an observation per se.

9 DR. POWERS: It's like drunk driving convictions.

10 The penalties are very severe in New Mexico for the second

11 one, but since they always excuse the first one, nobody ever

12 has a second one.

13 MR. PARKER: We've seen that happen on occasion,

14 and the SRAs have gotten involved on a few of the issues

15 where the licensee's risk assessment assumed, let's say, 36

16 hours on a 72-hour, and they had some bounding analysis, and

17 now, because of parts availability or some additional

18 concern, they might have went up to the 72-hour, and so,

19 we've asked the residents, that this is a good opportunity

20 to challenge the utility on their risk assessment and their

21 bounding analysis and go back to risk assessment and see if

22 the licensee is comfortable with the new numbers, where it's

23 taken them.

24 DR. POWERS: It's also a good vehicle for asking

25 them about the uncertainty in their analyses, what kinds of

1 things did they think about that might change their numbers?
2 DR. WALLIS: If this is a best estimate, then half
3 the time the duration will exceed the plan, roughly
4 speaking.
5 DR. POWERS: Based on the reports I see, I think
6 most maintenance is less than the plan.
7 DR. WALLIS: Less than the planned time?
8 DR. POWERS: Yes.
9 DR. WALLIS: So, it isn't so bad that a few take
10 longer.
11 MR. DAPAS: Getting back to Mr. Bonaca's point, I
12 would offer that a licensee that is managing the risk would
13 say, okay, if we run into a problem, then here is the risk
14 if it takes 72 hours versus 20, and that's a sufficient
15 increase, now we want to doubly insure we've got parts and
16 we've, you know, done mock-up training or what have you to
17 ensure the actual time is bounded.
18 DR. WALLIS: But surely all you're really
19 interested in is the average over all the maintenance you
20 do, and the fact that some may take longer and be a bit more
21 risky doesn't matter, as long as it's compensated for
22 throughout the year or whatever by the others that take less
23 time.
24 MR. CALDWELL: We probably have a little more time
25 than we anticipated. O'Hare is closed right now. So, we're

1 calling on your particular flights to find out what that
2 actually means.
3 My secretary is going to call and check and see if
4 it means they've been canceled, delayed, or whatever, and
5 then we'll let you know.
6 MR. GROBE: We can give you a nice list of
7 restaurants.
8 MR. CALDWELL: Flying out of O'Hare and into
9 National, which is what we do when we go to headquarters,
10 your chances of one of the two of them getting there is 100
11 percent.
12 DR. POWERS: Now, I know why the risk analysts
13 here are so busy. They're calculating the probability the
14 boss is going to get back.
15 MR. GROBE: Other questions on 71?
16 [No response.]
17 MR. GROBE: Mike, do you want to go into a little
18 bit of what you're doing?
19 MR. PARKER: Yeah. I just wanted to take a little
20 time and go through some of the observations that Sonia and
21 I had during our SRA site visits.
22 We went out to all the sites over the last --
23 probably -- I think it was six months to a year ago, and we
24 went to each one of the sites together as a team and tried
25 to get a pretty good idea of what tools the licensee has,

1 how they're using them, and how they're integrating into the
2 organization.
3 So, it was more of an observation visit to
4 introduce ourselves, to go through the new inspection
5 program, and how we're going to -- how we would like to deal
6 with them on risk issues, but some of the things we found --
7 on-line risk assessments -- most of the utilities were using
8 a probabilistic risk assessment such as Safety Monitor,
9 EOOS, or Sentinel.
10 There were a few outliers out there that are still
11 using deterministic. In other words, they're still using a
12 matrix or procedure to look at things, and it's more of a
13 defense-in-depth-type approach, and some of them also have
14 pre-solved cut-sets that they're using on some of their
15 on-line monitors, but it looks like quite a few of them,
16 including Commonwealth, is moving to some very good systems.
17 They're going to Sentinel at the Commonwealth facilities.
18 So, most of the utilities are using risk programs,
19 and there's, I think, one or two outliers right now in our
20 region that are still using matrix procedures.
21 Shutdown risk assessments -- the majority or all
22 of them at this time are deterministic. Several of them are
23 matrix procedures with defense-in-depth, and I'd say the
24 majority at this time are using an ORAM-type program, outage
25 risk assessment matrix, and that's defense-in-depth.

1 We have seen a couple plants that are in the
2 region -- I mentioned Perry as an example -- that are
3 looking at developing shutdown models right now. So, that's
4 going to be very interesting seeing a full-blown shutdown
5 model and how they're using that and integrating it into the
6 organization and into outage planning.
7 So, it will be a very good tool, but they're
8 completing that. They expect to use it the next outage,
9 which is in February, and they're hoping to use it for some
10 of their pre-planning activities right now, and they're
11 going to tie it back in to -- they need to do some
12 conversion and put it into Safety Monitor.
13 So, that will be one of our first plants in our
14 region.
15 I know several plants out west are using shutdown
16 models.
17 So, that will be very interesting.
18 As far as risk assessments, most of the utilities,
19 I think, are doing some very good risk assessments.
20 Generally that's involved with the work week managers and
21 not the PRA organizations.
22 Generally what we've seen is the PRA organization
23 or the corporate staff develop the tools and put them in
24 place and then it's turned over to the line organization to
25 look at normal work activities, and it's not until they've

1 determined that they have a risk-significant configuration
2 that they may have the PRA organization get involved and
3 deal with the issue and look at the acceptability or
4 challenge the model.
5 MR. BARTON: Well, don't they -- if they have any
6 changes at all to that planned maintenance, don't they
7 bounce that back off their PRA groups?
8 MR. PARKER: Right.
9 MR. BARTON: Okay.
10 MR. PARKER: But some of the organizations will
11 have the line organization where they'll put it in the
12 schedule and then run the program, and as long as the
13 program is, let's say, a green baseline, they won't get
14 involved.
15 So, to address George's question as far as what
16 happens if they have a higher risk, do they try to balance
17 that, some of the plants do, other plants will have like a
18 12-week rolling average or rolling schedule, where they have
19 certain equipment that comes out periodically, and they will
20 try to stick with that equipment at that timeframe and to
21 complete that 12-week cycle. So, they've looked at certain
22 combinations of equipment that they would like to take out
23 at the same time.
24 So, they'll try not to manipulate that equipment
25 and put it into a following week.

1 As far as integrating risk assessments, I think
2 Laura mentioned that, in general, the information we're
3 familiar with is licensees are doing a pretty good job at
4 integrating their emergent work with the pre-planned, and
5 we've seen a lot of occasions where the licensee has
6 pre-planned activities, some equipment to identify
7 degradation. They'll put off or defer or cancel some of
8 their pre-planned activities so as not to incur that
9 additional risk, and so, we've seen some good indications of
10 that, which makes us feel pretty comfortable.
11 Maintenance rule (a)(4) -- as Laura mentioned,
12 that's not out yet. I think that's supposed to take effect
13 in November.
14 There are some direction coming out NRR right now.
15 There's two visits planned for Region III.
16 There's a visit, I think, in the next few weeks that's
17 tentatively set up to go to Braidwood, and with the region's
18 assistance, they want the SRAs, the regional inspector, and
19 then headquarter involvement just to see how Braidwood does
20 activities. I think Braidwood was picked because they
21 indicated they think they have a pretty good program in
22 place. So, that's a one-day visit.
23 And then the other activity that's being planned
24 is more of a comprehensive V&V inspection, and that's
25 planned for Clinton, and that would be more than likely --

1 and I'm somewhat speculating, but I think it's to actually
2 have the draft TI and see how the utility does things. So,
3 it would be somewhat of a pilot or just maybe go through the
4 exercise and see how our procedures develop.
5 MR. DUNLOP: I just got off a phone call a little
6 while ago about the (a)(4) rule. NRR is not really going to
7 prepare a TI. What they're going to do is -- in the
8 verification -- is re-validate the new Attachment 13.
9 So, during the first survey visit to Braidwood,
10 they'll figure out what kind of -- and at all the other
11 regions -- they're doing five surveys -- they'll go out,
12 look at the different types of assessments that the
13 licensees are doing, come up with a new or revised
14 inspection program procedure, and then, during the four
15 verifications -- ours is at Clinton -- verify that the new
16 procedure will work and it will be acceptable.
17 That's one change that we just found out, that I
18 had just found out today.
19 MR. PARKER: That's Andy Dunlop. He's with the
20 maintenance rule in Region III.
21 One of the challenges I think we're going to have
22 in the maintenance rule -- and like we said, we don't know
23 where it's all going, but we have some thresholds, there's
24 some thresholds in some of our reg guides and other
25 guidance, but I don't know how we're going to deal with the

1 fact if the utilities exceed those thresholds and how they
2 balance that and what tool do we have to encourage the
3 licensee to reduce that overall risk, and so, those are
4 questions that we have outstanding and we'll be involved
5 with the development of these activities.
6 As far as risk assessments, I think, since the new
7 inspection program, there's been significant implementation
8 of the licensee evaluating risk.
9 In the past, as far as events, we've challenged
10 the utilities, and we didn't see that they were truly
11 assessing it.
12 So, I think the new revised oversight program has
13 really forced the utility to look at some of those emergent
14 work activities and the impact it has or transients, and
15 we're seeing significant involvement on the part of the
16 utility to assess that, and Sonia and I are actively
17 involved in looking at the impact particular transients have
18 on the plant, overall risk, and communicating that in our
19 morning meetings and other avenues that we have.
20 We've also seen the utility and we've been
21 strongly encouraging the utility to address the risk
22 significance in LERs.
23 An LER asks the licensee to talk about safety
24 significance of the event of interest, and we're seeing the
25 utilities taking an opportunity to address what they

1 characterize as the overall risk significance of the
2 activity as part of the safety significance.
3 So, I think that helps the region and anybody
4 that's following that particular activity to put it in
5 perspective. It gives the licensee their first shot, and
6 then certainly the residents and the SRAs are evaluating the
7 risk significance of LERs.
8 The last thing is -- Sonia has already talked
9 about how we're involved with the SDP process in the phase
10 two.
11 Is there any questions?
12 That's all I have.
13 MR. BARTON: I want to thank you all for a real
14 informative session and thank you for the work you've put
15 into it.
16 I think, of the visits we've made, this has
17 probably been one of the best if not the best, from my
18 perspective. I don't know how the other members feel, but
19 it's been very informative and a good dialogue and we
20 learned a lot.
21 DR. POWERS: Yeah, I'd say that the meeting far
22 exceeded expectations. I think it was an extremely good
23 discussion among colleagues in these areas, and we got some
24 things for us to go puzzle about.
25 I reiterate my belief that the wealth of

1 experience that needs to be injected into this process,
2 especially as we look to the next year of refining some of
3 it, because you guys are really finding the rough edges, and
4 I don't blame the people that put these new systems
5 together.
6 They had millions of things to take into account,
7 and they did a wonderful job doing as much as they did, and
8 they knew they weren't going to get all the rough edges, and
9 so, now, it's a process of making sure we find out about all
10 those rough edges and do things, and what we just heard
11 about on this maintenance rule business is something I
12 hadn't anticipated.
13 We've clearly got to think about that a lot in the
14 coming weeks.
15 So, it's starting to make me think. This is
16 difficult, but I really appreciate it, and we had a
17 fantastic visit out at Davis Bessie. They really pulled the
18 stops out for us.
19 MR. CALDWELL: I thoroughly enjoyed this. I
20 learned quite a bit.
21 I wanted to compliment the staff, those folks that
22 are here. They did an excellent job, I thought, and Marc
23 and Jack, and I certainly appreciate that, as I understand
24 you did.
25 MR. BARTON: I think that's what was better. In

1 our past visits, we've heard from the management of the
2 region, and I think what was great today is we really heard
3 from the people that are out there involved in the process
4 and doing the work and having the interface with the
5 licensees.
6 MR. SINGH: I just want to thank you, especially
7 to Bruce Burgess, for his hospitality here. He has been
8 really helpful, and he has worked since last October to
9 arrange all this.
10 So, I really appreciate his help.
11 MR. CALDWELL: I think I ought to tell Bruce I
12 appreciate it, too, because I jerked him around a bunch
13 today, and it came out relatively smooth.
14 MR. BARTON: On that note, the meeting is
15 adjourned.
16 [Whereupon, at 3:08 p.m., the meeting was
17 adjourned.]
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III

VISIT OF THE ACRS SUBCOMMITTEES ON PLANT OPERATIONS
AND FIRE PROTECTION
JUNE 14, 2000

OPENING REMARKS

DANA A. POWERS

Chairman, Advisory Committee on Reactor Safeguards
Chair, ACRS Subcommittee on Fire Protection

JOHN B. BARTON

Chair, ACRS Subcommittee on Operations

INTRODUCTION/ WELCOME

JIM DYER

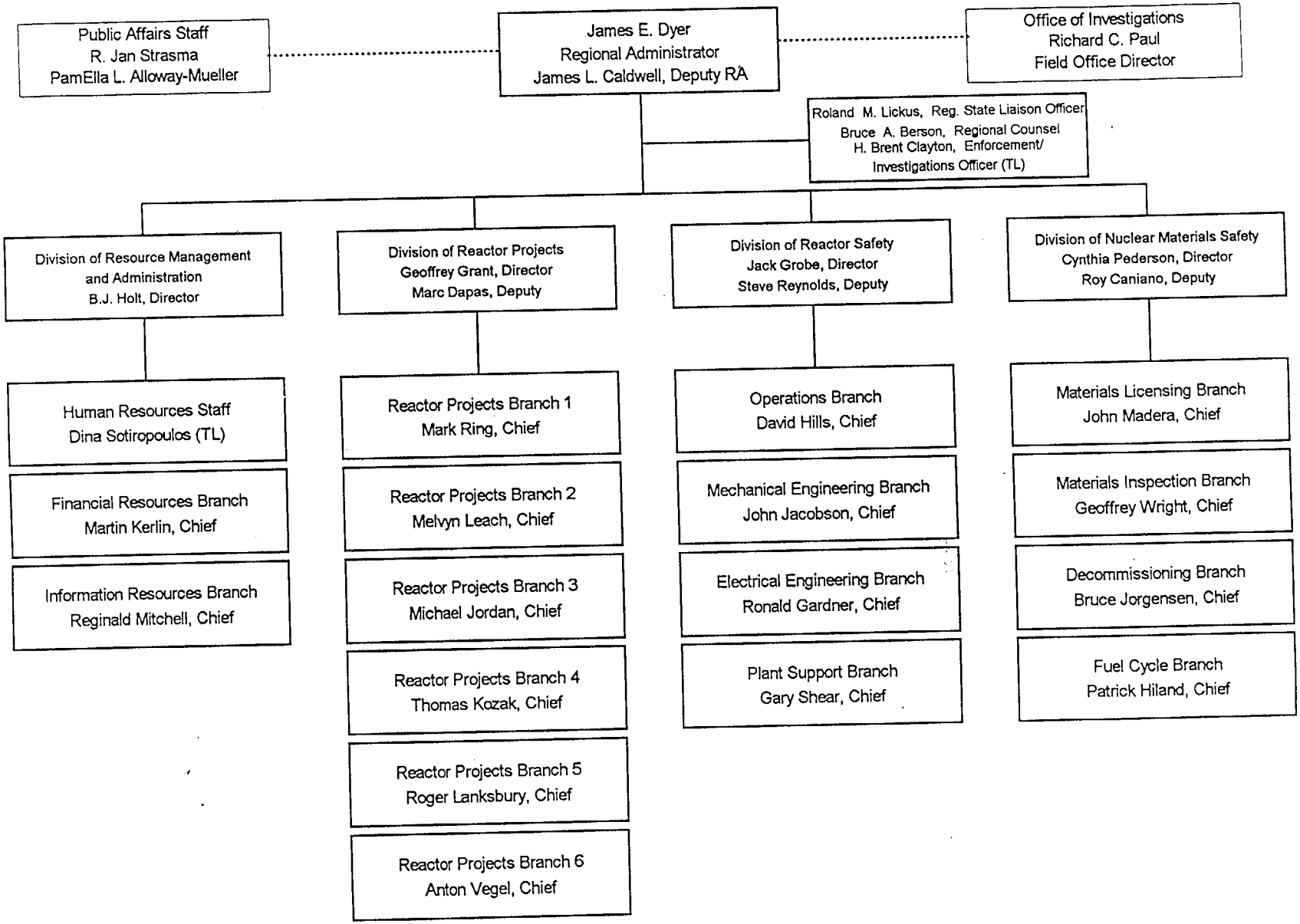
Regional Administrator

Region III

Rev. 30, 05/0

Region III

Lisle, Illinois



REGION III ORGANIZATIONAL RESPONSIBILITIES

REGIONAL ACCOMPLISHMENTS

- Completion of pilot program for Quad Cities and Prairie Island
- Smooth transition to the revised reactor oversight program
- Completed PPR reviews (end-of-cycle for Pilot Plants)
- Effectively implemented the revised enforcement process
- Established resource accounting focus group and corrected resource expenditure documentation errors
- Improved information technology support for region
- Improved communications (internal and external)
- Wrapping up IMC 0350 programs for region

REACTOR PROGRAM IMPLEMENTATION

MARC DAPAS
Deputy Director, Division of Reactor Projects

JACK GROBE
Director, Division of Reactor Safety

DIVISION OF REACTOR PROJECTS

- 24 operating reactors at 16 sites
- 75 professional and administrative staff
- Branches organized to provide additional oversight for D. C. Cook

DIVISION OF REACTOR PROJECTS

- Inspection program management
- Continuous onsite inspection
- Residents are the focal point for agency interface with the licensee
- First responders for incident response

DIVISION OF REACTOR PROJECTS

SPECIFIC DRP INSPECTIONS

- Operations - observations of risk evolutions and event followup
- Maintenance - post maintenance testing and emergent work
- Surveillance testing
- Operability evaluations
  - 10 CFR 50.59 assessments
- Severe weather preparations
- Temporary modifications
  - 10 CFR 50.59 assessments
- Problem Identification and Resolution
- Performance Indicator Verification

Division of Reactor Projects

Division Director: Geoffrey Grant
Deputy Division Director: Marc Dapas

Branch 1
M. Ring BC
PE and RE (V)
Dresden
SRI and RI
Fermi
SRI and RI
Quad Cities
SRI and RI

Branch 2
M. Leach BC
PE and RE (V)
LaSalle
SRI and RI
Duane Arnold
SRI and RI
Kewanee
SRI andRI

Branch 3
M. Jordan BC
PE and RE (V)
Byron
SRI and RI
Braidwood
SRI and RI
Palisades
SRI and RI

Branch 4
T. Kozack BC
PE and RE (V)
Clinton
SRI and RI
Davis Besse
SRI and RI
Perry
SRI and RI

Branch 5
R.Lanksbury BC
PE and RE
Monticello
SRI and RI
Point Beach
SRI and RI
Prairie Island
SRI and RI

Branch 6
T. Vegel BC
PE and RE (V)
D. C. Cook
SRI and 2 RIs

Technical Support Staff
B. Burgess, TL
1 RE

Key: BC - Branch Chief
TL - Team Leader
SRI - Senior Resident Inspector
RI - Resident Inspector
PE - Project Engineer
RE - Reactor Engineer

Secretarial Support Staff
Div Secretary (V)
2 Full Time Branch Sec
2 Part Time Branch Sec

Division of Reactor Safety

- Engineering Inspections
- Safeguards Inspections
- Radiation Protection and Emergency Preparedness Inspections
- Operator Licensing
- Incident Response

Division of Reactor Safety

ENGINEERING INSPECTIONS

- Safety System Design
- Permanent Plant Modifications
- Maintenance of Licensing Basis
- Fire Protection
- Problem Identification and Resolution (DRP)
- Maintenance Rule
- Heat Sink
- Inservice Inspection
- Performance Indicator Verification

Division of Reactor Safety

SAFEGUARDS INSPECTIONS

- Contingency Response
- Access Authorization and Control
- Fitness for Duty and Behavioral Observation
- Problem Identification and Resolution
- Performance Indicator Verification

Division of Reactor Safety

RADIATION PROTECTION INSPECTIONS

- Operational Radiation Protection
- Radioactive Waste and Transportation
- Effluents and Environmental Radiation Protection
- Problem Identification and Resolution
- Performance Indicator Verification

Division of Reactor Safety

EMERGENCY PREPAREDNESS INSPECTIONS

- Emergency Exercise Evaluation
- Emergency Preparedness Program Review
- Problem Identification and Resolution
- Performance Indicator Verification

Division of Reactor Safety

OPERATOR LICENSING

- Initial Operator Examinations
- Senior Operator Examinations
- Operator Requalification Inspections
- Problem Identification and Resolution

Division of Reactor Safety

INCIDENT RESPONSE

- Maintain Facilities and Procedures
- Coordinate Exercises and Provide Training
- Interface with Federal, State, Local, and Tribal Counterparts

Division of Reactor Safety

Division Director: John Grobe
Deputy Division Director: Steven Reynolds

Electrical Engineering
Ron Gardner, Chief

Staffing
Two Lead Engineering Insp
Five Senior Engineering Insp
Five Engineering Insp

Functions
- Fire Protection
- Instrument & Control
- Environmental Qualification
- Electrical Engineering Analyses

Mechanical Engineering
John Jacobson, Chief

Staffing
Two Senior Engineering Insp
Four Senior Reactor Insp
Five Reactor Insp

Functions
- In Service Inspections
- Maintenance Rule
- Structural Integrity
- Mechanical Engineering Analyses

Operator Licensing
David Hills, Chief

Staffing
Six Senior Examiners
Three Examiners
One Licensing Assistant

Functions
- Initial Operator Exams
- Operator Requal

Plant Support
Gary L. Shear, Chief

Staffing
One Lead Insp (HP)
One Senior Rad Specialist
Five Rad Specialists
One Senior EP Analyst
One EP Analyst
One Emgcy Resp Coord

Functions
- Emer Preparedness
- Rad Protection
- Incident Response

Safeguards Staff
James R. Creed, TL
Senior Physical Security Insp
Three Physical Security Insp

Risk Analysis
Two Senior Reactor Analysts

Secretarial Staff
Adeline Saso, Team Leader
Two Branch Secretaries

EXPERIENCE - NEW INSPECTION PROGRAM

MARC DAPAS
Deputy Director
Division of Reactor Projects

JACK GROBE
Director
Division of Reactor Safety

EXPERIENCE - NEW INSPECTION PROGRAM

COMPARISON OF NEW TO OLD PROGRAM

1. Old: 33% core, 33% regional initiative, 33% special inspections

   New: 95% baseline loaded, 3% supplemental, and 2% special inspections

2. Old: Greater flexibility in applying inspection resources - Inspection procedure could be closed using judgement on whether intent met

   New: Increased structure - inspection procedure scope must be completed in its entirety - closely controlled inspection hours

EXPERIENCE - NEW INSPECTION PROGRAM

COMPARISON OF NEW TO OLD PROGRAM

3. Old: Followed deterministic process and enforcement policy regarding significance of inspection findings

   New: Inspection findings processed through Significance Determination Process based on using probabilistic risk analyses

4. Old: More direct observation of plant activities

   New: Increased emphasis on inspection preparation and in-office review

EXPERIENCE - NEW INSPECTION PROGRAM

COMPARISON OF NEW TO OLD PROGRAM

5. Old: 6 month inspection plan (strong emphasis on operations)

   New: 1 year inspection plan (balance between engineering and operations)
   - Use of PIs - operations and maintenance
   - Design emphasis in engineering

6. Old: Inspection resources - flexibility in utilization (N+1, inspection scope, regional initiative)

   New: Extended absences or vacancy requires backfilling to complete program

EXPERIENCE - NEW INSPECTION PROGRAM

COMPARISON OF NEW TO OLD PROGRAM

7. Old: Limited public awareness

   New: Greater opportunities for public awareness (PIs and inspection reports on Internet)

EXPERIENCE - NEW INSPECTION PROGRAM

DRP CHALLENGES

- Inspection planning
- Managing existing inspection resources/ fully staffing positions
- Feedback and dissemination of lessons-learned on inspection program (procedures)
- Initial implementation program review and self-assessment (April - 2001)

EXPERIENCE - NEW INSPECTION PROGRAM

DRS CHALLENGES

- Inspection planning
- Managing existing inspection resources / fully staffing positions
- Limited risk analysis resources
- Questionable value of some performance indicators (safeguards area)
- Different expertise required in engineering area
- Reduced focus on precursors to risk significant issues

SENIOR REACTOR ANALYST PROGRAM

SONIA BURGESS
Senior Reactor Analyst
Division of Reactor Safety

SENIOR REACTOR ANALYST PROGRAM

KEY ROLES OF THE REGION III SRAs

- Support the new oversight program
- Provide focused risk perspectives in regulatory decisions
- Evaluate risk of events and inspection findings
- Provide risk insights for inspection planning
- SRA initiatives

SENIOR REACTOR ANALYST PROGRAM

SUPPORT OF THE REACTOR OVERSIGHT PROGRAM

- Aid the Region III staff in use of the Significance Determination Process (SDP)
- Perform the Level 3 SDP analyses
- Support the assessment and planning process

IMC 0350 PROCESS

JACK GROBE
Director
Division of Reactor Safety

MARC DAPAS
Deputy Director
Division of Reactor Projects

IMC 0350 PROCESS

RECENT REGION III 0350 PLANTS

- Point Beach Units 1 & 2 (10 months 97-98)
- LaSalle Units 1 & 2 (26 months 97-99)
- Clinton (32 months 97-99)
- D. C. Cook Units 1 & 2 (33 months 97-00)

IMC 0350 PROCESS

Purpose:

- Establish Record of Regulatory and Technical Issue Resolutions
- Guidelines for Granting Restart Approval
- Provide Assurance of Safe Operations After Restart

IMC 0350 PROCESS

Objectives:

- Agency Coordination
- Coordination of Issue Resolution with Licensee
- Establish Oversight Plan
- Provide Method for Communicating to Public and External Stakeholders

IMC 0350 PROCESS

Oversight Panel Membership:

- Region Division Director (Chairman)
- Director NRR Project Directorate (Vice Chairman)
- Region Branch Chiefs
- NRR Project Manager, SRI, and SRA

IMC 0350 PROCESS

Panel Responsibilities:

- Review Reason for Shutdown
- Develop Plan & Restart Checklist
- Maintain Ongoing Overview of Licensee Performance
- Determine Inspection Scope
- Assess Readiness for Restart
- Brief Commission and NRC Management
- Meet with Licensee and Public
- Provide Written Basis for Restart Recommendation
- Regional Administrator Approves Restart Recommendation

IMC 0350 PROCESS

Post-Restart Activities

- Continued Panel Oversight
- Assure Safe Sustained Operations
- Review Post-Restart Issues

TRAINING ANALYSIS

JACK GROBE

Director, Division of Reactor Safety

MARC DAPAS

Deputy Director, Division of Reactor Projects

SONIA BURGESS

Senior Reactor Analyst, Division of Reactor Safety

DAVID HILLS

Chief, Operator Licensing Branch, Division of Reactor Safety

RON GARDNER

Chief, Electrical Engineering Branch, Division of Reactor Safety

TRAINING ANALYSIS

ENGINEERING INSPECTORS

Staffing Challenges:

- High turnover rate
- Evolving roles - changing expertise
- Long training period for qualification
- Pool of experienced resources limited (Engineering Firms, Utilities, Military)

TRAINING ANALYSIS

SAFETY SYSTEM DESIGN INSPECTION (SSDI)

- Multi-disciplinary team of 5 design engineers
  - Mechancial Engineers
  - Electrical Engineers
  - Instrumentation and Control System Engineers

TRAINING ANALYSIS

FIRE PROTECTION INSPECTION (FPI)

- Multi-disciplinary team of 3 appendix R engineers
  - Fire Protection Engineer
  - Instrumentation and Controls/ Electrical Engineer
  - Systems Operations Engineer

TRAINING ANALYSIS

- **Staffing Accomplishments**
  - I&C Engineer (PhD - extensive digital experience)
  - I&C Engineer (extensive Appendix R experience)
  - Electrical Engineer (extensive industry and inspection experience)
  - Mechanical Engineer (extensive industry and inspection experience)
- Challenges - Mechanical Design Engineer

TRAINING ANALYSIS

CURRENT AND PLANNED TRAINING

- External Fire Protection/ Appendix R Course
- Internal Heat Sink/ Heat Exchanger Course
- OJT by experienced inspectors and contractors
- Exploring with TTC and other regions discipline specific courses

TRAINING ANALYSIS

RESIDENT INSPECTOR

Staffing Challenges:

- High turnover rate (5-12 percent annually)
- Long training period for qualification
- Pool of experienced nuclear resources limited (Navy, Shipyard, Licensee)

TRAINING ANALYSIS

RESIDENT INSPECTOR

Staffing Accomplishments:

- Fully staffed resident inspection program (only 1 site N+1)
- Aggressive hiring program for reactor engineer positions

TRAINING ANALYSIS

RESIDENT INSPECTOR

Training Challenges:

- Chattanooga training courses limited
- Absence from site for extended periods
- OJT is a large part of training program

TRAINING ANALYSIS

RESIDENT INSPECTOR

Training Accomplishments:

- Reduced training length through hiring of high quality individuals
- High quality OJT is provided
- Extensive cross-training

TRAINING ANALYSIS

SENIOR REACTOR ANALYST STAFFING/TRAINING

Staffing

- Two Senior Reactor Analysts in Region III
- Consideration of additional risk trained staff

TRAINING ANALYSIS

SENIOR REACTOR ANALYST STAFFING/TRAINING

Training

- 18 - 24 month training/certification program

  Classroom:
  - PWR/BWR technical training
  - Statistics and PRA training
  - SPAR - NRC PRA computer model training

  Rotation: 9 months of rotational assignments in NRR/RES/Region

TRAINING ANALYSIS

SENIOR REACTOR ANALYST STAFFING/TRAINING

Challenges:

- Succession planning for SRA position
- Extensive time needed for training/certification

Training Analysis

REGIONAL INSPECTOR RISK TRAINING

- P-111 “PRA Technology and Regulatory Perspectives”
- SDP training

Training Analysis

OPERATOR LICENSING STAFFING/ TRAINING

Staffing Challenges:

- Difficulty in Retaining Certified Examiners
- Difficulty in Finding Qualified Individuals To Hire
- Long Lead Time in Certifying New Examiners
- Significant Increase In Examiner Work Load Starting in FY-2001

Training Analysis

OPERATOR LICENSING STAFFING/ TRAINING

Staffing Accomplishments:

- Budgeted 9 Examiner FTE - Sufficient To Meet FY-2001Demands
- Approved 3 Examiner Overages
- Hiring Progress

Training Analysis

OPERATOR LICENSING STAFFING/ TRAINING

Training Challenges:

- Training and Certifying Several Examiners Simultaneously
- Scheduling of Cross-Certification Training
- Substantial Portion of Examiner Staff Is Relatively New To Examination Work

Training Analysis

OPERATOR LICENSING STAFFING/ TRAINING

Training Accomplishments:

- Examiner Certification Progress
- Improved Examiner Proficiency

FIRE PROTECTION ISSUES

RONALD GARDNER
Chief, Electrical Engineering Branch
Division of Reactor Safety

FIRE PROTECTION ISSUES

In many instances, fire risk is comparable to or exceeds total risk from internal events

FIRE PROTECTION ISSUES

INSPECTION BASES

FIRE PROTECTION DEFENSE IN DEPTH:

- Prevent fires
- Rapidly detect, control, and extinguish fires
- Protect Safe Shutdown Capability
  - Barriers/ separation
  - Suppression/ detection
  - Procedures
  - Equipment/ systems

FIRE PROTECTION ISSUES

INSPECTION BASES

- No performance indicators currently exist
- New inspection program currently provides no inspection credit for self-assessment

FIRE PROTECTION ISSUES

RESIDENT INSPECTION

On a quarterly basis, residents tour 6-12 plant fire areas to observe:

- Combustibles/ ignition sources
- Fire protection systems, equipment, and features
  - Material condition
  - Operational lineup
  - Apparent operational effectiveness
  - Fire barriers

FIRE PROTECTION ISSUES

RESIDENT INSPECTION

On an annual basis, residents observe a fire brigade drill:

- Response time/ number of fire brigade members responding
- Protective clothing, breathing apparatus and fire fighting equipment
- Performance of supporting organizations

FIRE PROTECTION ISSUES

REGION BASED INSPECTION

Triennial Team Inspection Preparation:

- SRA Risk Insights:
  - Fire area risk rankings
  - Transient sequences
- 2-3 day full team information gathering visit
- Selection of three to five plant areas important to risk for the inspection plan

FIRE PROTECTION ISSUES

REGION BASED INSPECTION

Triennial Team Inspection Conduct:

- 200 hours direct inspection effort in 1-2 weeks
- Fire area boundary design
- Safe Shutdown system selection adequacy
- Systems separation evaluations against requirements of III.G.2 of Appendix R (Including area detection and suppression)

FIRE PROTECTION ISSUES

REGION BASED INSPECTION

Triennial Team Inspection Conduct:

- Fire suppression damage assessment for redundant trains of equipment
- Operator recovery actions
  - Smoke removal
  - Dewatering
  - Controlled re-energization
  - Return to service
- Manual Fire Fighting Capability Assessment

FIRE PROTECTION ISSUES

REGION BASED INSPECTION

Triennial Team Inspection Conduct:

- Circuit analysis (Fire-Induced Circuit Faults)
  - Common power supply concern
    - Multiple high impedance fault condition
    - Fuse/ breaker coordination

FIRE PROTECTION ISSUES

REGION BASED INSPECTION

Triennial Team Inspection Conduct:

- Circuit Analysis(Continued)
  - Common enclosure concern (Electrical fault protection from non-essential circuits)
  - Spurious signal concern
    - Hot shorts
    - Shorts to ground
    - Open circuits

FIRE PROTECTION ISSUES

BASELINE USE OF RISK INFORMATION

- Generic and plant specific risk information used to focus resident and triennial team inquiry on plant specific areas
- Fire protection Significance Determination Process (FP SDP) in IMC 0609, Appendix F

FIRE PROTECTION ISSUES

BASELINE USE OF RISK INFORMATION

- Resident Inspector applies FP SDP phase 1 screen only (May request regional office support)
- Inspection team applies FP SDP phase 1 and phase 2 while onsite
- NRC and/ or licensees refine FP SDP analyses as needed post-inspection

RISK ASSOCIATED WITH ONLINE MAINTENANCE

Laura Collins

Project Engineer, Division of Reactor Projects

Michael Parker

Senior Risk Analyst, Division of Reactor Safety

RISK ASSOCIATED WITH ONLINE MAINTENANCE

IP 1111.13 - MAINTENANCE RISK ASSESSMENTS AND EMERGENT WORK

- Sample 5 to 8 maintenance activities per quarter
- Evaluate effectiveness of licensee's risk assessment and control of maintenance activities
- Maintenance rule requires risk assessment for online maintenance (a)(4)
- Future procedure revisions expected

RISK ASSOCIATED WITH ONLINE MAINTENANCE

INSPECTION OBJECTIVES

- Evaluate the effectiveness of the risk assessment and verify how the licensees manage the risk
- Verify the licensee has taken the necessary steps to plan and control emergent work
- Verify the licensee has adequately identified and resolved maintenance risk assessment and emergent work problems

RISK ASSOCIATED WITH ONLINE MAINTENANCE

INSPECTION TECHNIQUES

- Select work week/emergent work on risk-important SSCs
- Review safety assessment/discuss with licensee PRA staff
- Evaluate conduct of maintenance against the “plan”
- Consult with Senior Reactor Analysts

RISK ASSOCIATED WITH ONLINE MAINTENANCE

INSPECTION OBSERVATIONS

- Variety of Tools/Techniques Used
- Duration of maintenance exceeds planned duration
- Failure to Use Assessment Tool
- Inappropriate Credit for Operator Action to Maintain SSC Available

RISK ASSOCIATED WITH ONLINE MAINTENANCE

SRA'S ASSESSMENT OF LICENSEE RISK TOOLS AND SITE VISITS

RISK ASSESSMENTS

- Online Risk Assessments - Probabilistic/Deterministic
- Shutdown Risk Assessments - Deterministic

EMERGENT WORK

- Licensees Performing Risk Assessments
- Typically Performing Integrated Risk Assessments
- Maintenance Rule a.(4) Will Require Risk Assessments

RISK ASSOCIATED WITH ONLINE MAINTENANCE

SRA'S ASSESSMENT OF LICENSEE RISK TOOLS AND SITE VISITS

EVENT ASSESSMENTS

- Trend Toward Licensees Performing Risk Assessments Of Events
- Typically Addressing Risk Significance In LERs

SRA INTERFACE WITH LICENSEES/INSPECTORS

- Involved In SDP Process
- Assist Inspectors with Phase 2 and Conduct Phase 3 SDP Evaluations
- Interface with Licensee