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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

August 25, 2005

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

PLANT OPERATIONS AND
FIRE PROTECTION SUBCOMMITTEES

REGION II VISIT

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Thursday, August 25, 2005

8:30 a.m.

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Conference Room 24T20
Sam Nunn Federal Center
61 Forsyth Street, N.W.
Atlanta, Georgia

PANEL MEMBERS:

JOHN D. SIEBER, Chairman
VICTOR H. RANSOM, ACRS
GRAHAM B. WALLIS, ACRS
DANA A. POWERS, ACRS
THOMAS J. KRESS, ACRS
RICHARD S. DENNING, ACRS
MARIO V. BONACA, ACRS
WILLIAM J. SHACK, ACRS

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7 JOE SHEA, NRC Region II

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

MR. SIEBER: This is a continuation of the ACRS meeting with Region II personnel, and the portion of the ACRS that are here today are the Pant Operations Subcommittee and the Fire Protection Subcommittee which comprises the bulk of ACRS members, so there's only a couple that are absent.

I would welcome Bill Travers, as he has welcomed me, and as an old friend, and I would report to you that your team did an excellent job yesterday in their presentation. It was very efficient and forthright, and for me, and I'm sure the rest of the members, I gained confidence in the agency's ability to handle the issues that come forward from licensees, and particularly some challenging applications that lie before us right now.

And that was one of the purposes of our visit was to get a handle on TBA's applications for Browns Ferry for license renewal, extended power up-rate, combined with the restart activity which looks almost like starting a new plant.

And so I think that will be a challenge for both the region and the headquarters staff and for us to understand it and be able to separate the issues and combine them in a way that will allow us to make

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1 good decisions.

2 And so I thank you on behalf of the
3 subcommittees for the work that the region is doing in
4 that regard, and since they visit us from time to time
5 at White Flint and report their findings to us, I've
6 always had that confidence in Region II personnel. I
7 also read the website that has your inspection
8 reports. °

9 I would point out that our agenda calls
10 for us to conclude by something like 12:15 today, and
11 for me, my next two days of travel must work like
12 clockwork. I'm going to Montana but I have to pick up
13 my wife and mother-in-law on the East Coast to
14 accompany them out there, and every connection looks
15 to me like a bad one, and so I have to leave promptly,
16 and in the event that we aren't done, I don't want to
17 cut short any of the discussion that will go on. I
18 would ask Dr. Powers to take my place to conclude the
19 meeting.

20 So with that, I'd like to ask Dr. Travers
21 to give us a little introduction.

22 ° DR. TRAVERS: Thanks, Chairman Jack. It's
23 great to see you. Glad the ACRS could come to Region
24 II. It is a good organization and I'm glad you've had
25 the benefit of some of the presentations yesterday.

1 I'm sorry I couldn't be here for the first half of the
2 first day that you were able to take advantage of some
3 of the information developing here at Region II.

4 There are a lot of challenges in Region II
5 and obviously a lot of challenges within the agency,
6 and the Southeast seems to be the targeted area for
7 some of the projects, probably not unsurprisingly,
8 that are being developed, and so we're extremely
9 interested in being ready and prepared for the new
10 work.

11 But the fundamental job that we have on a
12 continuing basis is safety inspection at both nuclear
13 power plants and all of the fuel cycle facilities
14 across the country that are organized under Region II.
15 And that's the reason I was out in Washington at
16 Framatone Richmond yesterday to accompany Commissioner
17 Jaczko, and for the first time myself have the
18 advantage of that tour.

19 We certainly look forward in the future,
20 as we have in the past, to working with ACRS. You are
21 also obviously going to be challenged on some of this
22 new work as it develops, if it develops, and so we'll
23 need to assure that we have the same kind of good
24 coordination and interaction with ACRS as we pursue
25 these matters.

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1 There's a lot on the plate, and I think
2 today's first discussion actually, that Vic McCree is
3 going to lead us through, will underscore the
4 challenge we have in the most important element as I
5 see it, and that the personnel, the people side of NRC
6 programs.

7 NRC, in my sense, has always been
8 effective largely or most importantly as a function of
9 the people that work here, and so that's not going to
10 change. Any organization is really defined by its
11 personnel and the people that work.

12 I've been lucky enough to work in enough
13 jobs to see NRC in a broad scope fashion, and I can
14 tell you my experience here in Region II reinforces my
15 view, a similar one I think that you share, that we're
16 very fortunate to have a very professional team here
17 at NRC.

18 But again, welcome, glad you could come.

19 MR. SIEBER: Thank you.

20 MR. MCCREE: As Bill has indicated, and
21 certainly made it very clear to the management team,
22 our people are our greatest asset. So the management
23 team, including myself in the Division of Reactor
24 Safety and Joe in the Division of Reactor Projects,
25 spend a considerable amount of time and effort focused

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1 on identifying our needs, our skill needs, where we
2 are, recruiting, hiring, developing, and putting in
3 place an environment that's enriching enough and
4 focused enough that people feel like staying here. We
5 focus on retention.

6 But I wanted to take a while to talk about
7 Joe and I, our use of the Strategic Workforce Plan,
8 something that we've engaged in for the last two
9 years, as well as our recruiting philosophy and
10 strategy; the use of the Division of Reactor Projects
11 Resident Inspector succession Plan which Joe is going
12 to speak, as well as the Division of Reactor Safety
13 Skills Matrix, both of which, again, are tools to help
14 us to the end of getting good people onboard; and then
15 talk about staff development training and end with
16 just an overview of demographics that help drive what
17 we do.

18 The Strategic Workforce Plan is, as you
19 may be aware, an agency initiative of several years
20 ago to address our current and long-term successor
21 planning needs. All staff have to use that web-based
22 tool to enter their skills and their knowledge.

23 Management looks at it to confirm their
24 skill and knowledge level. We use it to determine
25 where we recruit, how extensively we recruit, and it

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1 also facilitates the technical Training Center's
2 development of the training program that all of our
3 staff have to take advantage of.

4 Using that tool does help to increase our
5 efficiency and effectiveness. Prior to that, while we
6 made it work, it was certainly less efficient than it
7 is now. So it's a very helpful tool for us to use the
8 Strategic Workforce Plan.

9 Next slide, please. Our recruiting
10 philosophy and strategy. We've learned over the years
11 that we have benefitted in Region II when we attempt
12 to target folks who have some connection to the South,
13 to the Southeast. We've targeted our recruiting
14 efforts primarily to southern universities, as well as
15 other locations in the South, and that's really helped
16 us in terms of identifying people and also retaining
17 them. When they have a connection to the geography,
18 they tend to want to come and they tend to want to
19 stay. So that's helped us tremendously.

20 We've used tailored vacancy announcements,
21 specifically -- and I know Joe is going to speak to
22 this -- we've tried to target our vacancy
23 announcements so that we get the people that we want
24 to apply for jobs.

25 As an example, in our Resident Inspector

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1 Program, about five years ago we were hiring people
2 for the position that they would occupy once they
3 joined us, as a project engineer, for example, when we
4 really wanted those people to develop to become
5 residents.

6 So we changed the title of that
7 announcement so that it was a Resident Inspector
8 Candidate Development Program and were able to draw in
9 the operations-oriented people rather than the project
10 management experience that we were getting under that
11 previous posting. That's helped us significantly.

12 Again, we have targeted universities in
13 the South, in the Southeast, such as Georgia Tech,
14 Virginia Tech, NC State.

15 MR. WALLIS: When you target them, what
16 sort of response do you find that you get from these
17 universities?

18 MS. MCCREE: The response that we get is
19 a very positive one. We've identified what we call
20 champions. In fact, across the agency we've
21 identified champions for specific universities. We go
22 and visit the different schools and departments that
23 we're targeting, Nuclear Engineering departments at
24 Georgia Tech and NC State, South Carolina State, and
25 others.

1 DR. TRAVERS: Graham, just as an
2 example -- Georgia Tech is just four stops up, we live
3 next door -- about six months ago we had a group of
4 students come over and I think we've actually gotten
5 some fair interest from the group. We spent the day
6 with them, had the chance to interact with them and
7 some of the different disciplines.

8 MS. MCCREE: It's the student chapter of
9 the American Nuclear society.

10 MR. MCCREE: In fact, several of our
11 relatively new hires were members of the group that
12 came over and hosted and talked with.

13 MR. WALLIS: When they actually get hired,
14 that's when you really learn something.

15 DR. TRAVERS: We have quite a few Georgia
16 Tech on line.

17 MR. WALLIS: Because students will flirt
18 with all kinds of potential employers but when you
19 actually hire them, that's when you actually learn
20 something.

21 DR. TRAVERS: In fact, one of them told
22 me, Well, MIT is really the Georgia Tech of the
23 Northeast.

24 MR. WALLIS: You mean it's been corrupted
25 in the same way.

1 (General laughter.)

2 MR. McCREE: One of the strategies that we
3 use, as well, is certainly using our internship and
4 co-op opportunities to get potential new hires onboard
5 so that they can see what we do, whether it's what
6 they want to do, and we certainly have an opportunity
7 as well to see what they're capable of.

8 And using the co-op strategy, in
9 particular, helps us because it's easier and more
10 efficient for us to hire potential new hires when we
11 bring them in as co-ops and have them here for one or
12 two summers, and we've used that very successfully
13 over the last few years.

14 MR. McCREE: Next slide, please.

15 MR. SHEA: Let me take a couple of minutes
16 to talk about the structure to the Inspection Program,
17 and that's the context in which we look to make sure
18 we have the right folks with the right qualifications
19 to successfully accomplish that.

20 The NRC's entire Operating Reactor
21 Inspection Program is outlined at the highest level in
22 our inspection manual, Chapter 2515, and that outlines
23 the entire Inspection Program: Supplemental,
24 Baseline, Special Inspection programs, and in there
25 indicates that it's imperative that those inspections

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1 be conducted by qualified inspectors and then points
2 to our qualification procedure.

3 That manual chapter for Operating Reactors
4 is manual Chapter 1245, and that details the levels of
5 qualification, the basic and final qualification, as
6 well as refresher training and continuing education
7 expectations for inspectors.

8 In the context, all of the training
9 programs are oriented toward establishing really four
10 critical elements that a good inspector needs to have,
11 and that's they understand the legal foundation for
12 acting as an inspector in a regulatory framework, that
13 they have a detailed knowledge of the technology that
14 they're inspecting, and that gets down to whether
15 that's the NSSS specific training or just the generic
16 aspects of pumps and valves or diesel generators and
17 that sort of thing which are generic to the power
18 reactors.

19 It drives toward making sure the
20 inspectors have good inspection techniques, that is,
21 their ability to gather data, analyze it, and assess
22 it against the regulatory structure, and that's with
23 making sure that they have good ability to assess that
24 in a fundamental safety sense.

25 And finally, the training program makes

1 sure that inspectors have what's critical,
2 communication, the ability to communicate what they
3 see in the field to the licensee, back to management,
4 back to headquarters.

5 MR. WALLIS: Can I ask you about this, you
6 said they learn about the regulatory structure.

7 MR. SHEA: Yes, sir.

8 MR. WALLIS: They must be smarter than
9 some of us. Some of us have been on this committee for
10 10-12 years and we're still trying to figure out some
11 of the details of the regulatory structure. Maybe
12 these guys pick it up quicker. How long does it take
13 for them to really get familiar with the regulatory
14 structure?

15 MR. SHEA: The expectations for someone
16 who comes in at maybe an early mid-career entry is two
17 years to achieve final qualifications, so they can
18 pick up basic qualifications in 6 to 8 months.

19 MR. WALLIS: This is a full-time job, so
20 it is taking quite a while.

21 MR. SHEA: Yes, it does.

22 MR. POWERS: Based on my observation, it's
23 a grind for two years. They're counting the minutes
24 till the time they get through it. I teach R-800 for
25 this and I get them about a third to two-thirds of the

1 way through, and they're looking for the end.

2 MR. WALLIS: Especially your course, I
3 should think.

4 MR. POWERS: My course is so much fun. Of
5 course, it's rigorous and demanding but it's lots of
6 fun.

7 (General laughter.)

8 MR. MCCREE: Actually, it's a very sought-
9 after course.

10 MR. SHEA: But clearly, that's a challenge
11 in part to ensure that it becomes not as much of a
12 grind as it perhaps can be, but we make sure that
13 we're giving them real-time assignments that will give
14 them practical application, even while they're going
15 through the qualification process.

16 MR. WALLIS: Do you get any attrition? Do
17 they find that after a year that they don't like it?

18 MR. MCCREE: No. The answer is no.

19 MR. WALLIS: That's a good sign.

20 MR. MCCREE: We haven't lost any during
21 the training process. We've had some leave after --
22 and these are new hires right out of college -- we've
23 had just a couple leave from this region. I think our
24 attrition rate is less than some of our counterparts
25 in the other regions and headquarters, and I'd like to

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1 attribute that to the fact that most of our new hires
2 have co-op'd with us beforehand, so they have a much
3 better understanding of what they're getting into
4 rather than someone who we just bring in right out of
5 school.

6 And again, we try not to do that with our
7 new hires. Mid career, it's a little bit different,
8 they're more mature, if you will, more experienced,
9 and have a much better idea of what they're getting
10 into.

11 MR. POWERS: My observation is that when
12 you pair a new hire with a mentor of some maturity and
13 there's a good working relationship there, it breeds
14 an enthusiasm.

15 MR. McCREE: Indeed.

16 MR. POWERS: I can tell who is doing that
17 in the classes I teach because their enthusiasm and
18 curiosity levels are just much, much higher.

19 MR. McCREE: One of our early lessons
20 learned too -- because most of our new hires are in
21 the Division of Reactor Safety, new hires meaning
22 right out of college -- is that we try not to bring
23 them in one at a time because we want them to have a
24 peer group, if you would.

25 In fact, early on we called them Pride

1 Group 1, Pride Group 2 because we bring in several,
2 three or four new hires, and it really helps with
3 their own synergy, at their own level, and it has
4 helped us to retain them and move them along. A
5 couple actually have gone into the Resident Program
6 after about three or four years.

7 DR. TRAVERS: When we think of attrition,
8 there is one element that we're thinking about
9 currently, and that is some of the new jobs that are
10 likely to be created in headquarters as a function of
11 some of the new work that is being done.

12 So we're actually incorporating into our
13 philosophy of looking for people for training some
14 notion that we'll probably lose some folks, and that's
15 not just Region II, but the regions collectively will
16 lose some folks as some of those jobs appear to be
17 attractive in our MSS workshops.

18 MR. LARKINS: Is that a concern?
19 Traditionally the regions have served as the feeder
20 group for a lot of headquarters jobs when they reached
21 the journeyman level, GG-13, 14, as they look for
22 promotions and stuff, and with the challenges you're
23 being confronted with and the need for expertise.

24 DR. TRAVERS: IT's been more of a
25 challenge in Region I, and as real estate prices go up

1 in Washington.

2 (General laughter.)

3 DR. TRAVERS: But it is.

4 MR. MCCREE: It's happened, I think it's
5 good for the agency to have that movement of
6 operations field experience to headquarters. We're
7 mindful of that and try to plan for it by populating
8 staff with people who can fall in behind them and do
9 what we need to do.

10 But it is a challenge, and what Bill is
11 alluding to is the fact that the Program Office has
12 allotted us additional FTEs to recognize the
13 likelihood that there will be opportunities

14 MR. LARKINS: But as you said, as real
15 estate prices get higher, there's less movement.

16 MR. SIEBER: Washington is a good place to
17 move away from.

18 DR. TRAVERS: Amen.

19 (General laughter.)

20 MR. RANSOM: Do you put the training
21 materials together here? I presume you have training
22 materials that you use. Right?

23 MR. SHEA: Yes.

24 MR. RANSOM: I'd personally be interested
25 in getting a copy of that.

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1 MR. SHEA: The training course program is
2 fairly extensive and all oriented toward supporting
3 the qualification of the inspectors. There's
4 classroom training offered both in headquarters and
5 here in the region, and again, some of the attributes
6 about the legal foundation of regulatory structure,
7 the technology and inspector techniques are offered in
8 both places. Part of the qualification process,
9 there's probably 10 to 15 courses that an individual
10 needs to go through, and that material is here and in
11 headquarters.

12 MR. RANSOM: You haven't put together a
13 text or something with this material?

14 MR. SHEA: It would not be a single
15 binder, if you will. Some is online, but we can get
16 the representative elements of it.

17 (General talking.)

18 MR. MCCREE: I think what would be useful
19 is to look at the manual chapter itself, manual
20 chapter 1245 which has several attachments that
21 describe what the qualification program is all about.
22 It tells a person what you have to do to become basic
23 certified and furthermore, what you have to do to
24 complete full qualification.

25 That's a relatively new development and it

1 was updated about three years ago, so I think that
2 would be a very useful thing.

3 MR. WALLIS: So we understand it's tough
4 material, but nobody flunks out, or do some people
5 fail?

6 MR. McCREE: Well, if that happens, then
7 we have failed.

8 MR. WALLIS: I presume it's very well, you
9 select them so well.

10 MR. McCREE: We have had inspectors who
11 have, for example, not passed one of the series
12 courses.

13 MR. WALLIS: They go back and do it again?

14 MR. McCREE: What we do is we tutor that
15 individual and send them back and have them do it
16 again, that's correct. And we've had a lot of success
17 with that, the second time around. But we've not had
18 anyone fail to become fully qualified, it just may
19 take a little bit more time.

20 MR. SHEA: And then the culmination of
21 that final qualification process is the qualification
22 board in which there are seasoned inspectors and
23 management assessing the full range of knowledge of
24 that person before they put him out in the field, so
25 it's that board's responsibility.

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1 MR. WALLIS: I remember about TMI there
2 was some public criticism of the process where people
3 sort of marginally would fail and eventually be
4 reprocessed and marginally get through and so on. I'm
5 sure that is no longer the case?

6 MR. MCCREE: We try to invest on the
7 front-end to make sure that people that we hire are
8 very capable. We've been very fortunate in terms of
9 our new hiring, in terms of grade point average and
10 certainly their college experience, that they're very
11 solid academically. In fact, many of our hires not
12 only have an undergraduate degree but they have a
13 master's degree before coming in.

14 With respect to our mid-career people, we
15 interview then extensively, do very thorough reference
16 checks, and have been very fortunate in terms of the
17 quality and experience base of folks we've hired.

18 Again, even in the resident program,
19 within the last five years we've put a major push on
20 because a number of our residents have been hired in
21 headquarters. We've been very successful with hiring
22 individuals that are SRO licensed, shift technical
23 advisors, shift supervisors who are fatigued with
24 working shift work and have always thought about being
25 a regulator, and this is just the right time for them

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1 in their career, and we have a number who are out
2 there in the field right now.

3 MR. SIEBER: It's been my experience that
4 the key person involved in the training and
5 development of resident inspectors is the senior
6 resident at the plant site.

7 MR. MCCREE: Exactly.

8 MR. SIEBER: And that performs the check
9 on the quality of the reports that are written and
10 also day-to-day tutoring.

11 MR. SHEA: That's right, and in fact, once
12 a person receives a basic level of qualification after
13 six months, then they can be assigned to a site, and
14 in that context we would look where are the sites
15 where we have the most seasoned senior residents and
16 look to pair those newer basic-qualified folks with
17 some of those more seasoned folks and get that
18 exchange that way.

19 MR. SIEBER: I guess the flip side of that
20 is the biggest mistake you can make as managers is to
21 make somebody a senior resident who really doesn't
22 have all these qualities and attributes because some
23 of them are not the kinds of things that you can
24 readily measure.

25 It has to do with personality, it has to

1 do with attitude, it has to do with drive, and I have
2 seen a lot of good resident inspectors in my career
3 become so because the senior resident was a very
4 knowledgeable person with a lot of leadership skills.

5 MR. MCCREE: We've tried not to make those
6 kinds of mistakes, and we've had the benefit, we
7 mentioned, of experience level. Each year in NRR
8 sends to the commission a paper called Resident
9 Inspector Demographics, and if you look at that paper,
10 historically Region II has benefitted from having the
11 most experienced inspectors, senior residents as well
12 as residents, in terms of time on a site, past
13 experience in the technical field, whether a shipyard
14 or within the industry.

15 So we have had that luxury, if you would,
16 of having had experience to pass along to our new
17 resident inspectors.

18 MR. KRESS: But of your new hires that
19 would like to continue their education, do you have a
20 program, some sort of agreement with Georgia Tech or
21 somewhere that they can go to night school or get off
22 from work?

23 MR. MCCREE: The agency has a program that
24 we benefit from that's called 368 Training that we do
25 take advantage of. What you'll find out in a few

1 minutes when I show you're the Division of Reactor
2 Safety Skills matrix is while those opportunities are
3 available -- and we have done that, for example, in
4 the digital systems, digital controls, we sent several
5 of our electrical/INC inspectors over to Georgia Tech
6 to get that type of training -- there is, on the other
7 hand, an abundance of training that the NRC offers
8 through our Technical Training Center and the
9 Technical Training Center can contract out for, should
10 there be sufficient interest in that area from all the
11 regions.

12 MR. KRESS: I had in mind something like
13 a BS engineer wanting to get a master's degree.

14 MR. MCCREE: Right. There are several
15 paths by which a staff member or inspector could
16 pursue that. One would be, as Victor was alluding,
17 sort of on a piece-by-piece approach, course-by-
18 course, you're justifying those courses in the context
19 of their benefit to the agency, but a number of folks
20 have put together advanced degrees through that
21 process.

22 The other avenue is the agency does have
23 some graduate fellowship program, but those are
24 programs where someone steps out for the period of
25 time, the 18 months or so, to get a degree and then

1 gets that degree and incurs some obligation to the
2 agency and then comes back in.

3 MR. SHEA: There is a fellow from Region
4 III, C.J. Farnham, has gone up to MIT to take on
5 graduate studies.

6 MR. SHACK: I just wanted to ask what
7 number of fellowships do you have per year typically?

8 MR. MCCREE: Right now I think C.J. is the
9 only one, however, we have two current co-ops for whom
10 we are paying their tuition or at least part of their
11 tuition to complete their undergraduate degree. And
12 Joe has a resident inspector out at Harris who is
13 actually completing a master's in nuclear engineering
14 through North Carolina State.

15 So it is being done, it is quite
16 challenging, though, particularly as a resident, to
17 have time to do that. You're on call 24/365, so it'
18 makes it very challenging. But that is something that
19 we encourage and we support.

20 MR. DENNING: I don't mean to downplay the
21 importance of the things that you're talking about
22 here and the stimulation of inspectors and their
23 training, but there must also be people that get into
24 this job that really aren't suited for it that are
25 dead wood, and how do you handle that? And I realize

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1 that's a really difficult problem for the agency, but
2 how do you do that, how do you identify them and move
3 them someplace at least where they're not doing harm?

4 MR. McCREE: Very carefully, very
5 thoughtfully, and certainly using the support and
6 understanding of senior management, as well as the
7 Office of Human Resources and the individual himself.
8 And certainly the regions are isolated in that
9 challenge.

10 MR. DENNING: Do you have an annual
11 evaluation process that actually works? I mean, does
12 it really work? I've seen lots of them where there's
13 the process but it's done superficially and everybody
14 is afraid to say negative things in these kinds of
15 evaluations.

16 MR. McCREE: We do have an annual
17 evaluation process and that's certainly a formal
18 process, but it's certainly not the only one that
19 allows a manager, supervisor to engage an employee to
20 put in place resources to enable them to perform
21 better.

22 We try to hire individuals who have the
23 will, that share our values and certainly have the
24 base level of experience and/or knowledge to help us
25 accomplish our mission. Our job then is to provide

1 the access to the skills to enable them to do it.

2 ° When that doesn't happen, then we have to
3 certainly engage that individual and see what job is
4 best for them, and we do that very thoughtfully and
5 very carefully.

6 MR. DENNING: Do you look to the utility
7 for comments on the inspectors, or is that
8 inconsistent with regulatory?

9 MR. MCCREE: The answer is yes. This goes
10 back to the early '90s and the Towers Perrin report,
11 where now we formally, as directed by the EDO, when a
12 ° branch chief or a senior manager engages with a
13 licensee, when we go out for site visits or certainly
14 when they drop in and visit us, one of the specific
15 items that we ask about and we actually document in
16 our trip reports is how our inspectors are performing
17 and if there are any issues that we need to address.
18 So we do get that feedback.

19 DR. TRAVERS: We try to encourage at every
20 opportunity when management interacts with management,
21 I always ask: Are there any problems; are there any
22 issues you want to raise with me about how you see our
23 oversight ° program working?

24 ° And so I think the best thing you can do
25 is just try to keep those communication lines open.

1 Sometimes we get some information; sometimes we act on
2 it, sometimes we don't see a need to.

3 But I think Jack brought up a point
4 earlier that there really is an art, almost, to the
5 way inspectors who are serving this regulatory
6 function interact with licensees. It's acquired, it's
7 not just technical, it's a skill set that takes some
8 time to develop, and in some people it takes a little
9 longer than in others. But in the main, we think
10 we're pretty successful.

11 MR. SIEBER: Well, I noted when I was
12 working as a licensee that quite often supervision
13 would come and spend a week at our plant sites,
14 basically to monitor what goes on with the site-based
15 personnel which I thought was a good thing.

16 They would sit in on all the meetings and
17 occasionally I'd be asked what do I think. But
18 licensees are going to be pretty cautious about
19 saying, Well, your resident inspectors are not any
20 good. I don't recall anybody as ever having said
21 that; there may be an instance or two.

22 DR. TRAVERS: It is occasionally said, we
23 have issues that are raised.

24 MR. SIEBER: But I would imagine it's
25 pretty rare.

1 DR. TRAVERS: It's rare, in large measure,
2 I think it's not needed all that often because we have
3 been fairly successful.

4 MR. SIEBER: I've been flat-out asked by
5 regional administrators what do you think of this
6 person or that person, but the impression that I got,
7 both from outside the agency and inside the agency, is
8 these organizations at the region are basically small
9 enough that the regional administrator and all of the
10 management really know a lot of details about the
11 performance of individuals in that organization. I
12 have always been impressed by that. And I'm sure that
13 this region is the same.

14 MR. MCCREE: And that's not a mistake. I
15 mean, as Bill indicated, people are asked that,
16 certainly the residents and even our base inspectors
17 put a lot of time and energy into their development,
18 their hard technical skills, their soft skills as well
19 that are developed for certainly our seniors, our
20 first-line supervisors. They go through the
21 supervisory courses and that enhances their tool bag
22 as supervisors and their ability to interface with the
23 licensee and certainly senior management in that
24 context.

25 We reinforce it certainly through the

1 division directors and the branch chiefs, several of
2 whom spoke with you yesterday, as well as twice a year
3 we have our inspector counterpart meetings involving
4 all the inspectors. So that's another opportunity for
5 Bill, and certainly my colleagues and I reinforce the
6 soft issues, if you would, as well as the important
7 safety issues.

8 MR. SIEBER: Well, the skill set required
9 for inspectors is quite a bit different than, for
10 example, working in NRR or other places, and if an
11 individual may not be too terrific an inspector, maybe
12 NRR is the place to send them.

13 MR. SHEA: One last point perhaps on that
14 is that there is an expectation on the first-line
15 supervisors, the branch chiefs who are in the region,
16 that they get out a number of times per year and
17 directly observe the performance of the senior and the
18 residents, both by doing walk-downs of the facility
19 and watching them, observing them doing an inspection,
20 and also attending inspection exit meetings where they
21 can, in the first part, watch their technical
22 inspector skills, on the second forum, watch their
23 communication and ability to communicate regulatory
24 issues directly.

25 So in addition to the feedback that may or

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1 may not come clearly from the licensee through those
2 other venues, the supervisors first-line and second-
3 line have their own base to make those assessments of
4 performance.

5 Let me go to the next item and talk about
6 some attributes of succession planning that are unique
7 to the Resident Inspector Program.

8 The staffing requirements for the resident
9 inspector set out in 1999 established the end policy
10 where at the 18 sites across Region II we have
11 approximately just under 40 resident inspectors out
12 there, depending on the number of reactors at the
13 site.

14 In terms of succession planning, there's
15 one additional element in the resident program that
16 makes managing succession planning, one element more
17 complicated beyond just managing attrition due to
18 retirements or attrition due to folks making mid-
19 career changes.

20 The agency's relocation policy established
21 in 1998 SECY paper and carried forth in the field
22 policy manual, establishes that to ensure continuity
23 on one hand and objectivity on the other hand, the
24 resident inspectors can be at the site nominally no
25 more than seven years and typically no less than four

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1 years, with provisions for extraordinary
2 circumstances.

3 And again, that provides for making sure
4 we have continuity so we're not changing folks out so
5 fast that we can't connect the dots as well, and that
6 they don't stay so long as to lose their objectivity.

7 So management in the region and the branch
8 chief tracks and projects into the future the expected
9 turnover dates for both the residents and the senior
10 residents, and we can get a sense for what years we're
11 going to have gaps starting to open up that we need to
12 plan for.

13 One management tool or enhancement that
14 has been made in the recent past is our ability to
15 overlap the assignment of residents and senior
16 residents so that they can get a solid turnover of the
17 issues and performance of that licensee before there's
18 a gap.

19 And there have been instances where that's
20 caused the agency problems over the past few years,
21 and in response to that we've put in place this
22 ability to double encumber for a period of time the
23 coverage at the site -- I think it's a year for a
24 resident and six months for a senior resident -- and
25 allow, again, for a good turnover.

1 In the context of looking ahead and
2 projecting when the different sites are going to have
3 openings or change-out of personnel, we can see where
4 we need to keep some surge capacity -- I call it -- in
5 the region of folks who are going through the
6 qualification process, and that is the Resident
7 Inspector Development Program that Vic alluded to
8 earlier.

9 Currently we have four folks here in the
10 region who are going through their basic qualification
11 program, and that's out of a population of residents
12 of about 40 folks, so that's about a 10 percent surge
13 capacity. And each of those individuals is on a track
14 with expectations about when they're going to timely
15 complete their qualifications and are doing well in
16 terms of keeping to that expectation. In fact, we're
17 getting ready to hire on a fifth person into that
18 program to keep that surge capacity.

19 MR. WALLIS: So you have 40 out there and
20 the average resident's time is five or six years, then
21 you're going to have to need eight a year to replace
22 them or something?

23 MR. KRESS: They go someplace else.

24 (General talking.)

25 MR. WALLIS: They just keep rotating them

1 around? I see what you mean, they don't go somewhere
2 else, they just go from plant to plant.

3 MR. SHACK: Can they actually return to a
4 plant after some time?

5 MR. MCCREE: If I could?

6 MR. SHEA: Sure.

7 MR. MCCREE: With respect to surge
8 capacity, that is, if you would, a nominal surge
9 capacity in the Division of Reactor Projects. There
10 are also inspectors in the Division of Reactor Safety
11 who certainly are capable and have interest
12 occasionally in being residents as well. So there are
13 actually several that we know of who would like to, at
14 some point, become a resident. And in fact, each of
15 them are fully qualified, so there's actually more.

16 MR. WALLIS: It's sort of a strategic
17 reserve.

18 MR. MCCREE: It's a strategic reserve.
19 I'll have to write that one down.

20 To answer your question, there is no
21 agency policy that would preclude a resident from
22 returning at some subsequent point to serve as a
23 resident or even as a senior at the same site.

24 We have had sub-optimal experiences when
25 we have done that. We have a senior who was once the

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1 project manager at Browns Ferry, and in fact, his
2 predecessor was employed at TVA at Browns Ferry 17
3 years before we assigned him. But that's the
4 exception rather than the rule.

5 We generally do not do that simply because
6 of the perception by the licensee that that individual
7 may not be open, and even when we had some inspectors
8 who have been employed by a licensee, we will
9 consciously try not to send that individual or assign
10 that individual to that site to avoid that same
11 perception and questions about objectivity.

12 MR. SIEBER: I thought that was a hard and
13 fast rule.

14 MR. MCCREE: Again, that's not a written
15 policy, it's not an institutional policy, but it's one
16 that we try to keep in mind.

17 DR. TRAVERS: But you're correct, very
18 often what happens when people move is they move to
19 another site, especially a resident inspector may move
20 up to become senior, for example, at another site.

21 MR. SIEBER: On the other hand, again as
22 a licensee, there were instances where I would have
23 liked to have hired my staff, NRC personnel, and of
24 course, the ethics issue would prevent me from doing
25 that with anybody having anything to do with our

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1 plant, but I could have hired from somebody else's
2 plant.

3 MR. MCCREE: And it's becoming our
4 internal policy not to assign a resident to a
5 licensee, not just to a site but to a licensee for
6 which he or she has served as a resident before. It
7 could become an even greater challenge as licensees
8 combine across regions, and we're aware of that and
9 our policy will have to be reformed by those changes
10 as they occur.

11 But we've found that policy useful, it's
12 helped us in terms of our personnel assignment

13 MR. SIEBER: Now, there used to be a
14 rotation policy of five years which was, to my
15 knowledge, never rigorously enforced just because of
16 the difficulty of playing checkers with few checkers
17 on a big board.

18 MR. SHEA: As I was referring to, it has
19 been revised, it's now actually a seven-year stay
20 time. In fact, the two I was referring to, here's how
21 we track -- this is for senior residents -- who is
22 current at the site and the little red circle shows
23 when their seven-year period would expire, and the X
24 reminds us when we would want to think about
25 advertising that upcoming vacancy and make sure we do

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1 that in a timely way so we can get the overlap and the
2 good turnover.

3 MR. MCCREE: Just to reiterate, that is
4 rigorously enforced. It's in the EDO's policy field
5 manual. In fact, Bill has to request permission from
6 the EDO to extend it beyond that date.

7 DR. TRAVERS: I don't think we've done it.

8 MR. WALLIS: You might want to level this
9 out a bit. I notice you have no hires in some years
10 and you have a huge number -- or no moves in some
11 years and then a huge number in other years. You
12 might want to level it off so there's about the same
13 changeover each year or something. Just a comment.

14 MR. MCCREE: This slide here again shows
15 the senior residents, and there are a couple of
16 assumptions -- and again, this is just a tool, there's
17 no magic in this other than experience, logic and
18 reason -- but one assumption is that the seniors would
19 remain at the site until the end of their tour, seven
20 years, which based on our experience, that's rare.

21 As Joe mentioned by policy, we have to
22 leave them there for four years unless we get Bill's
23 permission, and again, he has to request the EDO's
24 approval.

25 DR. TRAVERS: Sometimes it's just money.

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1 MR. MCCREE: It is, it's the cost of
2 relocation. I think it's about \$100,000 per move, and
3 those costs are excessive and we've received guidance.
4 In fact, those waivers that Bill could previously
5 request would not likely be approved unless there's
6 some extraordinary reason.

7 MR. SIEBER: One practice that you had,
8 and I think you still have, that I think is a really
9 good practice is take a resident from one plant and
10 assign him as a transient inspector to another plant
11 with perhaps similar issues.

12 DR. TRAVERS: We do that very often with
13 special inspectors, for example. Even in Region III,
14 for example, where David Specie or D.C. Cook has been,
15 we can very often provide team members to some of the
16 team inspections they carry out.

17 And where people go on vacation, we very
18 often send senior or resident inspectors to those
19 other sites, and in a developmental sense, we're
20 looking for opportunities to broaden the perspective
21 to people to bring in their own jobs.

22 MR. SIEBER: Among licensees, one of the
23 things that developed a complacency in the
24 organization was a lack of communication in this broad
25 breadth of knowledge of what the industry was doing.

1 You have the potential in the agency to have the same
2 thing occur, and these kinds of things are efforts that
3 will prevent it or forestall a sense of complacency
4 that develops because the scope is too narrow. So I
5 encourage that.

6 DR. TRAVERS: I think that's a very good
7 point and in an era where the nuclear industry is
8 performing sort of relatively well -- especially in
9 comparison to 12-15 years ago -- that guarding against
10 complacency, both within the industry and within NRC,
11 is a very, very key element of what we need to guard
12 against.

13 MR. SIEBER: Well, the kind of policies
14 that you're talking about and that you employ are the
15 kinds of things that I think help the agency avoid
16 those situations, so that's good.

17 DR. TRAVERS: And I mentioned good
18 performance. If you look at the Southeast, in
19 particular, the performance of the nuclear industry in
20 the Southeast and the potential for that sort of
21 complacency to take over is quite good. So we
22 certainly recognize your point, it's a good one.

23 MR. SHEA: The point about the
24 distribution of rotation times, on that same tool,
25 this reflects the projections for the resident

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1 inspectors, and you can see that unlike the seniors
2 where it was a little sort of weighted out there in
3 the 2009-10. time frame, the resident inspector
4 rotation distribution is a little more balanced.

5 Some of those folks would go to other
6 sites as their times came up, some of them as senior
7 resident or even headquarters positions came open
8 would be looking to move into those kind of positions.

9 MR. MCCREE: So just from an overview, the
10 surge capacity that Joe spoke to within the region is
11 a typical source of new residents to replace the
12 incumbents, and for the most part, the residents
13 within Region II, and in fact, the entire population
14 of the nation of residents, because when a senior
15 resident inspector position is posted, it's posted
16 nationwide.

17 So we have potential incumbents among
18 residents within Region II as well as in other
19 regions, or perhaps even headquarters that there may
20 be some residents who have gone there to gather
21 additional experience and then they come back to the
22 region as a senior resident. And that's always
23 helpful for us to get cross-pollination among the
24 regions and headquarters.

25 MR. THADANI: Just a quick question, Joe.

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1 Changing the five-year to seven-year policy, I assume
2 that would lead to improved morale and so on. Is that
3 the case?

4 MR. MCCREE: That is my perception, that's
5 been my experience from speaking to the residents and
6 the seniors is that it's helped them to plan their
7 lives better, and we've also been able to assure their
8 objectivity through other means. And one of the
9 requirements that we lay upon inspectors every year is
10 that they do an objectivity visit at another site for
11 at least a week, and that's helped us to, again,
12 promote their objectivity, as well as visits by our
13 branch chiefs. But that seven years has been a help.

14 MR. THADANI: Is there any study that says
15 seven years is good, nine years is not good?

16 MR. MCCREE: There's nothing scientific
17 about that.

18 MR. SHEA: And in the end, any relocation
19 is going to have its challenge for the individual, so
20 seven years or eight years.

21 MR. MCCREE: But it's a nice round number.

22 MR. SHEA: The last piece I was going to
23 mention -- but may in the discussion on DRS show it in
24 a little bit more detail -- is that in the continuing
25 development of our inspectors we have a similar web-

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1 based tool where we track the experiences that the
2 inspectors have, both their prior experience, their
3 internal developmental activities, the classroom and
4 academic training they've had, and from that we
5 attempt to make sure that as we're planning training
6 activities and training opportunities for the whole
7 inspector corps, make sure that we continue to get a
8 good distribution of all those four basic skills that
9 I talked about at the beginning.

10 In the interest of time, perhaps we can
11 look at that tool in the next part of the discussion.

12 MR. MCCREE: That's the one I'm about to
13 speak to.

14 I think Yogi Bear once said, You've got to
15 be careful if you don't know where you're going
16 because you might not get there.

17 Several years ago -- it's been recognized
18 for more than several, about five years ago, and this
19 has been updated certainly since that time --
20 recognized that we have a significant succession plan
21 challenge because of our aging workforce and other
22 factors.

23 So we laid out what we thought was a
24 logical tool that would identify the skills that we
25 need, and from that, to complete our tasks.

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1 MR. WALLIS: So these needs in this column
2 are the needs above what you have now? Because
3 otherwise you might conclude that you have ten people
4 and you only need two. What you mean is you have ten
5 people and you need two more.

6 MR. McCREE: Understand. These are the
7 needs that we need right now.

8 MR. WALLIS: So you have ten people and
9 you only need two of them? Is that what I understand?

10 MR. McCREE: Let me start in the left-most
11 column. The skills needed are the skills that we need
12 right now to implement the Baseline Inspection
13 Program.

14 MR. WALLIS: So in all columns you have
15 more people than you need?

16 MR. SIEBER: No. Physical security has
17 fewer qualified people.

18 MR. WALLIS: Yes, but in most of them the
19 staff onboard is bigger than the need so you could do
20 away with a lot of these people?

21 MR. SIEBER: No. Some people have more
22 than one skill.

23 MR. McCREE: Let me use an example. Under
24 structural engineering, the first area, the staff
25 needed to complete integrated leak rate response

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1 testing, the staff needed is one and we have four
2 onboard who are capable of doing that.

3 MR. WALLIS: Okay, but they're doing other
4 things too.

5 MR. MCCREE: They're doing other things as
6 well. So we have more than enough.

7 MR. SIEBER: Well, this doesn't explain
8 whether you have enough people to do all the work,
9 this tells you whether you have enough skills to do
10 individual jobs.

11 MR. MCCREE: Correct.

12 MR. SIEBER: The more interesting question
13 is do you have enough overall people with the right
14 skills to do all the work that has to be done. And
15 that's a different answer than this chart will show
16 you.

17 MR. MCCREE: That's correct. What this
18 does do for us, however, is identify skills gaps. In
19 other words, the delta between what we have and what
20 we need or what we project we will need because of
21 anticipated losses, for example, due to primarily
22 retirement.

23 DR. TRAVERS: Or new programs like
24 construction inspection.

25 MR. MCCREE: Yes.

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1 MR. SIEBER: Or physical security where
2 you do have a shortfall.

3 MR. MCCREE: Right.

4 MR. THADANI: I'm a little bit surprised,
5 why is that a special skill, integrated leak rate
6 response testing?

7 MR. POWERS: What do you mean, it's the
8 hardest test I can think of doing. It's unbelievable
9 difficult and nobody has done it for ten years.

10 (General talking.)

11 MR. THADANI: But is that a special skill?

12 MR. MCCREE: It is an activity, it is a
13 line item inspection requirement. Not every
14 mechanical or structural inspector can do it by virtue
15 of just being a mechanical or structural, it takes
16 experience.

17 DR. TRAVERS: We just want to make sure
18 we're tracking the capacity to be able to have the
19 right people and skill to do that.

20 MR. POWERS: It's an incredibly difficult
21 test to do because just the day-to-day variations is
22 bigger than the leak that you're trying to detect.

23 MR. WALLIS: I think it's just words.
24 This is really a task, isn't it; these are task areas
25 rather than what you might think of as skills. It

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1 doesn't matter, though, I understand what you mean.

2 MR. CARUSO: The staff need, though,
3 that's not an FTE number, that's a bodies number.

4 MR. MCCREE: Correct, exactly.

5 MR. CARUSO: I mean, if you add that
6 number of staff needs up, you don't come to the same
7 FTE as you have onboard.

8 MR. SIEBER: No, you don't.

9 MR. MCCREE: I've not done that, but if it
10 weren't I the ballpark, I'd question the adequacy of
11 our FTEs. In fact, you won't see a total number at
12 the end because we haven't thought of it that way, but
13 you ask an interesting question.

14 MR. POWERS: On this integrated leak rate
15 test, we are coming up on the ten-year anniversary of
16 the revised Appendix J so there must be some that are
17 coming down the line. Do you know when we scheduling
18 to do these things?

19 MR. MCCREE: We could probably change the
20 schedule.

21 MR. POWERS: It would be interesting to
22 witness one of them because they're incredibly
23 difficult to do.

24 MR. THADANI: You could also go to other
25 regions if necessary for stuff like that.

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1 MR. POWERS: The agency may want to get a
2 specialist in there to do those things.

3 MR. MCCREE: Another example I'll point
4 out to you, primarily because he's here, under
5 metallurgical engineering, the staff needs are four,
6 staff onboard is four. However, under 2005 as well as
7 2006, 2007, you'll notice EM&L which stands for early
8 career, mid career and late career.

9 Again, this was a tool primarily driven by
10 our anticipated loss due to retirement. The fact that
11 one of our metallurgical engineers in that are, if you
12 would, discipline, is in the late career, we
13 identified the need to hire a mid-career in-service
14 inspection engineer, and he just happens to be here
15 right now, has a good bit of industry experience from
16 PSE&G.

17 So that's one example of we use this to
18 inform what our needs out, and we went out and got
19 him, so when we update this in a few weeks, we'll be
20 able to remove that. And there are other similar
21 examples. This is a dynamic tool that we use.

22 For example, on the next page under
23 mechanical engineer, there's a clear abundance, if you
24 would, of mechanical engineers but we did identify
25 under projected new hires to transfer an early-career

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1 from NRR.

2 We found out last week that that
3 individual has decided not to come which is good for
4 him because an opportunity is available for him at
5 NRR, and actually good for us too because our
6 assessment in the electrical engineering area has
7 determined that we really need a mid career electrical
8 engineer. So we can use that FTE for that purpose.

9 So this a tool, DRP has an analogous one,
10 that we use to identify our needs.

11 And one additional thing that this shows
12 on the far right column you'll see succession action
13 plan and most of what's in there is the training
14 courses that we are specifically targeting to our
15 staff to develop, expand or hone skills that we know
16 we're going to need, particularly among our new hires.
17 You'll see EC, early career, those are training
18 courses for early career.

19 And the vast majority of our training
20 budget -- we'll have a Training Committee meeting next
21 week, a senior management Training Committee
22 meeting -- the vast majority of our training budget
23 goes to the Division of Reactor Safety, I think about
24 two-thirds, because the DRS staff are recognized as
25 the experts in a number of technical areas so we

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1 leverage our training budget to reflect that.

2 Go back to the power point slide, please.

3 In closing on this slide, there are 17 areas here that
4 we focus on, and we're in the process of enriching
5 this, if you would, to address our needs in the
6 anticipated construction inspection program area.
7 It's a very dynamic area for us and there are some
8 needs that we need to refresh with this.

9 Next slide. I have several slides here
10 really just for your information that provide
11 demographic data, if you would, on Region II staff.

12 An earlier question was asked about
13 graduate training. We do have a number of employees
14 that hold master's degrees, five who have doctorate
15 degrees. What's not shown on here, and I'll enhance
16 it next time, is the number of professional engineer
17 licensees or EIT holders that we have. We do have
18 quite a few of those, so I apologize for not
19 reflecting that. We do have our one regional counsel
20 too -- we only need one.

21 MR. WALLIS: The next one is interesting.
22 Do you actually hire in at age 40? Otherwise you have
23 a strange population distribution for whenever you say
24 sustain ability, let's say.

25 MR. MCCREE: Well, certainly to satisfy

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1 EEOC laws, we cannot exclude individuals over 40.

2 MR. WALLIS: Well, if they just move
3 through, you're going to have a real punch in ten
4 years.

5 MR. MCCREE: Right. What we have done --
6 and I can say this -- we have targeted at the entire
7 agency new hires to address our age distribution
8 challenge, and we've been very successful.

9 DR. TRAVERS: Twenty-five percent target
10 for new hires. And again, we're not talking age,
11 we're talking experience level as a function. But it
12 certainly recognizes this issue that the agency has --
13 some would call it the perfect storm of things --
14 you've got a profile that looks like this in tandem
15 with some of these new projects that are developing,
16 and if you look at both of those factors, it becomes
17 a very difficult situation.

18 MR. MCCREE: Next slide, please. It's
19 another complementary slide that talks about years of
20 federal service, and again, this reflects on the far
21 left our success in the last few years on our new
22 hires in terms of staff with less than ten years
23 experience. We've been very aggressive and very
24 successful in that regard.

25 Next slide. I included this one -- in

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1 fact, I just updated it this morning so it's not
2 reflected in the slide that you have there -- to show
3 the ongoing challenge we have in retirement
4 eligibility and our need to definitely focus on
5 succession planning.

6 There was a dip in optional retirement
7 eligibility in '06, we did have several people retire,
8 some moved to headquarters, but there is an increasing
9 trend in increasing age in our workforce.

10 MR. THADANI: In '04, 60 people did take
11 early retirement?

12 MR. MCCREE: No. What that reflects is
13 eligibility for.

14 MR. THADANI: So that's not real.

15 MR. MCCREE: No. It's just eligibility

16 MR. WALLIS: How many total employees are
17 there then, because if I look at these other pages, I
18 see the total number of employees is 200 or something?

19 MR. MCCREE: Correct, 212.

20 MR. WALLIS: So you have a huge number
21 ready for early retirement.

22 MR. MCCREE: Correct. That's the insight
23 that I wanted to share with you.

24 DR. TRAVERS: And one element of that is
25 that it's disproportional in certain areas, so it

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1 becomes even more problematic in certain key areas.
2 That's why we want to be as knowledgeable as we can to
3 manage it.

4 MR. DENNING: I wonder if I could talk a
5 little bit about fire protection engineer. I notice
6 as far as the skill set going back there that there
7 were identified as five fire protection, and are those
8 truly fire protection engineers, people with just fire
9 protection skills?

10 MR. MCCREE: We have one licensed, I
11 guess, if you would, fire protection engineer, we have
12 several individuals with electrical or mechanical
13 background who have developed expertise, if you would,
14 in fire protection -- one of whom is sitting in the
15 back there, and they lead our fire protection
16 inspections.

17 On the other hand, we do have two co-ops
18 who are -- in fact one will join us next spring who
19 will have a degree in fire protection engineering, and
20 the other one next fall. So indeed, they are
21 knowledgeable in fire protection engineering.

22 MR. DENNING: When you're inspecting a
23 site, to what extent do you rely on the resident
24 inspector to check on the fire protection elements, or
25 are there groups of fire protection engineers that go

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1 around and do this? How do you actually do that?

2 MR. MCCREE: That's a very good question.
3 The Baseline Inspection Program, there's an inspection
4 procedure for fire protection inspection, and there
5 are two attachments.

6 One is a quarterly inspection requirement
7 that the resident inspectors implement that's
8 primarily focused on the performance of inspecting the
9 plant for transient combustibles, for example,
10 inspecting the licensee's fire drills, or if there's
11 an actual fire, to observe the licensee's performance.
12 That's the function of the resident inspectors.

13 And then we have what's called the
14 triennial fire protection inspection which, again, Bob
15 Schin and Charlie Payne will speak to later this
16 afternoon, will talk about the triennial fire
17 protection inspection which is a team inspection
18 composed of at least four individuals and perhaps a
19 contractor, and that's an integrated examination of
20 the licensee's fire protection program.

21 MR. DENNING: If we move to risk informed
22 performance based fire protection, what we've been
23 told is that the inspectors will be able to go in and
24 look at things and review what the licensee has done
25 in terms of like fire propagation with computer codes

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1 and associated circuits kinds of analyses, things that
2 would really require a great deal of in-depth
3 knowledge. Are those things practical for inspectors
4 to do?

5 MR. MCCREE: May I ask that you hold that?
6 Well, the answer is yes. We do rely on contractor
7 support for some of the more complex issues, but we
8 have developed, through training, a very sound body of
9 expertise, I believe, by comparison to some of our
10 counterparts in the other regions, probably almost a
11 center of excellence in terms of the quality of our
12 fire protection inspectors.

13 Again, when Charlie Payne and perhaps Bob,
14 you may want to sit here along with them in a couple
15 of hours to talk about that. I'd ask that you
16 reiterate that question to them.

17 MR. SCHIN: It's a good question. It's a
18 problem that we're facing, how we're going to do that.

19 MR. MCCREE: Can you go back to that last
20 slide? This is just a demographic slide that shows
21 agency-wide the ongoing challenge. This is an age
22 distribution chart that shows the green-colored area
23 is what the agency-wide age distribution was in 2000,
24 September of 2000, and the blue is the shift that's
25 occurred as of April of this year.

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1 MR. SIEBER: Everybody got older.

2 MR. McCREE: The way I like to look at it
3 is much more experienced.

4 (General laughter.)

5 MR. McCREE: It just, again, underscores
6 the challenge that faces us right now in terms of our
7 hiring strategy and succession planning. And of
8 course, one of the real factors that we have to deal
9 with here in Region II and in headquarters and other
10 places is we would love to bring aboard to learn from
11 our sage inspectors, to gather that knowledge and hit
12 the deck running, so to speak but we're constrained by
13 office space, so we're having to manage this very,
14 very closely.

15 MR. SIEBER: Thank you. Any questions?
16 If not, we are to the point of a break, and I think if
17 we would come back at ten o'clock by that clock, that
18 would keep us within striking distance of the
19 schedule.

20 (Whereupon, a brief recess was taken.)

21 MR. SIEBER: We're ready now to resume.

22 MR. SCHIN: Good morning. I'm Bob Schin,
23 senior reactor inspector in Engineering Branch 2 in
24 the Division of Reactor Safety. I've been an
25 inspector with the NRC in Atlanta for 18 years, and

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1 primarily covering plant operations and engineering
2 type areas.

3 Next slide, please. The purpose of this
4 section of the discussion is to discuss certain white
5 findings, and in particular the recent inspection that
6 we had for a degraded mitigating system cornerstone at
7 Ocone.

8 This inspection was performed using the
9 inspection procedure 95002 for degraded cornerstone
10 two white findings and during May to June of this
11 year.

12 Next slide, please. The focus of the
13 inspection, as described in the inspection procedure,
14 is to provide assurance that for the two white
15 findings the root causes were understood and
16 corrective actions were adequate. Also, to
17 independently assess the extent of condition and the
18 extent of cause.

19 The two white findings, I'll give a little
20 description of what they were. First, there was a 3rd
21 quarter 2003 finding involving inadequate standby
22 shutdown facility pressurizer heater capacity. That's
23 the pressurizer heaters that were powered from the
24 SSF. And this finding had been closed by a previous
25 95002 inspection that was six months prior to this

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1 one.

2 And the second white finding was the 3rd
3 quarter 2004 finding involving inadequate procedural
4 criteria for manning the SSF during a fire. So both
5 of these findings in part involved the SSF.

6 Now, to give a little technical
7 description of what were the issues. First, the SSF
8 pressurizer heater finding, this issue was licensee-
9 identified during testing development on March 7,
10 2002. They discovered that they had an insufficient
11 capacity of the pressurizer heaters that were powered
12 by the SSF to assure natural circulation cooling.

13 What happens is if you don't maintain
14 enough temperature in the pressurizer, then the
15 pressurizer cools down, you lose RCS pressure, and you
16 lose sub-cooling margin.

17 The way the BMW plants are designed, the
18 hot leg goes into a candy cane which is a high part
19 above the steam generator, and you have flow through
20 the steam generator. The high part there is a hot
21 part and it's subject to voiding, and then once you
22 get voiding, you lose your natural circulation.

23 They discovered that the pressurizer
24 ambient heat losses were in the range of 143 to 178 kW
25 for each of the units, and that greatly exceeded the

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1 70 kW that was in the original design basis documents.

2 What happened is that the original design
3 analysis for 70 kW was wrong, the heat loss was really
4 more, and then over the years the amount of heat loss
5 got worse because of poor maintenance of the
6 insulation on the pressurizer, et cetera. So at this
7 point they were greatly exceeding the 70 kW from the
8 original design basis documents and the heat loss
9 exceeded the kW for the pressurizer heaters that were
10 powered by the SSF.

11 MR. WALLIS: So how do you have the
12 insulation degenerate?

13 MR. SCHIN: Maintenance, they will take it
14 off, put it back on.

15 MR. WALLIS: They don't put it on
16 properly? It doesn't deteriorate, does it?

17 MR. SCHIN: It gets beat up. Pieces might
18 be missing.

19 MR. WALLIS: They take it off and bits of
20 it fall off. Okay.

21 MR. DENNING: It gets beaten up and
22 doesn't work very well. The other kind doesn't get
23 beaten up and it works well, this is why people like
24 it, but metallic particularly.

25 MR. SIEBER: There are a lot of reasons

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1 why they like the metallic. I take it the operators
2 were able to tell by how many they would ordinarily
3 have to put in service during a heat-up, that there
4 was a discrepancy between the 70?

5 MR. SCHIN: Right. Prior to this 2002,
6 there was a case when they lost power to the normal
7 pressurize heaters and power from the SSF and
8 discovered they couldn't maintain pressure.

9 Now, at that time, though, they had
10 reactor coolant pumps running and so the thought was
11 that the spray valve was leaking by and that was
12 affecting it, and they didn't recognize the extent of
13 the problem right off the bat.

14 Normally when the SSF is powering the
15 heater, when you're relying on the SSF, you don't have
16 reactor coolant pumps running at the same time, so you
17 don't have any spray.

18 MR. THADANI: Didn't they find at the
19 Three Mile Island accident that for the high points
20 they had to have some vent capability to promote
21 natural circulation? Does Oconee not have that?

22 MR. SIEBER: They have it. It's supposed
23 to work without only second level safeguards. If you
24 have to get into venting because of design
25 deficiencies in the basic design, then the design

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1 basis is invalid.

2 MR. SCHIN: Right. The procedures are not
3 set up to rely on venting of that candy cane. Not for
4 operation of the SSF, no, they don't rely on that.

5 MR. DENNING: Now, when you talk about SSF
6 powering, you mean that there's a control capability
7 only for certain of the electrical heaters from the
8 SSF?

9 MR. SCHIN: Right, from the SSF. You can
10 switch over the power; certain heaters can be powered
11 either from the SSF or from the normal power supply.

12 MR. DENNING: When you say powered, do you
13 mean control? SSF isn't the power source, is just is
14 a control capability?

15 MR. SCHIN: No. It is a power source.
16 When the plant is normally operating there's power
17 from the normal 4160-4 kV switch gear out in the
18 turbine building, there's some power that goes over to
19 the SSF and normally powers the SSF. But when you're
20 relying on the SSF in emergency conditions, it can
21 either use that power which is not well protected,
22 it's not safety grade power, or you can use the SSF
23 diesel generator to generate power and power the SSF
24 and power these heaters. That's the design
25 capability. So the SSF does generate its own

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1 electricity.

2 MR. SIEBER: On the other hand, if you
3 require more power than 70 kW, the SSF diesel may not
4 be able to provide that plus everything else.

5 MR. SCHIN: Well, it's probably could,
6 it's a large diesel, I think somewhere around 3,000
7 kW. It's like a normal emergency diesel that other
8 power plants have.

9 MR. SIEBER: But that's not part of the
10 design basis.

11 MR. SCHIN: But the wiring is not such
12 that the SSF diesel can power the other heaters, it's
13 not wired up to be able to do that.

14 MR. SCHIN: So anyway, this was considered
15 to be an inadequate corrective action violation
16 because the licensee had numerous prior opportunities
17 to identify it. It was not considered to be an old
18 design issue.

19 Any more questions about that?

20 MR. DENNING: The words inadequate
21 corrective action, is that what you would call the
22 root cause?

23 MR. SCHIN: That was the violation that
24 was cited by the NRC.

25 MR. DENNING: That's not a root cause.

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1 MR. SCHIN: No, that's not the root cause.
2 The root cause would have been the original design
3 analysis was incorrect, the testing was not adequate
4 to pick this up. There were opportunities when the
5 operator should have noticed how many heaters, that
6 they were having to use more than the normal amount of
7 heaters to maintain pressurizer temperature, that type
8 of thing.

9 But there may have been multiple problems.
10 They had a problem with the spray valve leaking and
11 that masked it to some extent.

12 MR. BUNACA: Well, that may have misled
13 them.

14 MR. SCHIN: Right.

15 MR. BUNACA: When you say that there were
16 several opportunities to identify, this was prior to
17 March 2002, I guess.

18 MR. SCHIN: That's true, yes, sir.

19 MR. SIEBER: From day one.

20 MR. SCHIN: Right.

21 MR. BUNACA: I'm just asking because the
22 finding was it the 3rd quarter of 2003, so a year and
23 a half later you cite this finding, but actually the
24 finding that you have in 2003 is for this event in
25 March 2002.

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1 MR. SCHIN: I'm not sure about the timing
2 of when we count findings against the action matrix.
3 It's not just when the licensee may have had an
4 inkling of a problem.

5 MR. WALLIS: It's an interesting
6 situation. I think we have other ones like this where
7 a thing has been going on for a very long time.

8 MR. SCHIN: Right.

9 MR. WALLIS: And then the licensee
10 eventually wakes up and says oh, we found this
11 problem, and so you penalize them, so there's no
12 incentive to find the problem.

13 MR. SCHIN: Right.

14 MR. WALLIS: It's kind of counter-
15 intuitive, really. There ought to be some reward for
16 at least recognizing the problem.

17 MR. SIEBER: The reward is there was no
18 civil penalty.

19 MR. WALLIS: If they'd waited even longer,
20 there would have been more penalty?

21 MR. SHACK: If somebody else had found it
22 instead of them, they would have been hammered.

23 MR. SIEBER: It's the number of lashes.
24 You get reduced lashes, reduced strength and number.

25 MR. SCHIN: The second white finding that

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1 we were looking at was manning the SSF during a fire,
2 and this finding was NRC-identified during a triennial
3 fire protection inspection in February of 2002.

4 And in this case the procedures for
5 staffing the SSF during a fire did not send operators
6 to the SSF until after fire damage had caused a loss
7 of function of steam generator feed water or high
8 pressure injection.

9 So they had already sustained considerable
10 damage due to the fire, and consequently, the
11 pressurizer relief valves could lift many times and
12 potentially fail open, rendering the SSF inoperable.

13 So the citation was for failure to meet
14 the fire protection licensing basis for properly
15 staffing the SSF during a fire before the fire damages
16 the cables.

17 MR. WALLIS: Now, it becomes inoperable
18 because it can't function anymore or because there's
19 no access to it, or why is it inoperable?

20 MR. SCHIN: If you don't staff the SSF in
21 time till after these various things fail -- for
22 example, if you wait till after you have a loss of all
23 feed water, what happens in a BMW plant when you lose
24 all feed water to the steam generators -- they have
25 small steam generators and within about seven minutes

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1 the steam generators go dry.

2 MR. THADANI: This is a TMI situation.

3 MR. SCHIN: Exactly. And then the RCS
4 pressure jumps right up to the relief valve set point
5 and you start popping the relief valve. And then
6 within 16 minutes from popping the relief valve, the
7 RCS is heating up and the bubble shifts on the
8 pressurizer over into the reactor vessel.

9 And so the problem is with delayed
10 staffing of the SSF, now you've got some repeated
11 popping of this relief valve for a number of minutes,
12 and that increases the risk of failure of the relief
13 valve. If the relief valve fails open, now the SSF
14 won't work. It only has a small reactor coolant
15 system makeup pump that pumps about 30 gallons per
16 minute, and it can't handle any kind of leakage.

17 MR. WALLIS: It doesn't have the pressure?

18 MR. SCHIN: It does have the pressure,
19 it's a positive displacement pump, but it doesn't have
20 the volume.

21 MR. SIEBER: So this would have been TMI
22 all over again.

23 MR. SCHIN: Could have -- right. Stuck-
24 open PORV and no --

25 MR. DENNING: Main control room assumed

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1 inoperable. Main control room is assumed
2 uninhabitable.

3 MR. SCHIN: This is during an Appendix R
4 analysis where you lose control of enough equipment
5 that by the design, the safe shutdown analysis, they
6 should be staffing the SSF.

7 The idea, and in fact, specific in the
8 licensing basis was that they would send someone to
9 the SSF -- the licensee made a commitment in a letter
10 to the NRC that they would send someone to the SSF,
11 when they had a fire in certain areas they would send
12 someone promptly to the SSF to be standing by such
13 that if you did lose control, had certain fire damage
14 and lost all feed water to the steam generators, the
15 individual would be at the SSF to promptly transfer
16 control such that your relief valves are not going to
17 be popping open multiple times.

18 MR. DENNING: Is that an action that you
19 cannot perform from the main control room, or is it
20 assumed that in this fire you lost the main control
21 room?

22 MR. SCHIN: From the main control room
23 you've either -- the problem comes in where the people
24 are still in the main control room, it's habitable,
25 but you've lost control of the plant because of fire

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1 damage to control cables for various valves and pumps.
2 So that the control room, you've lost either all feed
3 water, main feed water and auxiliary feed water, or
4 you've lost all high pressure injection capability.

5 Part of the problem is the SSF is designed
6 such that when you go to the SSF to activate it, the
7 first thing you do is transfer control to the SSF.
8 It's like an auxiliary shutdown panel on the other
9 plants, you have all these transfer switches.

10 And when you transfer control, now those
11 valves and pumps are powered from the SSF and all the
12 cables out in the plant that are subject to fire
13 damage now are out of the picture.

14 But while they're in the picture before
15 you throw those transfer switches, you could have
16 spurious actuations of valves and potentially cause
17 more damage. In other words, you don't want to wait
18 till after you've had fire damage to the cables and
19 spurious actuations until you throw the transfer
20 switch because by then it might be too late.

21 MR. WALLIS: So why is it only a white
22 finding?

23 MR. SCHIN: It was only a white finding
24 because our significance determination process came
25 out that way, and it depends largely on the initiating

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1 event frequency.

2 MR. WALLIS: Because it's so unlikely.

3 MR. SCHIN: Exactly. An initiating event
4 frequency.

5 MR. WALLIS: Because it sounds pretty bad,
6 the scenario you've described.

7 MR. THADANI: I think what you described,
8 to me, is very reasonable way to deal with this issue,
9 but does Appendix R allow you to also assume that
10 relief valve is stuck open or are you postulating
11 certain shorts that create that condition, and if so,
12 then why wait?

13 MR. SCHIN: No, Appendix R is a
14 deterministic design criteria.

15 MR. THADANI: Right, and that's why I
16 don't know if you can postulate.

17 MR. SCHIN: The way our process works,
18 first you have to have a finding where the licensee
19 did something that was contrary to the licensing basis
20 in this case. The licensing basis was that they send
21 someone to the SSF immediately. They didn't do that,
22 they were going to wait till after they had all this
23 fire damage. So that's the finding.

24 Now, when we look at risk, now we can
25 consider the likelihood of a valve sticking open.

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1 MR. WALLIS: So they can be lax if they
2 think that it's not risky? They didn't do what they
3 were supposed to do.

4 DR. TRAVERS: They have to fix that.
5 We're only talking about the classification of the
6 finding as a function of risk and the initiating event
7 probability associated with it.

8 MR. WALLIS: But it's interesting, they
9 obviously were not in compliance, they didn't do what
10 they should have done, but you said well it's okay
11 because it wasn't so risky.

12 (General talking.)

13 MR. SIEBER: I'm with you, I'm a
14 deterministic kind of person.

15 MR. WALLIS: You're a very bad boy but the
16 risk wasn't so bad so it's okay.

17 MR. SIEBER: I would skip that last part.

18 MR. BUNACA: One aggravating circumstance,
19 of course, is the fact that they did not identify
20 this, you found it.

21 MR. SCHIN: Right.

22 MR. BUNACA: I mean, do you account for it
23 when you make a determination of a white is it purely
24 based on the significant determination on a risk
25 basis, or do you have consideration of who identified

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1 this problem?

2 MR. SCHIN: No. And the risk only
3 considers if the issue had been -- the condition had
4 been in place for various time periods, up to three
5 days or up to 30 days or up to a year. If it had been
6 in place for 10 or 20 years, that doesn't change the
7 risk from the NRC's analysis.

8 MR. WALLIS: But it obviously does. If
9 you multiply the risk per year by number of years, it
10 was a bigger hazard.

11 MR. SCHIN: Right, but our process doesn't
12 do that, we stop at one year.

13 MR. BUNACA: Now, if you had a number of
14 findings, different findings, and was consistently the
15 NRC is the one identifying these technical
16 deficiencies, how would you handle it within the ROP?
17 Does it become a cross-carrying issue? I'm not sure
18 about that. Maybe it would be.

19 MR. SCHIN: Possibly. It has to do with
20 how we document things and whether they could be
21 cross-cutting issues, but basically we have this
22 action matrix that once we identify something as say
23 a white finding, it goes on the action matrix and it's
24 on there for so long, for let's say a year, and it
25 will drop off if it's been corrected and we've

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1 inspected and verified that the situation has been
2 corrected. So it could stay on for longer than a
3 year.

4 And then if there's any other issues that
5 come on the action matrix that are say white findings
6 in the mitigating system cornerstone that are on
7 during the same quarter, then that makes two that are
8 on the action matrix at the same time and we have a
9 95002 inspection.

10 We've had a number of these at Oconee
11 during the last few years.

12 MR. BUNACA: I mean, that says something,
13 and I'm sure ROP really deals with it. I'm sure you
14 have ways of dealing at some point with it, that's
15 what I was looking for. I mean, it's like treatment
16 of repeat events where you have an issue, supposed to
17 be corrected, the correction is not adequate, so you
18 have a repeat event again. Those are aggravating
19 factors which are important, may be cultural issues.

20 MR. SCHIN: Right. Now, when we get
21 involved, though, we identify what the finding is and
22 they have to implement some corrective action. And
23 then we go back for issues that are white or more, we
24 have a follow-up inspection, and it's either a 95001
25 or 95002 inspection, and we look at what their planned

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1 corrective action is and does it address the issue and
2 the causes for the issue, and then we determine if
3 that's adequate and we close the finding. And then
4 the white goes off the action matrix.

5 But now, that doesn't prevent having some
6 other issue two months later that's another white
7 finding that may be in some different piece of
8 equipment or different cause.

9 MR. SIEBER: Well, both of these are in
10 the same cornerstone which is mitigating system, so
11 it's not multiple degraded cornerstones. And you look
12 for cross-cutting issues if the root cause for
13 multiple degraded cornerstones is the same. And so
14 this doesn't appear to fit into that.

15 DR. TRAVERS: You can get into trouble by
16 multiple or repetitive.

17 MR. DENNING: What is the root cause here?
18 On this one, what do you consider the root cause to
19 be? Was it in the Appendix R analysis?

20 MR. SCHIN: The licensee did a root cause
21 analysis and we reviewed that, and they determined
22 that the root cause was multiple and it was because
23 back during the early 1980s when this Appendix R rule
24 came out and they installed the SSF and they had first
25 procedures for the SSF, that the operators who wrote

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1 up the first procedures incorrectly interpreted the
2 licensing basis.

3 MR. WALLIS: So it's a procedures problem.

4 MR. SCHIN: Right.

5 MR. WALLIS: Because your description said
6 they didn't send anybody to the SSF, but the
7 procedures didn't ask them to do that.

8 MR. SCHIN: Right. But they had the whole
9 licensing basis and the letters at the time, and they
10 understood that there was what was called a ten-minute
11 rule for the SSF, that if you lost all of the feed
12 water function or all of the high pressure injection
13 function that you had to man the SSF within ten
14 minutes and get it in operation.

15 Then the fire protection rules came out
16 and for manning the SSF in the event of a fire, they
17 apparently incorrectly assumed that that was the only
18 ten-minute window. But the description in the letter
19 to the NRC said that one of the concerns was hot
20 shorts and spurious actuations during a fire, and so
21 that they would man the SSF or send someone to the SSF
22 within ten minutes of the start of the fire so that
23 the person would be there before the hot shorts would
24 occur. But if there were hot shorts and spurious
25 actuations that occurred, there would be someone

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1 already at the SSF.

2 But the operators misinterpreted that and
3 they didn't understand apparently that quote, ten-
4 minute window from the start of the fire to get to the
5 SSF within ten minutes or promptly, and they just
6 considered there was one ten-minute window.

7 MR. DENNING: And then to transfer to the
8 SSF?

9 MR. SCHIN: The licensing basis was just
10 that you have someone there promptly from the start of
11 a fire

12 Now, the licensee's root cause said that
13 there were people at the general office -- most of
14 their engineering in those days was at the general
15 office, not at the plant, so their engineers were in
16 Charlotte and the people at the plant were in South
17 Carolina.

18 But the electrical engineers at the
19 general office understood what the problem was but
20 they didn't communicate with the people at the plant,
21 the operators. The operators who were writing the
22 procedure apparently went on their own and their root
23 cause was they didn't understand.

24 What they said was that during the course
25 of many years since that happened, there were multiple

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1 missed opportunities to identify this, when they did
2 their own different inspections, other various NRC
3 inspections, audits. And this issue of timing the
4 staffing of the SSF was questioned on many different
5 occasions, at least half a dozen. And they had some
6 programmatic breakdown as to why it was not picked up
7 on half a dozen different occasions since the early
8 '80s when the problem originally happened.

9 MR. WALLIS: Is this the only BMW plant
10 you have in this region?

11 MR. SCHIN: No. We have Crystal River
12 too.

13 MR. WALLIS: Is the other one doing it
14 right?

15 MR. SCHIN: Yes, as far as we know. Well,
16 they don't have an SSF, so they have to staff their
17 auxiliary shutdown panel at some point. And to be
18 honest, that's an areas that we're looking at, the
19 timing of staffing the early shutdown panel and could
20 there be other problems with that, maybe there could.
21 We're looking at that in fire protection inspections.

22 MR. CARUSO: When you looked at the risk
23 for these two issues, not manning the SSF, but manning
24 the SSF and he pressurizer, did you consider because
25 they both related to the same starting scenario

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1 synergistic effects between them in determining risk?

2 MR. SCHIN: Right, we did that. Bob, our
3 senior risk analyst, looked at that and the risk of
4 each one of these and how they would add together, and
5 considered that to correctly assess the risk of both
6 of these being in place at the same time, you would
7 directly add the risk of each one, and it still came
8 out white. It was a high white but it didn't go into
9 the yellow column.

10 And he evaluated why that was appropriate,
11 and it was because the one issue the concern was an
12 early failure of the pressurizer or safety valve early
13 in the scenario, and the other one, the concern was
14 later in the scenario. The timing wasn't at the same
15 time.

16 MR. MCCREE: Just so that you know the
17 depth of the risk reviews of STPs, when we have a
18 potentially greater than green finding, the SRAs
19 routinely share their analyses with the support risk
20 group at NRR as well as research. And part of that
21 process called the Significance in Enforcement Review
22 Panel, the SERP, focuses primarily the risk analyses.
23 This was a collegial conclusion we reached on the
24 significance of this.

25 MR. SIEBER: Let me ask a question that

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1 you may know the answer to or maybe not. The agency
2 has a goal, a time goal as to how long it takes them
3 to go through the significance determination process
4 which is sort of a performance measure on the senior
5 reactor analysts.

6 How are you folks in Region II doing with
7 respect to meeting the time goal to produce the
8 answer?

9 DR. TRAVERS: Good question, and that's
10 the next presentation.

11 MR. SIEBER: I should read ahead, or maybe
12 I did and that's where the question came from.

13 (General laughter.)

14 MR. SCHIN: Do you have any other
15 questions on that? Okay.

16 We have team composition here. It was a
17 small team. We had a lead inspector which was me, a
18 senior reactor analyst, and a basic-qualified
19 inspector who was basically in training for doing this
20 type of inspection.

21 The inspection itself, we had what we call
22 a bagman trip -- it's an advance information-gathering
23 trip to the site -- which was done by one person, me.
24 I went for one day and collected all the information
25 that we requested.

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1 Then we had a prep week in the office, one
2 week on site, and then we had one additional week in
3 the office because we didn't finish everything we
4 needed to do while we were on site but we brought
5 enough information back with us to finish the review.

6 The results of the inspection were that we
7 didn't have any new findings of significance that we
8 identified. We saw that there were some opportunities
9 for improvement in the licensee's process for
10 determining root causes, contributing causes, extent
11 of cause and corrective actions.

12 We concluded that overall, though, the
13 corrective actions that were already completed --
14 which they had done to restore compliance, they had
15 changed the procedures and changed the number of
16 pressurizer heaters that were powered from the SSF --
17 and the corrective actions that they had planned, if
18 well done, would have been adequate to address the
19 issues, and we closed the one open white finding.

20 Any other questions?

21 MR. SIEBER: Thank you very much.

22 MR. SCHIN: If not, I'll turn it over to
23 Scott Freeman.

24 MR. FREEMAN: Good morning, everybody. My
25 name is Scott Freeman and I'm the senior resident at

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1 Sequoyah and I'm going to talk about a white finding
2 that occurred at Sequoyah where they had a binding in
3 one of that RHR breakers.

4 To start with a little background, TVA
5 began using ABB Services to refurbish their 6900
6 breakers in 1996 and between then and 2000 they had
7 numerous problems with these breakers. In fact, at
8 one point they even removed ABB from the authorized
9 supplier list.

10 It got to the point in September of 2000
11 that the refurbishment cost for safety-rated breakers
12 reached \$31,000, and based on that, in July of 2001
13 TVA decided to replace the safety-related breakers
14 with Siemens breakers and began changing the breakers
15 out in November of 2001.

16 These new breakers were vacuum breakers
17 manufactured by Siemens and modified by Wiley Labs to
18 fit the existing cubicle, and also to make them
19 safety-related.

20 What I have here is a sketch of the
21 mechanism and you have to excuse the quality of this,
22 I had to do this myself, but over here is a drawing of
23 the breaker, this is the cubicle, and the breaker
24 racks into the cubicle this way.

25 What I wanted to point out here was when

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1 they started using Siemens breakers, problems began
2 almost immediately, and most of them were associated
3 with this MOC switch, the mechanism-operated cell
4 switch. That's this guy right up here at the top.

5 It sits in the top of the cubicle and is
6 operated by this long arm that goes to the bottom of
7 the cubicle, and that little horseshoe thing there
8 mates up with a slot on this mechanism on the breaker
9 that operates off of the breaker itself.

10 Most of these problems were due to the
11 extra force from this breaker. Because it's a vacuum
12 breaker, it operated about twice as fast as the
13 original which multiplied the forces on this switch up
14 here by four, and that's essentially where most of the
15 problems occurred.

16 MR. SIEBER: That's a cell switch. Right?

17 MR. FREEMAN: The cell switch is up here;
18 it's two of them in parallel.

19 Let's go to the next slide. That's the
20 breaker sitting on the floor, and over on the right
21 there this is one of the buses, there's another one
22 across the room from it.

23 Next slide. That's actually the failed
24 breaker and they're looking at in the warehouse. This
25 part down here is where the problem occurred. This is

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1 that operating mechanism that's on the breaker. This
2 is the breaker operating shaft and there's a rod that
3 runs here that slides this up and down as the breaker
4 opens and closes.

5 Next one, that's a closer view of it.
6 There's a slot, a notch right here that mates up with
7 a part of the cubicle, and this spring absorbs some of
8 the force, and then there's a bolt right here and an
9 elongated notch. This is where the binding actually
10 occurred.

11 Let's go to the next one. This is another
12 view of it. You can see the slot here and the
13 elongated notch here.

14 One more. This is the cubicle. The
15 primary goes in there, this is the secondary
16 connection, and this is the MOC switch mechanism here.
17 That notch we just showed you meets up right here, it
18 operates this up and down which moves that rod.

19 One more. And this is the MOC switch up
20 it the top of the cubicle and there's the rod coming
21 up from below. This little device right here is a
22 modification they made after they started refurbishing
23 the breakers to absorb some of the force as the
24 breaker opens.

25 This goes down when the breaker closes and

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1 when the breaker opens this comes up, and they had
2 some problems with so much force here it was breaking
3 these things loose.

4 Next slide. This is the list of problems
5 that we looked at that shows eight different failures
6 starting in 2002 going all the way up to the bottom
7 one that is the one that actually got the white
8 finding.

9 MR. BUNACA: Do they go back to ABB?

10 MR. FREEMAN: They did eventually; I'll
11 come to that. That's their ultimate correction.

12 The problems started in 2002 and they
13 started with problems found during initial checks with
14 the breaker in the test position and eventually ended
15 up, worked their way through the problems with the
16 breaker in connect position and showing up during PMT,
17 and eventually at the bottom there, an on-demand
18 failure with the RHR pump.

19 MR. WALLIS: If they failed to close in
20 2002 several times, why didn't they fix it?

21 MR. FREEMAN: They thought they did.
22 There were deeper problems. In fact, there were even
23 problems in 2003 that I didn't put up there because
24 they occurred during receipt inspection.

25 And this last problem, this one on the RHR

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1 pump, was attributed to a phenomenon called
2 bradding -- which I'm going to get to in just a
3 minute -- and the one right above it was also.

4 MR. SIEBER: It looks like the vendor
5 failed to sailor-proof the mechanism.

6 MR. FREEMAN: That was part of it. This
7 is the bracket on the failed breaker, this is where
8 the problem actually occurred, and this bolt right
9 here -- this is the side of the breaker, this bolt
10 screws into the side of the breaker. It's a shoulder
11 bolt and it fits up tight against the side, and then
12 this bracket slides up and down in it and there's
13 washers here to take up the space.

14 Well, what happens here is when the
15 breaker opens, this thing goes down and the very top
16 of that notch hits on the bolt. It was hitting on the
17 bolt and it was causing it to mushroom out a little
18 bit, and you almost had to feel it, but it was just a
19 little bit, and Siemens called that bradding.

20 So now when the breaker closes and it
21 tries to go up, this bradding acts as a drag force,
22 and if you get enough drag force, the breaker won't
23 latch, and that's what happened on the RHR pump.

24 The other thing that it depends on is the
25 tolerances between the bolt, the washers and the

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1 bracket.

2 MR. WALLIS: What's it made out of, that
3 thing that mushroomed out?

4 MR. FREEMAN: Yes, it's a brass/copper
5 type.

6 MR. WALLIS: Something soft.

7 MR. FREEMAN: Yes, something soft.

8 But what we found was that there was no
9 specs on installation, not tolerance, no clearance, no
10 specs to make sure it would slide.

11 Next one. This is the same bracket
12 disassembled, and actually I'm going to pass these
13 around here. I have some black and white pictures
14 that go with it.

15 You can see right here at the top of the
16 slide, that's the bradding. And it's really hard to
17 see, the only way you really know for sure is run your
18 finger on it and you can feel it.

19 And on these ones going around, I have a
20 picture of this one plus the one previously from the
21 previous failure that they found in the Siemens shop,
22 and we'll come to the Siemens shop in just a minute.

23 MR. WALLIS: Is this the usual kind of
24 thing you get in these boxes?

25 MR. FREEMAN: This one is pretty close to

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1 what ABB had, only it's modified just a little bit to
2 absorb the force. This part with the "V" on it
3 actually slides up and down also.

4 But you can see also on these washers up
5 here, marks where the mushrooming had scraped the
6 washers, and there's a good picture of the shoulder
7 bolt. The breaker side goes right in this slot right
8 here.

9 MR. WALLIS: That's a nice hard hammer
10 you've got up there.

11 MR. FREEMAN: Right. Well, Siemens had
12 actually identified this problem in April of 2004 as
13 part of cause investigation for previous failures, and
14 they recommended TVA do inspections.

15 In fact, on those sheets going around,
16 there's ones that describe for the failed breaker and
17 ones for the Siemens breaker they found in the shop.

18 They recommended a visual or a functional
19 inspection, and basically they said you could look at
20 it and look for it or you could functionally test
21 meaning you could take the mechanism apart and try to
22 operate it.

23 And they indicated that a visual was
24 somewhat subjective because bradding was normal, so
25 they told TVA that some bradding could be expected,

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1 but they also stated that the functional would be more
2 accurate, and the best way is to disconnect the
3 mechanism and operate it through its full range of
4 travel.

5 MR. SIEBER: Even if assembled correctly,
6 the end of that slot will always hit the shoulder on
7 that bolt.

8 MR. FREEMAN: Well, that was a little bit
9 debatable. It was doing it a lot, I'm not sure it
10 would do it every time.

11 MR. SIEBER: It looks like it was designed
12 to do it.

13 MR. WALLIS: But you could make it out of
14 a different material that was less susceptible to
15 plastic defatation.

16 MR. SIEBER: Well, you know, then you
17 break the bolt.

18 MR. FREEMAN: The problem was really in
19 not anticipating that this force was there.

20 Next slide, please. This is what TVA did
21 about this. Because Siemens had said some bradding
22 was normal, TVA chose to do a visual inspection. They
23 had 12 breakers in the warehouse as spare and they did
24 a visual inspection on those by sliding a coin down on
25 that elongated slot to check for bradding and found

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1 some minor bradding and said that was normal.

2 They inspected the ones in the plant, 6 in
3 the A train of ECCS and 12 in the B train by using a
4 boroscope. The breakers remained racked into the bus
5 and they stuck a boroscope down the side and did a
6 visual inspection with using maintenance personnel
7 only. Engineering wasn't present for the inspection
8 and only reviewed one tape. They were recorded but
9 they reviewed only one tape.

10 MR. WALLIS: They used the visual
11 inspection but you told us earlier it was rather hard
12 to see?

13 MR. FREEMAN: That's my opinion, it's
14 almost impossible to see. Actually, it's my opinion
15 that had they done the functional test here, they
16 would have found the problem, but they chose not to.

17 Next slide, please. So what was NRC doing
18 up to this point? Well, we had been monitoring this
19 using our baseline modules but because TVA was
20 addressing the problems as they occurred, we had no
21 operability concerns, and what I have up here is a
22 list of the ones we did in 2003 and 2004.

23 The bottom one there, we started doing a
24 PI&R annual sample because the problems just kept
25 occurring and we wanted to see, well, what's their

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1 corrective action program doing about it. In fact, we
2 had exited on that PI&R sample but pulled it from the
3 report because they had two failures between the time
4 of the exit and the time the report went out.

5 After the RHR pump failed, we got a little
6 bit more concerned. DRS sent two inspectors up for a
7 one-week inspection, and they raised questions about
8 qualification testing. They asked them: Did you not
9 do the thousand endurance cycles that the triple E
10 standards call for?

11 And the residents, after that happened,
12 started looking back for previous problems and we
13 found that an identical problem to this had occurred
14 in June of 2003 where the corrective action document
15 said the bolt was too tight and the mechanism was
16 binding. And they basically at that time just
17 loosened the bolt and went on.

18 MR. WALLIS: Even when it was new.

19 MR. FREEMAN: Yes, it was during receipt
20 inspection.

21 Also, Chuck Castoe and Steve Cahill came
22 up and had a visit with TVA management to let them
23 know we were really concerned about it.

24 Next slide, please. At that point, TVA
25 really started looking for the causes. Up until this

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1 point they had been laying off the cause on the vendor
2 all along, saying vendor problems, vendor problems,
3 vendor problems. But when we got more involved in it,
4 they dug deeper and found some process problems.

5 The first one was this engineering
6 document change process. That's really their like-
7 for-like engineering process. And they did that
8 because it was basically easier to implement. They
9 didn't have to sign off a document every time they put
10 one of these breakers in. And this essentially
11 resulted in them not addressing the impact of the
12 faster breaker operation. Because of that process,
13 they didn't look at all these problems with the MOC
14 switch.

15 The other thing was they didn't hold the
16 vendor accountable for qualification testing. They
17 were supposed to be getting documentation approving
18 all the qualification, and the vendor didn't do it and
19 they didn't push it. Consequently, the vendor
20 basically did a technical justification in lieu of
21 qualification testing on the original breaker.

22 MR. SIEBER: So it basically was not
23 physically tested.

24 MR. FREEMAN: The first one -- they went
25 through five iterations of design; the very first one

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1 was not tested, after that they started doing them.

2 Next slide. Disposition. This was the
3 white finding beginning July 1, 2004: The RHR train
4 was inop for 14 days and the delta CDF came out to be
5 about 1.3E to the minus 6, and the main drivers were
6 the reduced sump recirculation for small or medium
7 break loca because of the one RHR pump being out, and
8 no sump recirculation for loss of 125V DC battery
9 board 2.

10 That's because losing that battery board
11 would prevent the opposite RHR pump from starting, so
12 there would be no RHR.

13 Next one. Conclusions.

14 MR. SIEBER: This is a BWR. Right?

15 MR. FREEMAN: No, it's a PWR. It's an ice
16 condenser.

17 Conclusions. I put there the process
18 worked because as the problems continued to get worse,
19 NRC attention got more focused and eventually the
20 licensee dug deep enough and found their own problems.

21 MR. WALLIS: How long did that take?

22 MR. FREEMAN: Well, essentially from when
23 they started in 2001 until 2004, but we really started
24 looking in 2003.

25 MR. WALLIS: So there's no expectation for

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1 time on your conclusion that the process worked?

2 MR. FREEMAN: Well, that's why I have the
3 process didn't work up there.

4 MR. WALLIS: Which conclusion is correct?

5 MR. FREEMAN: Well, they're both right
6 because actually the problem did get solved, but we
7 had a suspicion all along and the residents had a
8 suspicion all along that there were problems with
9 these breakers. But to really dig into and find out
10 would have required a very intensive design
11 inspection, and in order to continue doing the
12 remainder of the baseline inspections, as long as we
13 felt they didn't have any operability concerns, we
14 kept on doing the baseline inspections. It's kind of
15 a resource question.

16 MR. CASTOE: But it's also a risk
17 question. The previous failures were not greater than
18 green, they were not risk-significant. When the RHR
19 pump failed on demand, that became risk-significant.

20 MR. FREEMAN: That's true.

21 MR. SCHIN: That was the first failure
22 that was actually a component in service.

23 MR. FREEMAN: Where we had an operability
24 question.

25 MR. CASTOE: And in NASA-speak, that

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1 became an out-of-family failure and that's what really
2 got our attention because it was out of family from
3 the other ones which we knew were not risk-
4 significant. Chuck Castoe, by the way. So by our
5 process, I think the process worked in terms of we
6 engaged when the risk went up.

7 MR. WALLIS: This seems to be a problem.
8 When you've got breakers which are poorly designed,
9 they're going to fail, and they failed in various
10 modes and they failed tests and stuff, but nothing is
11 done until it fails in some risk-significant mode,
12 although it's waiting to happen.

13 MR. FREEMAN: Well, I think that's kind of
14 my dilemma when I sit and think about whether this
15 worked or not.

16 MR. SCHIN: Well, not optimally, of
17 course. If they had taken the initiative which we
18 felt they should have, then optimally you would have
19 had resolution of this well before failure.

20 MR. CAHILL: They did repair a lot of the
21 individual problems. They had a myriad of small
22 problems that cropped up but the root driver that
23 being the accelerated force of this different type of
24 breaker and the incompatibility. But they fixed each
25 individual problem and really never stepped back, and

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1 like he said, they relied on the vendor and the vendor
2 fixed each problem, and they never stepped back and
3 said we really have a bigger compatibility issue here.

4 MR. WALLIS: Are there other breakers on
5 some other circuit which is even more risky that are
6 the same breakers?

7 MR. FREEMAN: Yes, they had these breakers
8 in all of their essential switch gears.

9 MR. WALLIS: So I would think the delta
10 CDF would be bigger if you said the breakers are going
11 to fail.

12 MR. FREEMAN: Well, this was the only one
13 that was actually inoperable.

14 MR. WALLIS: But the others are waiting to
15 be inoperable.

16 MR. SCHIN: They only had a small portion.
17 They were phasing these in, they weren't in all
18 safety-related locations.

19 MR. CAHILL: The other thing we did was
20 make sure they had one train.

21 MR. SCHIN: And we went through and
22 analyzed where each one of these Siemens breakers was.

23 MR. WALLIS: They could have been on every
24 train and then you lose the whole thing. It's a
25 common cause failure.

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1 MR. CASTOE: We looked at it and NASA
2 looked at it and they moved breakers based on risk
3 significance. They took them out of certain
4 components and put them in other components to keep
5 the risk significance low.

6 MR. FREEMAN: Yes, after the RHR failure,
7 they moved them to where they had them only in one
8 train to eliminate the common cause. But again, that
9 was after the NRC really got looking at it.

10 MR. DENNING: I think there's an important
11 aspect of this, though, if I'm understanding it
12 properly, that has something to do with the way we
13 license things versus the way Europeans license
14 things, and I don't know whether it's really that
15 deep.

16 But the problem always comes up when
17 you're taking out a breaker, the breaker that actually
18 was there originally, and you're replace it with some
19 other breaker and you have to have interface equipment
20 that's different, that's new.

21 MR. FREEMAN: That was my other
22 conclusion.

23 MR. DENNING: And I'm wondering now and
24 then that has to be made safety grade through
25 commercial dedication process.

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1 MR. FREEMAN: Exactly what they did, yes.

2 MR. DENNING: And now, you don't do any
3 inspection of what -- the NRC doesn't do any
4 inspection of vendor facilities. Is that true? Like
5 in this case, how did they certify it to be nuclear-
6 qualified? Did they do like a thousand cycles and
7 this kind of stuff?

8 MR. FREEMAN: Well, it turns out they were
9 supposed to and TVA had a contract with Wiley to go
10 through this commercial grade dedication process, and
11 they were supposed to include qualification in
12 accordance with our Triple E standards.

13 Siemens and Wiley interpreted that and
14 said, Well, using this standard -- and I can't
15 remember the number -- they can do a technical
16 specification in lieu of endurance testing. TVA
17 didn't call them on that which they should have done,
18 and they eventually admitted they should have done.
19 Had they done that, they would have done the thousand
20 cycle testing and may have found these MOC switch
21 force problems.

22 MR. DENNING: The utility has to make
23 sure, it's their responsibility that whatever was done
24 to qualify it was really done.

25 MR. FREEMAN: Yes, that's how I see it.

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1 MR. THADANI: But the Vendor Inspection
2 Branch also has a responsibility to at least go
3 through certain inspections.

4 MR. WALLIS: I don't understand this at
5 all. I mean, you're hammering a piece of brass with
6 a piece of steel, someone must have at a very early
7 stage in design asked: Is it going to mushroom? I
8 don't understand how it ever got to be designed this
9 way. It seems very peculiar, but maybe I'm naive.

10 MR. FREEMAN: Well, this was actually a
11 first of a kind type situation. There are other place
12 that are doing this new breaker in existing cubicle
13 situation; they all seem to be different. This was
14 the first one to put Siemens breakers in these ABB
15 cabinets, and because of these two process problems,
16 they actually missed things they should have got.

17 MR. CARUSO: As a result of this
18 experience, do you have a good sense that TVA watches
19 closely for unforeseen problems when it replaces old
20 equipment with new equipment, especially from a
21 different vendor or a different design?

22 MR. FREEMAN: Well, I say they learned a
23 lesson. I don't know if they're going to do it every
24 time, we just have to keep watching them.

25 MR. CASTOE: They have the right checks an

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1 balances in their process, they just didn't follow
2 what their own process says in this case. They went
3 back in their corrective action program and looked at
4 their process and found five other indications, five
5 other modifications where they had used this process
6 and did not follow their process.

7 MR. CARUSO: If they were replacing a lot
8 of components in a large plant that hadn't operated
9 recently, would you be concerned?

10 MR. FREEMAN: I would want to check, yes.

11 MR. CAHILL: This is Steve Cahill. What
12 Scott was saying about the first of a kind situation,
13 TVA was alone in their false sense of security about
14 this because -- if you saw all those Siemens breakers
15 you saw at Browns Ferry, those used to be GE
16 Magnablast breakers -- TVA had gone through Wiley and
17 gotten those Siemens breakers to change out all those
18 things in the same type of process, and that's not the
19 first time Wiley had done that, they had done it at
20 two other plants.

21 So they worked well, TVA had great success
22 with Wiley using Siemens breakers, so they figured we
23 can use them over here at Sequoyah to fix this
24 problem. And what Scott was saying, that's the first
25 time Wiley had ever done those Siemens breakers in an

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1 ABB cabinet, and they got molded in that false sense
2 of security and figured they could use less than their
3 normal full design change process and they did the
4 like process, and apparently that was a poor decision
5 in hindsight.

6 MR. SIEBER: Are these breakers unique to
7 the combination of the metal-clad switch gear and the
8 breaker body itself, using one vendor for the cubicle
9 and another vendor for the breaker?

10 MR. FREEMAN: They are unique and Wiley
11 was supposed to modify them to make them fit, so you
12 could basically just roll the old one out and roll the
13 new one in.

14 The reason they went for like-for-like was
15 because at Browns Ferry they didn't use like-for-like,
16 they had to sign off every time they changed a breaker
17 out, 200 or however many times it was, and essentially
18 they didn't want to do that again, they didn't think
19 it was worthwhile. That was the main reason.

20 MR. SIEBER: But do they think it would
21 have been worthwhile at this point in their history?

22 MR. FREEMAN: They do now, yes.

23 MR. SIEBER: Of course, signing off
24 doesn't usually fix anything, it just implicates
25 somebody.

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1 MR. FREEMAN: Well, there were some other
2 checks too that the system engineer was supposed to
3 do.

4 MR. THADANI: So did they issue a Part 21
5 report on this?

6 MR. FREEMAN: I don't think so, but I
7 don't really know, I don't know for sure.

8 MR. CAHILL: You mean at Three Mile
9 Island? There was some other site that was doing the
10 exact same purchase of these breakers for an ABB
11 cubicle and TVA shared information with them, and they
12 had a lot of leverage with Wiley to get these things
13 fixed. They basically weren't going to pay Wiley any
14 money now until the TVA problems were addressed, and
15 that was the only example of where this application
16 was going on anywhere else.

17 So to answer your question, the intent of
18 a Part 21 was addressed by that.

19 MR. FREEMAN: Back to what you said
20 earlier, they have now removed all the Siemens
21 breakers from the emergency close positions in the bus
22 and intend to eliminate them completely by spring of
23 next year. They're going back to the ABB breakers.

24 And that's the end of my presentation.
25 Thank you.

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1 MR. SIEBER: Thank you very much. Well
2 done.

3 MR. WALLIS: Well, it's a real object
4 lesson how one little tiny detail, the way one little
5 bolt behaves in a little slot can prejudice the safety
6 operation of an important piece of equipment.

7 MR. DENNING: And PRA didn't find it, did
8 it.

9 MR. FREEMAN: That was actually part of my
10 last conclusion was that these new type of designs can
11 result in unforeseen problems, and utilities really
12 need to watch that.

13 MR. RANSOM: Doesn't this equipment have
14 to go through a qualification program?

15 MR. FREEMAN: It was supposed to, yes, and
16 they did a technical justification in lieu of actually
17 operating it, the vendor did. They read a loophole in
18 the code and TVA didn't call them on it.

19 MR. DENNING: Well, it's a subtlety as to
20 what's like.

21 DR. TRAVERS: The other thing that's been
22 touched on here, I think, that's important is this
23 reliance on vendors and the question arose here who do
24 we hold responsible. Well, we hold the licensees
25 responsible and they'll be the ones who are subject,

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1 potentially, to enforcement for matters of this sort,
2 and so they really need to be a little bit more
3 proactive and involved, we believe, in these sorts of
4 endeavors.

5 MR. SIEBER: Well, strangely enough, we're
6 back on schedule. Thank you very much.

7 MR. PAYNE: Good morning. Are we ready to
8 continue? My name is Charlie Payne. I'm the branch
9 chief for Engineering Branch II which has
10 responsibility for fire protection. Also, I have both
11 the regional SRAs under my direction.

12 I'd like to start off with covering the
13 types of fire protection findings in general that we
14 have. You're probably familiar that Hemic and MT fire
15 wraps have been an issue for several years. We've got
16 four sites that have those.

17 We've had circuit analysis, associated
18 circuit issues, manual actions in lieu of protecting
19 the cabling which is actually a subset of circuit
20 analysis -- this is a pretty significant problem here
21 in Region II and I'll discuss that a little bit
22 more -- reactor coolant pump seal cooling, and safe
23 shutdown.

24 The circuit analysis is also kind of tied
25 to safe shutdown because if we have problems with

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1 manual actions, then their ability to achieve safe
2 shutdown is also in question.

3 And then we've got just miscellaneous
4 other things like smoke detectors in the wrong place
5 or oil retention dikes that don't handle the capacity
6 of the tank.

7 MR. SIEBER: Do you have instances of
8 where a licensee relies on manual actions but didn't
9 ask for NRC approval to do so?

10 MR. PAYNE: We have some occasion where
11 the licensees did that but there's a high number of
12 instances where they didn't. And I'll cover that when
13 I get to the manual actions log.

14 The Hemic issue, it's a long standing one,
15 it affects four plants. All four of these licensees
16 are going to NFPA 805, and so that's part of the basis
17 for why they're going to NFPA 805 but hopefully that
18 will get resolved when they do their transition.

19 The recent testing that NRR and research
20 have done showed that these fire wraps don't meet the
21 one-hour and three-hour resistance rating. And NRR
22 has issued a draft generic letter for comment to
23 basically say that this is a problem and require the
24 licensees to come up with a plan on how they're going
25 to address this issue, and they're going to track all

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1 of this nationwide.

2 MR. THADANI: So do they declare these
3 inoperable and pass some compensatory measures in
4 place

5 MR. PAYNE: That's right. And most of
6 these plants have had fire watches in place, but for
7 example, Harris, we've got our triennial inspection
8 team doing that. They were there for the first week
9 last week, they're going back next week. And one of
10 the things we pointed out to them is that they need to
11 be looking at the bigger picture with their
12 compensatory actions. A fire watch isn't necessarily
13 the only thing that they could do to help reduce the
14 risk presented by this.

15 And also in Harris's situation, they
16 disagreed with the results that we came up with on
17 Hemic. They felt like their Hemic was different, and
18 so they just did a series of tests of their own that
19 I don't have the official results on, but they're
20 trying to demonstrate that their Hemic wrap is
21 actually adequate to maintain a one-hour and three-
22 hour barrier.

23 MR. SIEBER: Didn't the agency do some
24 tests at Wiley within the last year or so on Hemic, or
25 did they

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1 MR. PAYNE: Yes. We just completed some
2 testing and issued the results this spring, and that's
3 the basis of the generic letter.

4 MR. WALLIS: I have a couple of questions.
5 What does this stuff wrap and how widespread is it
6 within the plant?

7 MR. PAYNE: Depends on the facility. Some
8 licensees have used it to achieve train separation
9 when they had Train A and Train B.

10 MR. WALLIS: Twenty feet or something,
11 whatever the distance is?

12 MR. PAYNE: Right.

13 MR. SIEBER: Yes, and adjacent cable train

14 MR. PAYNE: But for example, Harris uses
15 it extensively in their plant, and so that's one of
16 the reasons it has a significant impact on them. But
17 McGuire and Catawba, they use it but not extensively.

18 MR. DENNING: Tell me something about 805?
19 Do they use 805 to get around having to -- suppose you
20 can't demonstrate one-hour and three-hour, we don't
21 believe the tests that they come up with, is the only
22 conclusion then that one would then have to replace
23 those wraps? Or can you use 805 in some way to get
24 around it so that you say you prove that it wasn't
25 risk-significant, or something like that?

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1 MR. PAYNE: I think you can prove that if
2 it's not risk-significant, then you don't need to have
3 the wrap there.

4 Now, there's a requirement also to
5 maintain defense in depth, so I'm not sure how the
6 interface between those will happen. But for example,
7 if you don't have any ignition sources in this
8 compartment but you do have both trains in there,
9 Appendix R would say you've got to wrap them or
10 separate them or something like that. But really, the
11 likelihood of a fire is so small that they're meeting
12 the requirement but it's really a waste of money and
13 they think it's something that is not required. So
14 that's what 805 will be able to achieve for them.

15 MR. SIEBER: And then all you have to do
16 is hope that there really isn't any ignition sources.

17 MR. PAYNE: That's part of what we do. We
18 go through there and our new inspection process pretty
19 much has us counting all the different ignition
20 sources. We send our SRAs often out on the pre-
21 inspection visit with our team and he walks around all
22 the fires that we're contemplating and inspecting, and
23 helps us decide on whether these are problems or not.

24 MR. POWERS: Then you have to depend on
25 your hot work permitting requirements during shutdown

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1 to ensure that there are no ignition sources in there.

2 MR. PAYNE: That is correct, we take that
3 into account. We'll look at their administrative
4 controls and we'll talk with the senior residents and
5 the DRP branch chief.

6 MR. POWERS: The trouble, for instance,
7 when we were at Browns Ferry recently, they were
8 displaying their permitting requirements for work and
9 things like that, and not once did hot work show up on
10 any of their lists.

11 MR. PAYNE: Well, it's certainly a factor.
12 When we come up with an issue, they try and one of
13 their responses is okay, we've got an administrative
14 control, for example, that says hot work, the
15 likelihood is going to be less than what you're
16 assuming, and then we'll have to evaluate that aspect
17 of it.

18 MR. POWERS: And it's just a persistent
19 problem, especially when you get to these things where
20 the argument is made that there are no ignition
21 sources or there are no combustibles. It works either
22 way because trapped combustibles are just a consistent
23 problem during shutdown.

24 MR. PAYNE: The circuit analysis, it's
25 again another set of long-standing issues, and it's

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1 primarily related to associated circuits and spurious
2 equipment operations. So the licensees did a pretty
3 good job of identifying these pieces of equipment, the
4 main components are important for safe shutdown and we
5 need to protect or separate those pieces of equipment.

6 But the associated circuits, the stuff
7 that helps make sure that that equipment operates
8 correctly, the protective circuitry -- I can't think
9 of what I wanted to say, sorry -- but it's associated
10 with making sure that the equipment will work
11 correctly. Those circuits weren't actually evaluated
12 often by the licensees.

13 And what we have found is that sometimes
14 those circuits run in the same area, were not
15 protected, and if you had a fire in that, you would
16 get some kind of spurious actuation that they weren't
17 planning on that opened a valve that's normally closed
18 and would divert flow away from where you need it to
19 be.

20 RIS 2004-03 was issued to resolve this,
21 and it gave the licensees a year of enforcement
22 discretion to let them identify these issues, get them
23 into their corrective action program, and start
24 initiating corrective action. And there would be no
25 risk evaluation done. In other words, no matter what

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1 the risk was, as long as they identified them and
2 started getting a program to fix them, we would give
3 them discretion.

4 We've only been able to close one finding
5 to date out of all of our list of stuff, and that's
6 because the licensee had actually gone out and
7 corrected the issue, and so we gave them discretion on
8 that.

9 Most of the other issues we have, the
10 licensees have not been very aggressive in trying to
11 come up with a resolution on it. Also, a lot of them
12 are going to NFPA 805, and so they're saying when we
13 go to NFPA 805, we'll fix this issue because it's
14 identified and it will be part of the process.

15 Part of our concern in that is that some
16 of these plants aren't going to be actually
17 transitioning for another four or six years, so what
18 are they doing in the interim. So when the
19 enforcement discretion expires at the end of the year,
20 we need to be having a plan on is this going to be
21 adequate for the interim for those plants.

22 MR. WALLIS: This is something that comes
23 up all the time when you've got something which plants
24 should be doing and they're very dilatory about it,
25 and it doesn't seem to be any sort of scale. I would

1 think that as they get later, they get penalized in
2 some way and something happens. Give them an
3 incentive to get on and do the job.

4 MR. MCCREE: We do have that capability
5 and have exercised it in other areas via our
6 enforcement policy.

7 MR. WALLIS: But it's up to your judgment
8 to say now you've taken such a long time, we're going
9 to whip you into shape.

10 MR. PAYNE: One of the things to remember,
11 though, is that for all of these issues, the licensees
12 have instituted compensatory actions. So from a risk
13 perspective, it probably is not an issue, but if you
14 start getting enough of them added together, then you
15 start having to reevaluate whether there's really a
16 problem or not.

17 Next I want to talk about the manual
18 operator actions which, like I said, is a subset of
19 circuit analysis, and it's often used to mitigate
20 spurious equipment operation in lieu of cable
21 protection, but on occasions they do have some risk-
22 significant critical operator actions that they're
23 doing instead of trying to operate the equipment from
24 the main control room.

25 Licensees have long believed that it was

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1 an acceptable alternative to Appendix R3G2
2 requirements, and Region II is one of the first that
3 identified that licensees were doing this and this was
4 a problem, and it's used extensively in Region II.

5 We've got some plants that have tens of
6 not hundreds of manual actions imbedded in their fire
7 protection procedures.

8 MR. WALLIS: This led to something. We
9 had a meeting on this just last year. Didn't this
10 lead to some agency action to clear this matter up,
11 all these plants that were taking credit for manual
12 action without getting permission and so on?

13 MR. SIEBER: Well, we wrote a letter on
14 it.

15 MR. WALLIS: We wrote a letter on that
16 too. Did that lead to some agency action?

17 MR. SHACK: Well, there's a Nuclear
18 Newsflash that they withdrew that draft rule
19 yesterday.

20 MR. WALLIS: The rule isn't going to come
21 out after all?

22 MR. SHACK: They proposed to remove it,
23 they requested permission to do that.

24 MR. PAYNE: Originally there was a plan
25 for manual actions that were determined to be

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1 feasible -- and we had established some proposed
2 criteria for measuring feasible -- that it would be
3 acceptable for those to be used in lieu of protection.
4 But there are a number of problems with that, one of
5 which is if you have enough of them from a risk
6 perspective, the likelihood of 100 percent success all
7 the time is pretty small, even if they are feasible.

8 We've been having problems at some of our
9 sites where we've identified non-feasible actions
10 where the operator just couldn't do the job. And like
11 I said, they often have high human error probability.

12 MR. WALLIS: That was a concern we had, I
13 remember, in our meeting with these folks that were
14 presenting this stuff about operator actions, and they
15 had to go down these stairs and along here and put
16 some ladder up and do something or other, and we were
17 thinking are they really going to be able to do this
18 with the conditions which are current in the plant.

19 MR. PAYNE: And it may be only one
20 operator that they've got dedicated to doing that, and
21 if he breaks his leg climbing up that later.

22 Reactor coolant pump seal issues, to date
23 we have identified five Region II licensees that have
24 this concern, and just to recap, if you lose reactor
25 coolant pump seal cooling, Westinghouse has shown that

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1 for after 13 minutes or so you don't want to be
2 restoring seal cooling or thermal barrier cooling to
3 that seal because you could get a small break loca
4 through the reactor coolant pump seal, thermal shock
5 and it would cause the seal to dislodge or get tilted,
6 you get popping, numerous different concerns.

7 And they issued guidance probably about 10
8 or 15 years ago that ended up getting implemented into
9 the EOPs that if you have a station blackout, when you
10 lose the reactor coolant pump seal cooling as a result
11 of that, do not restore it when you get the power back
12 because you don't know how the reactor coolant pump
13 seal is going to perform, and you may not have your
14 equipment needed to compensate for a small break loca.

15 And what they recommend is that you cool
16 down the plant and get established and then get
17 established and then do an evaluation on your reactor
18 coolant pump seals before you restart.

19 Well, we found that some licensees didn't
20 implement that guidance when you have fire that causes
21 you to lose reactor coolant pump seal cooling, and
22 often their mitigation strategy for the fire to
23 achieve safe shutdown required them to go out there
24 and come up with a way to restore charging.

25 Quite often that's the way they do it is

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1 they'll protect one charging pump and that charging
2 pump is going to go through the reactor coolant pump
3 seal. They didn't isolate it.

4 And we had some licensees, as you'll see
5 on my slide here, that took 60 to 90 minutes to
6 restore charging flow, and they just turned it back
7 on, went right to the reactor coolant pump seal, and
8 we said, How do you know that that's not going to
9 cause a seal loca?

10 And we processed one of them at Surry and
11 it turned out to be a white finding after we did an
12 extensive Phase 3 analysis of it, and the other four
13 plants were still processing. Well, I take that back.
14 We did North Anna already which is the sister plant of
15 Surry. Because of their plant configuration and the
16 way they implemented their fire procedures slightly
17 different than Surry, it turned out to be a green
18 finding for them.

19 MR. WALLIS: Do they all have the new seal
20 material? There was an improved seal material that
21 Westinghouse came up with.

22 MR. PAYNE: You mean the high temperature
23 seals?

24 MR. WALLIS: Have they installed that
25 material in all of these plants?

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1 MR. SIEBER: That doesn't solve the
2 problem.

3 MR. WALLIS: But it's still an
4 improvement, though.

5 MR. PAYNE: That is true. And when we
6 first identified this issue, Surry was the first site
7 that we identified this with, our original risk
8 analysis said just losing the seal cooling was going
9 to cause a small break loca, and after interactions
10 with NRR and Westinghouse, we came to the conclusion
11 that the analysis with the new high temperature seals
12 will protect them adequately. If you just remove the
13 seal cooling you should be all right.

14 MR. SIEBER: And leave it alone.

15 MR. PAYNE: Leave it alone, that's right.
16 And we have some licensees that that's their strategy
17 is they make sure that when they lose the seal
18 cooling, they'll go out there and isolate it before
19 they restore their charging for later on.

20 The 60 to 90 minutes is tied towards how
21 long before they lose pressurizer level, and when it
22 gets down to the bottom, they need to have charging
23 flow coming back.

24 MR. SIEBER: And that's based on tech spec
25 leak rates. Right?

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1 MR. PAYNE: That's right.

2 MR. SIEBER: Sixty to 90 minutes. Not a
3 seal leak.

4 MR. PAYNE: That's correct. Well, the
5 actual 60 to 90 minutes include tech spec and up to 25
6 or 21 GPM, the station blackout type of criteria that
7 we applied, but not the 200 or 480 GPM that risk
8 analysis had looked at.

9 MR. THADANI: If the licensees chose in
10 the past to deal with station blackout and the breaks
11 in the service water system where you lose seal
12 cooling most of the time, they would have taken care
13 of not only that issue but also this because they
14 would have had capability for some level of charging
15 fairly quick basis.

16 MR. PAYNE: That's right.

17 MR. BUNACA: So those plants that opted
18 for that option, they would be okay.

19 MR. PAYNE: Yes. If they could come up
20 with some way to quickly restore cooling to the seal,
21 they would have been all right.

22 For example, there are some plants that do
23 that, they recognize that they need to get cooling
24 back and their procedures prioritize some actions to
25 get the seal cooling done, and 13 minutes is generally

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1 the criteria.

2 You did ask a question about NFPA 805.
3 All of the plants in the country right now that are
4 going to NFPA 805 are in Region II. That's Duke
5 Energy with their Oconee, McGuire and Catawba plants.
6 That's the order that they intend to transition to
7 NFPA 805.

8 Recently Progress Energy has indicated
9 their intent to transition to 805 with Harris first,
10 then Crystal River, Robinson, and Brunswick.

11 We've gotten some indication that Dominion
12 is interested in it, primarily, I think, from a Region
13 I plant, the Millstone site, but they would
14 transition, obviously, all their plants if they do
15 decide.

16 MR. SIEBER: Once you do an initial plant,
17 each plant is easier for incorporation.

18 MR. PAYNE: And then Oconee and Harris are
19 the private plants for the agency and what we'll be
20 doing is actually sending some observation teams three
21 or four times a year during this two-year transition
22 to observe their process, to give them some feedback
23 on are they heading in the right direction or not,
24 what kind of issues do they have with that, and also
25 help us to develop our inspection procedure that we'll

1 have to use with this new process.

2 They'll be getting enforcement discretion
3 during the transition, and that also applies to the
4 old issues that they have if they committed during
5 '05, so they were supposed to be intending to get some
6 more licensees interested in transitioning. So far
7 it's only been progress in Duke Energy.

8 But you do do a risk evaluation on these
9 fire protection issues, but trying to identify any
10 risks of red color or severity level 1.

11 MR. THADANI: But they have to do a fire
12 PRA, don't they, a good quality fire PRA?

13 MR. PAYNE: It is not required, actually.

14 MR. THADANI: I thought the reg guide just
15 issued guidance on that.

16 MR. DENNING: I think that was our issue,
17 Ashok.

18 MR. THADANI: And I'm saying I thought the
19 staff agreed to modify the reg guide to include the
20 language, and that's the reason I'm trying to ensure
21 that's in fact what was done.

22 MR. SHACK: I think they agreed for that
23 specific change they would use a PRA-like process to
24 evaluate the change in risk, but you don't have to do
25 a full fire PRA, you only have to do a PRA-like

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1 analysis that encompasses the change that you're
2 making.

3 MR. SIEBER: That's right, so you can end
4 up piecemealing it.

5 MR. PAYNE: The licensees that are doing
6 it now recognize the benefit of a fire PRA, and the
7 ones that are transitioning now have a plan of
8 basically developing a fire PRA. But it is not
9 required, as Mr. Shack said, to transition.

10 And the findings are going to be open
11 until the transition is complete, unless we come up
12 with a process to somehow track them outside of our
13 open items list.

14 I'll talk about SDP timeliness. That was
15 a concern that you had. Just a little bit of
16 background, fire protection and SSDPC were in the same
17 branch up until October of last year, and we shared
18 resources between those two inspections, and there's
19 15 required inspections a year in Region II.

20 And often what happens, the inspector that
21 was on the fire protections team would be going on an
22 SSDPC or another fire protection inspection.

23 MR. MCCREE: Just to be clear, that's the
24 engineering inspection, that's Safety Systems Design
25 and Performance Capability inspection. These are the

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1 two, quote, largest team inspections that we do under
2 our Baseline Inspection Program, fire protection and
3 the engineering inspection are SSDPC.

4 MR. PAYNE: So as a result, once we got
5 the report issued, I didn't have any resource to
6 dedicate to working on this, on any open items that we
7 had unless they were simple. If they were pretty easy
8 to disposition, we could get those processed through
9 the SDP and issued either in the report or shortly
10 thereafter.

11 But the complicated ones, for example, the
12 safe shutdown issues, the reactor coolant pump seal
13 issues, they took much longer to do, and I didn't have
14 anybody to pull off of a team inspection to work on
15 these issues.

16 It had some long-term effects too because
17 if I did try and start somebody on that issue, they
18 probably couldn't get done with it before they did
19 need to get on the next inspection -- let's say he had
20 four weeks to work on it -- couldn't get through it
21 and then he'd be wrapped up on the next inspection.

22 And then if I had somebody else that had
23 a month's worth of time available, that person would
24 have to reinvent the wheel, if you will, trying to
25 catch up to where the analysis was and understanding

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1 the issue and then trying to make some headway.

2 It was very inefficient, we lost a lot of
3 continuity, and if I tried to keep one inspector on
4 it, then it was hit and miss as another inspector was
5 available over time.

6 And I've got an example if you'd like to
7 go through that where that happened.

8 MR. MCCREE: So you've got a complete
9 picture, the level of effort required to evaluate the
10 significance of fire protection findings in general,
11 and particularly the complex ones, is rather
12 significant. The SDP Appendix D inspection under
13 Chapter 0609 is -- excuse me -- Appendix F, is very
14 resource-intensive. It requires a combination of
15 certainly our senior more seasoned inspectors to be
16 involved in the data gathering and analyses, as well
17 as the senior reactor analyst.

18 The picture that Charlie is painting for
19 you is a true one. We've gone through some
20 organizational issues as well as a resource issue and
21 the work itself is quite time-consuming. So it takes
22 very deft management and very close coordination to
23 get it done in a timely way.

24 MR. PAYNE: And if you go to the next
25 slide, you'll see some of the things that Victor was

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1 talking about. It's very difficult, the SDP is 24
2 pages long; most of the SDPs in the reactor area are
3 only a couple of page long and they're usually fairly
4 cookbookish. And then there's another 116 pages worth
5 of guidance that you don't just learn it and forget
6 about it, you're going to have to keep referring to it
7 because it covers different situations, so the
8 situation you're in, you're going to have to evaluate
9 each of those things independently.

10 MR. POWERS: Are all your plants are
11 currently Appendix R plants?

12 MR. PAYNE: No. It's a combination.

13 MR. POWERS: You've got them all?

14 MR. PAYNE: Yes.

15 And as Victor also mentioned, it requires
16 a lot of data collection. One of the things that we
17 found out, and it's on the next page, Step 2.8 is very
18 difficult to do. It basically says once you're done
19 with figuring out what the fire risk is, now go back
20 into the reactor SDP and see if you've got any
21 equipment to help mitigate this issue.

22 Well, what a lot of people don't recognize
23 is that that means I've got to go find out where all
24 the cables are for all the mitigation equipment and
25 see if they run through this fire area and are

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1 affected by the fire, because they obviously didn't
2 protect them because that's not part of their safe
3 shutdown strategy.

4 And trying to figure that out and then
5 also figuring out does this equipment really work or
6 not is difficult.

7 And as Victor also mentioned, it requires
8 someone with a lot of plant operational understanding
9 to integrate all of that. Most of my inspectors are
10 electrical inspectors. We've taught them about
11 integrated plant operations, but they haven't operated
12 a plant and they don't know some of the
13 interrelationships between that.

14 And I only really have one senior
15 inspector that has integrated plan operations, and
16 that's Bob. You've heard from him. I've got another
17 senior mechanical inspector that he does a good job of
18 it but he's really a mechanical inspector, he's not an
19 ops inspector.

20 MR. MCCREE: This goes to the earlier
21 question where we were looking at the succession
22 planning strategy. We asked about what that meant,
23 how many, quote, fire protection experts we have.

24 Charlie has one senior, quote, licensed
25 fire protection engineer, but Bob and McKenzie Thomas,

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1 we've developed into fire protection experts, but what
2 they also bring, and it's absolutely essential to
3 implementing this inspection in a quality way is the
4 integrated plant operations knowledge that allows us
5 to not only find things but then evaluate the
6 significance of it.

7 MR. PAYNE: In particular, the 90-day time
8 limits goal that you were discussing with Bob earlier,
9 it's really kind of unrealistic for complicated fire
10 protection issues.

11 If you figure out all the different things
12 that need to be done in order to process a greater
13 than green finding to final determination, that 90-day
14 goal, it basically requires the SDP to be done within
15 two weeks. I have a hard time getting it done in two
16 months, let alone two weeks, unless it's a fairly
17 simple fire protection issue.

18 MR. POWERS: And this problem just doesn't
19 go away, does it, and we started off with an SDP that
20 was okay, to say the least, and now we've gone to one
21 you can understand, you just can't do. It's like they
22 don't want us to find fire issues in the plant.

23 MR. PAYNE: Yes, and we recognize that,
24 and as a matter of fact, we just got done with a team
25 going to V.C. Sumner to work on one of the reactor

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1 coolant pump seal issues at V.C. Sumner, and we had on
2 that team Bob, my senior reactor analyst, a reactor
3 analyst from NRR, a fire protection expert from NRR,
4 plus a contractor from Sandia who is probably the fire
5 protection expert -- you may know him, Steve Nolan --
6 he was on the team.

7 And they went through to process these
8 open issues that we had with V.C. Sumner, and it took
9 them a full week of time, and the intent was to do a
10 Phase 2 analysis so we could proceed on with the SDP,
11 and they ended up doing basically a Phase 3 analysis
12 because it was going to come out greater than green,
13 it was going to be yellow or white, and then we'd have
14 to do a Phase 3 probably to make sure it was right.

15 So they went ahead and worked on it and it
16 came out the issues were green. And that was a
17 success, but it required special organization to get
18 this talent pool together to make it work.

19 On some of our simpler issues, for
20 example, the smoke detector, it requires basically
21 that you have very low degradation in order for you to
22 screen it out green. If you look at Phase 1 of our
23 SDP, anything that's greater than low degradation
24 requires you to go to a Phase 2 analysis. And most of
25 those issues will probably screen out in the Phase 2

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1 fairly easily, like the smoke detector or the alarm,
2 but the other ones that require you to go to the end
3 to 2.8 which are the safe shutdown ones, they're the
4 ones that take a long time to do.

5 MR. MCCREE: We've had a significant
6 amount of discussion with NRR and other folks in
7 headquarters about the timeliness goal and the
8 implications for fire protection, and I believe we're
9 at a level of understanding now where our process is
10 being changed. In fact, the metric will recognize
11 that for some issues like fire protection, 90 days is
12 really not realistic, that it would take longer, and
13 in fact, the overall goal will be 180 days, but the
14 process will take this into account.

15 We also had discussions last week -- in
16 fact, we did our lessons learned on this visit at
17 Sumner that Charlie was just talking about, and what
18 did we learn from that that could help us to evaluate
19 in a more timely manner other more similar findings.
20 And developed the understanding that may indeed allow
21 Steve Nolan to be involved in some other thorny
22 findings that we have and areas where we need to train
23 our inspectors and SRAs to help them to deal with
24 other issues.

25 MR. POWERS: The problem with extending

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1 the time is it doesn't eliminate your basic problem,
2 you just don't have the manpower to do it, and
3 bringing in contractors is great, except now on your
4 succession planning you have to take into account
5 contractors which is quickly becoming a formidable
6 problem for you, and there's no obligation on the
7 contractor to have succession planning there either.

8 MR. MCCREE: We also discussed that and
9 the need to transfer or develop our own expertise such
10 as that which Steve Nolan has, and that's going to
11 take a while, but there's an integrated way to get
12 there.

13 One is sending people along with Steve to
14 develop that knowledge and classroom training. We
15 need to have that in-house.

16 MR. POWERS: Do you need it in-house or is
17 the better solution is anything that you can screen
18 out in an expeditious way -- and I mean literally in
19 a day -- that you can toss over the fence to NRR and
20 let them handle

21 MR. PAYNE: We have some ideas and we
22 tossed them around also in the lessons learned meeting
23 that we had and we're making some proposals to them
24 that would help expedite the SDP, simplify it, in
25 particular with Step 2.8, and we're going to forward

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1 that as a recommendation to change it.

2 And they were open to the idea, and
3 they're going to evaluate and see if maybe that's
4 something we could do where Step 2.8 is actually a
5 go/no-go kind of step, and if we're okay with that,
6 we'll go forward with that as being a final result,
7 and if everybody in the circ decides that we need a
8 better answer, this is a little bit too complex, then
9 we'll commit to going to a Phase 3 type of analysis
10 and committing the resources to doing that.

11 DR. TRAVERS: But having those resources
12 centered as opposed to distributed.

13 MR. POWERS: And it's not a criticism of
14 you but if every region tries to set up the kind of
15 expertise and divert the manpower that's going to be
16 required -- because you could send a guy and say work
17 180 days on this but you're going to do it one month,
18 then two weeks off doing something else, then one
19 month, you'll end up in the same problem. You'll come
20 back and say it's going to take 270 days to do this.
21 I mean, you'll never get out of this problem.

22 And if it's an integrated analysis where
23 you have to look at plant ops, electronics, mechanical
24 and fire all at the same time, you're never going to
25 get there. I mean, it's not your fault, I'm not being

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1 critical of you guys, it's just that they're asking
2 you to do the infeasible here.

3 MR. SIEBER: It's an agency-wide problem,
4 and as I see it, you have a moratorium on associated
5 circuits, you have the introduction of 805, and in
6 fact, the triennial exams have not covered every
7 issue. You have operator manual actions to deal with.
8 And to me it looks like the day after a huge snowstorm
9 and there's a lot of work that needs to be done to get
10 back to normal, and the question is how vulnerable are
11 during the months and years that it will take to get
12 to a backlog that is normal.

13 MR. SCHIN: And that's a good question.
14 We addressed that in this recent meeting with the
15 licensees that are going to NFPA 805 and what they
16 have for compensatory actions for all of these non-
17 conforming conditions that they're finding is fire
18 watches. So like Ocone has fire watches roving all
19 over the plant covering all the different areas.

20 So what we're going to have to get into
21 when we next meet with them over the next few months
22 is how many of these non-conforming conditions, we
23 have to look at what type of things they are.

24 In all cases, a fire watch may not cut it.
25 You may have, even after you have the fire watch,

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1 there may be some net increase in risk, and so you
2 don't want to have too much of that.

3 MR. SIEBER: You know, a fire watch is a
4 guy with a day's training and eight bucks an hour, and
5 he may be a roving fire watch but he's watching five
6 fire areas or ten fire areas.

7 MR. SCHIN: Right, exactly.

8 MR. SIEBER: To me there are better ways
9 to do that

10 MR. SCHIN: Right, but by our regulations
11 they're not clearly required.

12 MR. SIEBER: It says it's okay.

13 MR. POWERS: This story on the SDP for
14 fire has just been going on since the start of ROP,
15 it's just a very difficult area and it does not seem
16 to me that it's getting the kind of management
17 attention at headquarters that it deserves. I mean,
18 they keep coming up with "Well, it satisfies this" all
19 the time. I mean, I think you guys have got a real
20 problem.

21 MR. McCREE: What we have is this tool
22 that, as Charlie indicated, is good for screening
23 relatively straightforward issues. It's a bit more
24 resource-intensive when the issue is more complex.
25 We've been working very closely with NRR on this

1 issue, as I indicated, and the resources and
2 timeliness, all those factors, we have understanding
3 and we have what we have, and we'll just work our way
4 through it.

5 MR. POWERS: Like I say, I think you guys
6 are doing better than I would have ever expected.
7 Actually, I'd expect you to be screamingly angry over
8 this.

9 MR. THADANI: There is a focus on the
10 timeliness issue at headquarters, but I'm not
11 convinced of this focus on really understanding how
12 complex this is.

13 (General talking.)

14 MR. POWERS: I mean, I think that's the
15 take-home lesson here

16 MR. MCCREE: It's the reason why we
17 leveraged this visit at Sumner is to develop that
18 understanding and have the lessons learned.

19 MR. MCCREE: It's going to take what it's
20 going to take to get a quality answer, and to get a
21 quality answer, I think there needs to be a broader
22 understanding of what it takes to get there.

23 MR. POWERS: Well, you do this trip to
24 Sumner and you come up with some interesting
25 conclusions, I think it will be useful to us if you

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1 come share it with us like at a Fire Protection
2 Subcommittee or something like that and just focus in
3 on this whole step here. I mean, I think that would
4 fun. Don't you, Richard?

5 MR. DENNING: Absolutely.

6 MR. POWERS: And see what the strategy is
7 for handling this.

8 MR. WALLIS: I would like to know what's
9 going on in the other regions. Presumably they have
10 the same situations.

11 MR. SIEBER: In three more years we'll
12 know

13 MR. PAYNE: The NEI is sponsoring a fire
14 protection information forum next week, and all the
15 branch chiefs, except for one, and some NRR
16 representatives are going to be there. And while
17 we're there, I've asked them to have a meeting to talk
18 about this, because I've got the same impression that
19 are we an outlier, are we the only ones that have
20 problems or not.

21 And just anecdotally, I found that at
22 least Region IV has a long list of fire protection
23 issues.

24 MR. POWERS: Based on historical evidence,
25 you guys are better prepared in fire protection than

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1 the other regions, if you ask me.

2 MR. PAYNE: I would like to try and get
3 that feedback from them as well.

4 MR. SIEBER: You're on easy street,
5 relatively speaking.

6 (General laughter.)

7 MR. PAYNE: We'll, we'd at least like to
8 think that we've got a plan for moving forward, it's
9 just that it's not something we can implement
10 instantaneously.

11 MR. SIEBER: Well, there's a tremendous
12 amount of work and it's complex work, and I think
13 those are the two keys, and I think that there's a
14 failure to recognize how important fire protection is.
15 If we add all modes, all pipe PRAs, all of a sudden it
16 would stick out, but fire is probably in the same
17 realm of importance as normal day-to-day operation or
18 shutdown operation. That being the case, maybe the
19 resources need to follow.

20 MR. WALLIS: What needs to happen in
21 Washington to solve this problem.

22 MR. PAYNE: The interesting thing is if
23 you look at the amount of time they expect us to spend
24 on the triennial inspection, it's 200 hours every
25 three years, we spend well over that because that's

1 assuming three inspectors for two weeks basically, and
2 I need more than three inspectors on that team to do
3 an adequate inspection.

4 And that's what I tell them, we need to
5 focus on finding safety-significant issues, we'll work
6 out the risks afterwards. It's not something we can
7 ignore, obviously, but the priority is making sure that
8 the plants are safe.

9 MR. SIEBER: My impression, just working
10 with a few licensees, is the licensees aren't prepared
11 from a documentation standpoint to make your job
12 efficient.

13 MR. PAYNE: That is true, we have found
14 that out during our inspections.

15 MR. SIEBER: I mean, it's one of these
16 paper-shuffle deals.

17 MR. SCHIN: My experience is that our
18 inspection procedures and the number of hours for the
19 inspectors for two weeks would work out fine if we
20 didn't have any findings. So our problem is we're
21 always having findings.

22 MR. PAYNE: I've got just a couple more
23 slides, if you don't mind.

24 The next slide is just a current status.
25 We have 31 open items, seven of them are new this

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1 year. That doesn't include LERs that the licensees
2 open if they've got a fire protection issue.
3 Seventeen of them are tied to plants that are going to
4 NFPA 805; four of them are Hemic, as I mentioned;
5 seven circuit analysis issues; seven of them we're
6 working pending SDP; and three of them are potentially
7 greater than green.

8 That's the Turkey Point findings that are
9 on headquarters' tracking list and I've got my senior
10 reactor analyst and the project engineer from DRP at
11 Turkey Point today. They're working on identifying
12 the information they need to do this SDP, with the
13 goal of completing it by the end of September.

14 We have four other issues that are pending
15 additional inspection or information from the
16 licensee. I've got eight of them that we've resolved
17 but we just haven't documented them in the report,
18 we're in the process of doing that. And one of them
19 we've done a regulatory conference and we're pending
20 the final significance determination which we hope to
21 do next Tuesday.

22 Corrective actions, we've covered some of
23 this. We've obtained help from DRP as well as NRR to
24 help us work on these open items. We've obtained
25 additional contractor support in FY '06 to free up

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1 some of my inspectors to work on SDP stuff.

2 Also, as we staff up we're planning to
3 have two separate fire protection inspection teams,
4 one team is doing an inspection, the team that just
5 finished is working on any open items, any URIs that
6 they identified, and they'll have 6 to 8 weeks to work
7 on this and it will be the whole team that's going to
8 be available to do that.

9 MR. MCCREE: Going back to contractor
10 support very briefly. You mentioned earlier on the
11 engineering inspection, the SSDPCs were going from
12 about five a year to 18. In the past, Charlie would
13 get one, maybe two contractors a year to train for the
14 fire protection school program.

15 We've got NRR's attention and they're
16 going to give us four this year which is twice. It
17 was very difficult but we've convinced them that
18 that's needed to not only address a backlog but to
19 allow Charlie some flexibility in scheduling his
20 inspections.

21 MR. PAYNE: Correct. Right now I don't
22 have the staff to do two full teams independently.
23 Plus like this year, we're still supporting the
24 engineering inspections, but starting this coming
25 fiscal year, we've got dedicated people, I'm staffing

1 up, and while I'm still staffing up, I've got the
2 contractors to help us out.

3 And part of that, like I said, we're
4 restricting our support of other inspections to really
5 high priority issues like special inspections or AITs,
6 that kind of thing.

7 And that's all I have.

8 MR. SIEBER: I think we're at the end of
9 the agenda.

10 DR. TRAVERS: We're very suspiciously on
11 time, Chairman. I think you laid down a challenge to
12 us, and perhaps to the committee as well. We're on
13 time here.

14 I guess I'll just sum up by saying I think
15 we've covered a pretty broad range of topics. I think
16 they were arranged in advance with your staff so there
17 would be items that the committee was interested in.

18 And so we certainly do appreciate the
19 opportunity to have a dialogue with you, not just
20 today but on an ongoing basis as is appropriate for
21 any of the issues at hand. Whether they be Browns
22 Ferry or wherever, we can hopefully support your
23 activities by providing some of the insights that we
24 gain from our conduct of the inspection program here
25 in Region II and throughout the regions, actually.

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1 MR. SIEBER: I can tell you, without
2 reservation, that the meeting and the reports that
3 your folks gave us are excellent, and they really add
4 to the perspective that we have in the functioning of
5 the agency, because in the regions this is where the
6 rubber meets the road. And individual inspectors and
7 branch chiefs see in more detail the issues and the
8 problems and give us a very good perspective of the
9 kinds of things that we ought to be focusing on and
10 directing our attention.

11 So I, personally, and my colleagues truly
12 appreciate your spending the effort to be our hosts,
13 and I'm sure that we will meet again, perhaps pretty
14 soon or at least with some of your personnel because
15 there are a lot of activities that are going on.

16 I also think, having met a number of your
17 folks either here or on other occasions, that you have
18 an excellent staff and very talented and very
19 knowledgeable, and I think that's a tribute to the
20 many good years of management of the Region II office.

21 So I wish, on behalf of my colleagues and
22 the full committee and our staff, to thank you very
23 much for hosting our visit here.

24 DR. TRAVERS: It was our pleasure. Glad
25 you could come.

1 MR. SIEBER: Thank you.

2 And with that, I would like to adjourn the
3 meeting.

4 (Whereupon, at 11:50 a.m., the meeting was
5 concluded.)

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CERTIFICATE


This is to certify that the attached proceedings
before the United States Nuclear Regulatory Commission
in the matter of:

Name of Proceeding: Advisory Committee on
Reactor Safeguards
Plant Operations and Fire
Protection Subcommittees
Region II Visit

Docket Number: n/a

Location: Atlanta, GA

were held as herein appears, and that this is the
original transcript thereof for the file of the United
States Nuclear Regulatory Commission taken by me and,
thereafter reduced to typewriting by me or under the
direction of the court reporting company, and that the
transcript is a true and accurate record of the
foregoing proceedings.



Laurel Stoddard
Official Reporter
Neal R. Gross & Co., Inc.

SKILLS NEEDED	STAFF NEED	STAFF ON BOARD	2005			2006			2007			PROJECTED NEW HIRES	SUCCESSION ACTION PLAN
			E	M	L	E	M	L	E	M	L		
STRUCTURAL ENGINEERING	2	2	1	1(1)		1	1(1)		1	1(1)			Qualify EC in 2005 Transfer a DRP Insp to DRS in 2006
		Non-DRS 1											Train EC on ASME B31.1 Piping in 2005
ILRT /LLRT /Containment	1	4	1	1(1)	2	1	1(1)	2	1	1(1)	2		Train EC in 2006
ISFSI	1	3	1	1(1)	1	1	1(1)	1	1	1(1)	1		Train EC in 2006 (Soil Engineering)
SEISMIC	2	4	1	1(1)	2	1	1(1)	2	1	1(1)	2		Train EC on GeoTech Eng in 2005
Heavy Loads	2	4	1	1(1)	2	1	1	2	1	1	2		
METAL ENGINEERING	4	4	3		1	3		1	3		1	Hire ISI Eng in 2005	Qualify EC as Eng Inspector by 7/06 Qualify EC as Eng Inspector by 8/06 Train EC on Stainless Steels in 2005
Erosion/ Corrosion/MIC Mechanisms	2	4	3	1(1)		3	1(1)		3	1(1)			
NDE / ISI / Welding	3	7	4	1(1)	2	4	1(1)	3	4	1(1)	3		Train ECs in ASME Sec IX in 2005 Train EC in Metal Welding in 05 Train EC on UT Level 1 in 05 Train EC on UT Level 1 in 2005 Train LC on UT Level 1 in 2005 Train EC on ASME Sec IX and Sec XI in 2005 Train EC on ASME Sec XI in 05 Train EC on ASME B31.1 piping in 2005 Train EC on ASME B31.1 Piping in 2005
Non-Code Repairs (GL-90-05)	3	4	2	1(1)	1	2	1(1)	1	2	1(1)*	1		
BWR Internals	3	3	1		2	1		2	1		2		
Steam Generators	3	4	3	1(1)	1	3	1(1)	1	3	1(1)	1		Train EC on Zetec Eddy Current in 2005

SKILLS NEEDED	STAFF NEED	STAFF ON BOARD	2005			2006			2007			PROJECTED NEW HIRES	SUCCESSION ACTION PLAN
			E	M	L	E	M	L	E	M	L		
MECHANICAL ENGINEERING	7	12	6	2(2)	4	6	2(2)	4	6	2(2)	4	Hire Mid-Career Mechanical in 2005 Transfer EC From NRR in 1/05	Qualify EC as Eng Insp 6/05 Qualify EC as Eng Inspector 6/07
Design and Operation of Pumps/IST	4	7	3	2(2)	2	3	2(2)	2	3	2(2)	2		Train EC on ASME Pump/Valve in 2005
Valves/IST	4	9	3	3(3)	3	3	3(3)	3	3	4(4)	3		MC Attend MOV/AOV Conf in 2005 Train EC on ASME Pump/Valve in 2005
Heat Exchangers	2	10	3	4(4)	3	3	4(4)*	3	3	4(4)*	3		Train EC in Service Water Eng in 05 Train EC on Service Water Eng in 2005
Water Hammer	2	3	1	1(1)	1	1	1(1)	1	1	1(1)	1		Train EC on Waterhammer in 2005
Safety/Relief Valves	3	3	1	1(1)	1	1	1(1)	1	1	1(1)	1		
Emergency Diesels	2	4	2	1(1)	1	2	1(1)	1	2	1(1)	1		
Spent Fuel Pool Cooling	2	5	3	2(1)		3	2(1)		3	2(1)			
HVAC	2	2		1(1)	1		1(1)	1		1(1)	1		
Coatings	2	3	1	1(1)	1	1	1(1)	1	1	1(1)	1		
Freeze Seals	2	3	2		1	2		1	2		1		
Governors	2	4	2		2	2		2	2		2		
Bearing Lubrication	2	4	2	1(1)	1	2	1(1)	1	2	1(1)	1		
Ice Condensers	1	1			1			1			1		

SKILLS NEEDED	STAFF NEED	STAFF ON BOARD	2005			2006			2007			PROJECTED NEW HIRES	SUCCESSION ACTION
			E	M	L	E	M	L	E	M	L		
		Non-DRP 2											
ELECTRICAL ENGINEERING #	5	10	6	2(2)	1	6	2(2)	1	6	2(2)	1	Hire Mid Career in 2005 Transfer DRP Insp 1/05	Qualify EC as Eng Inspector 6/06 Qualify EC as Eng Insp 7/06 Qualify EC as Eng Insp 7/05
Distribution Systems (Breakers/Switchgear)	2	6	3	2(2)	1	3	2(2)	1	3	2(2)	1		Train EC in Power Sys Relays in 2005 Train EC in Substation Eng in 2005 Train MC in Power Cables in 2005 Train EC in Substation Eng in 2005 Train EC on Prot Relaying in 05
Instrumentation and Controls - Digital and Analog	2	7	4	2(2)	1	4	2(2)	1	4	2(2)	1		
V/V of Software	2	5	3	1(1)	1	3	1(1)	1	3	1(1)	1		
Instrument Setpoint Calculations	2	5	2	2(1)	1	2	2(2)	1	2	2(2)	1		
EQ	2	3	1	1(1)	1	1	1(1)	1	1	1(1)	1		
MOV/SOV	2	4	2	1(1)	1	2	1(1)	1	2	1(1)	1		EC attend AOV/MOV Users Group Conf in 2005
Batteries	2	2	1	1		1	1		1	1			
Logic Circuit Testing (GL96-01)	3	3	1	1(1)	1	1	1(1)	1	1	1(1)*	1		
EHC (Turbine Control)	1	1		1(1)			1(1)			1(1)			
Maintenance Rule	2	4	2	1(1)	1	2	1(1)	1	2	1(1)	1		

SKILLS NEEDED	STAFF NEED	STAFF ON BOARD	2005			2006			2007			PROJECTED NEW HIRES	SUCCESSION ACTION PLAN
			E	M	L	E	M	L	E	M	L		
RISK ANALYSIS	2	2		2(1)			2(1)			2(1)			Train MC on Quant Risk/Reliability in 2005 Train MC on PRA Application in 05
Risk Expertise	3	1 Non- DRS 2			1			1			1		
NUCLEAR ENG. (Reactor Physics)	1	5	1	3(2)	1	1	3(2)	1	1	3(2)	1	Hire Co-Op in 2005 Hire Co-OP in 2005	Qualify EC as Eng Insp 6/06
Operations Inspectors EOP's(Excludes OL personnel)	2	3		2(2)	1		2(2)	1		2(2)	1		
OPERATOR LICENSING EXAMINATION	9	9 (Non-OL) 2	1	8(3)		1	8(3)		1	8(3)		Hire Two Examiners in 2005	Qualify MC as Examiner 5/05
Licensing Assistant	1	1			1			1			1		Train a backup LA in 2005
HEALTH PHYSICS	6	8 Non-PSB1 3	3	4(1)	2	3	4(2)	3	1	4(2)	3		One Insp attend the REMP Conf in 2005

SKILLS NEEDED	STAFF NEED	STAFF ON BOARD	2005			2006			2007			PROJECTED NEW HIRES	SUCCESSION ACTION PLAN
			E	M	L	E	M	L	E	M	L		
CHEMISTRY	1	2		2(1)			2(1)			2(1)			Train MC in RadioChem in 2005
EMERGENCY PLANNING	2	2		2(2)			2(2)			2(2)			
		Non-PSB2 3											
FIRE PROTECTION	3	5	2	5(2)		2	5(2)		2	5(2)		Hire Co-OP Fire Protect Engineer in 2005 Hire Mid-Career Fire Protection Engineer in 2005	Train MC in NFPA Sprinklers in 2005 Train EC on Fire Alarm Codes in 2005 MC attend NFPA Sprinkler Seminar in 2005 Two Insp to NEI Fire Prot Conf in 05
10CFR50.59	1	4	3		1	3		1	3		1		
License Renewal	4	5	1	1(1)	3	1	1(1)	3	1	1(1)	3		
Pre-Op Testing	1	1		1			1			1			
PHYSICAL SECURITY	8	6		6(1)			6(1)			6(1)		Hire a Security Inspector in 2005	Qualify MC as Security Inspector 5/05 Qualify MC Security Inspector 5/05 Train MC in Adv Security in 2005

E: Early Career (EC); Less than 40 years Old

M: Mid Career (MC); Greater than 40 years Old and less than Optional Retirement Eligible: () / *; Eligible for Early Retirement

L: Late Career (LC); Eligible for Optional Retirement

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