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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

August 24, 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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Wednesday, August 24, 2005

1:30 p.m.

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Conference Room 24T20

Sam Nunn Federal Center

61 Forsyth Street, N.W.

Atlanta, Georgia

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LAWRENCE PLISCO, NRC: RII

STEPHEN CAHILL, NRC: RII

MIKE LESSER, NRC: RII

VICTOR M. McCREE, NRC: RII

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

(1:30 p.m.)

MR. SIEBER: Good afternoon. This meeting will now come to order. This is a meeting of the Advisory Committee on Reactor Safeguards, the Subcommittee on Plant Operations.

My name is Jack Sieber, and I'm Chairman of the Subcommittee. The Subcommittee members and attendants are Doctors Mario Bonaca, Dana Powers, Tom Kress, Rich Denning, Victor Ransom, Graham Wallis, who is also chairman of the whole ACRS, and Bill Schack.

The purpose of the meeting today is to discuss regional inspection, enforcement and operational activities. The subcommittee will hold discussions with representatives of the NRC staff regarding these matters. The subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions as appropriate for deliberation by the full committee.

Ralph Caruso is the designated Federal official for this meeting. The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register on June 20, 2005.

A transcript of the meeting is being kept

and will be made available as stated in the Federal Register notice. With regard to the production of the transcript, it is requested that speakers first identify themselves and their affiliation, and speak with sufficient clarity and volume into a microphone so that they can be readily heard.

I would point out that the individuals not seated at the main table, since we don't have microphones around the room, if you could move close to the table where a microphone will pick up your voice. That would help in the production of the transcript.

I appreciate on behalf of the ACRS the efforts that the Region II personnel have gone through to provide an opportunity to meet with them today, and also tomorrow morning. And these visits, for us, are very important because it gives us insight into the region's activities, and also into the region's way of thinking about issues and resolving issues that are important and pertinent at a region base.

And so we particularly appreciate your hospitality. I note, based on correspondence back and forth, and also the agenda that resulted from it, that our agenda is very ambitious. So I will not take any more of your time to take time from the agenda. And

so I would like to move to the first subject.

MR. PLISCO: Good afternoon. I just wanted to welcome you. My name is Lawrence Plisco. I'm the deputy regional administrator here in Region II. I wanted to welcome you to Region II, and we're looking forward to the discussions. And hopefully they meet your needs.

I actually went back and looked at the last time the subcommittee was here, back in 2002, to sort of compare what has changed since then. I think the last time you were here, we were really very early on in the Reactor Oversight Process, and we spent a lot of time talking about the oversight process. And that process has obviously matured now. But we still have issues and we're going to talk about some of those process issues that we have in the oversight process, and some specific topics that we'll talk about.

Bill Travers apologizes. He's actually in transit back. He was with Commissioner Jaczko yesterday in Richland, Washington, at the Framatome fuel facility, and he'll be here tomorrow to stop by and just say hello.

In your package there is some basic information on Region II organizational structure, and

who is who. I wasn't going to spend any time on that unless you had any specific questions. I know you wanted to get into the technical subjects. And I was going to go right to that, if that's all right with you.

MR. CAHILL: All right. Well, first we're here to talk about the Browns Ferry I recovery, and the Region II's oversight of that. I'm going to be doing the first half of this, and then I'll be turning it over to Mike Lesser to my left to do the second half.

The first thing I want to talk about, and a lot of this is what you heard yesterday at the visit to Browns Ferry, is the TVA Background. They told you that, you know, all three units voluntarily shut down in March of '85 because of TVA's regulatory management issues.

One point that I don't think came out yesterday in the discussion was that the TVA was stretched fairly thin at the time. They had an ambitious construction program going on, and that was one of the reasons that a lot of these issues that caused them to shut down came up as problems.

But Unit I has been maintained in a defueled lay-up condition since then. And since '85,

the NRC has conducted period annual lay-up inspections. If you remember, Bill Bearden, the senior resident now at Unit 1, he was part of our regional staff. And he was the primary inspector that had done most of those inspections.

So each year we inspected what TVA was doing to preserve Unit I, the dehumidification and the wet lay-up programs that they had in place were looked at annually by us. And we're still doing those similar inspections at Bellefonte and Watts Barr Unit II. And we did those up until 2003, when TVA terminated their lay-up program for Unit I.

There were some common systems that were also operating to support Units II and III. And those were not a part of our lay-up inspection. We inspected those routinely, as we would any systems to support Units II and III. So those were -- there was really nothing with Unit I that was not covered under either our lay-up inspections or our routine inspections.

And you heard this point yesterday, and I wanted to make -- reiterate it. That lay-up is not credited by TVA. And it's also not credited by us. It's not part of any basis that we have for acceptance or review of any of their efforts or any of their

programs. As they explained to you, that it's purely to maintain the economic viability of the units. So there is nothing with the lay-up program and the inspections we've done before that we're using now for our oversight.

MR. POWERS: Well, then why do you bother to inspect them?

MR. CAHILL: That's a good question. I know with the other units it's part of maintaining an accurate construction permit. And actually, we inspected it because we didn't know how they would take credit for that. We didn't know if there was going to be some basis for that, and having not looked at it for many years, we would be in pretty much an untenable position if we had to suddenly take credit for it and didn't really have any insight as to how they were doing.

MR. POWERS: Well, I mean, they can take all the credit for it they want. If you don't give them credit, well, I guess it's kind of a waste of their time too.

MR. CAHILL: Exactly. But we haven't even gone down that road, so it's -- the next bullet talked about the -- we issued the 50.54(f) letter that you discussed yesterday. And I know the question came up

as to what regulatory hold we have over TVA.

We -- in that process we confirm TVA's commitment to seek NRC approval before restarting any of the units. So it's not truly a COW, but it did lay out some of the confirmation of that commitment in that correspondence back in the '80s.

When Unit II restarted in '91 and Unit III restarted in '95, they both followed Commission briefings and staff approval. And both Units II and III have operated very well since they've restarted.

TVA discussed some of that with you yesterday. But since the implementation of the ROP or the Reactor Oversight Process in 2000, they've had nothing but green issues that never crossed into anything but the licensee response column of our action matrix.

They're in good standing with INPO, as they discussed with you. And even prior to the ROP, they had very high average self-ratings under our old program. So they have a long period of operation with us. But there is other units that give them some track record with us as far as a licensee that the regions oversee them.

Leading up to the TVA Board decision in 2002, they did do some environmental scoping, which

they discussed with you yesterday. And a key point is they did some equipment verifications. They were very open in their dialogue with us as to that they were considering this.

And we did have the opportunity to have some of our inspectors involved with some of the things that they were looking at, just so we could understand if they were going to be taking credit for any of those pre-decision inspections. If we would need to be involved, we were.

One of those things they did take a look at, the core shroud -- I know that came up yesterday. And we did have an inspector that was along with that.

As you know, in May 2002, the TVA Board of Directors voted to restart Unit 1, and authorized TVA to ask for a 20-year extension. That license is for three units. Just some key points we saw in that plan. And I know some of this is familiar to you. But they're implementing the same programs in Unit I that they used for the restarts of Unit II and III, which we had a very detailed oversight.

They had a similar five-year plan for duration. They're incorporating a lot of lessons learned and improvements that they came across from Units II and III. We -- I know you heard some of the

details on that yesterday.

One key point that we didn't cover yesterday, though, that was very fundamental on our perspective was they are assigning resources for the Unit I restart, that the people they have in their organization have a lot of experience with Unit II and III restarts. They brought back a lot of retired TVA folks that were instrumental players in the Unit II and III recoveries to keep that corporate knowledge in house, and understand how they'd gone through this before.

So they had an experience organization that we were familiar with, and recognized a lot of the individuals that had come back, and knew that they're experienced in how Unit II and III were recovered.

TVA reiterated their commitment to request NRC approval before restart. They put out the concept that you heard extensively yesterday. Unit I is to be operational identical to Units II and III. And they at that point laid out some of the differences some of us have learned. They informed us that there are some other plans to replace many of the systems, as opposed to analyzing them. I know you saw some of that first-hand yesterday.

MR. POWERS: They parsed the word identical more finely than I probably would myself. Could you explain that a little better to me?

MR. CAHILL: Explain operation identical?

MR. POWERS: Yes.

MR. CAHILL: This is -- and when TVA first laid this out in some public meetings, we struggled with it also, as -- particularly a lot of the staff in headquarters were challenging what that meant.

To us it means, from an operational point of view, from an operator implementing the procedure, there may be some underlying components that are different. There may be some different controllers or, you know, as they talked about, some of the recorders might be different.

But they can basically implement the same procedures, go through their same programs and processes that they have at the site at any of the given units. There is no fundamental differences that would have a significant impact on the way they would approach each unit.

I mean, one of the key things that did come up yesterday -- we talked about licensed operators and their preparation for staff done up by

Unit I. There is no unit-specific license or transfer. The operators there, you know, prior to the shut-downs in '85 and going forward will have one license for all three units.

There are some sites in the country that we did issue unit-specific licenses for the operation, because there is enough differences. We don't see any -- that is not something that has really even been discussed, because there is not anything along those lines that would cause us to need to do that.

MR. SIEBER: It seems to me that's what they're trying to preserve, was this operational sameness from one unit to another.

MR. CAHILL: And from some of their perspective, and their benchmark on other facilities and their need to keep it simple, it's in their best interest to keep it operationally the same. When you start getting differences between units, that's just a set-up for mistakes to be made down the line.

And that lets something -- we have seen that throughout our oversight of the recovery, that that is a tenet that they've been carrying through all their programs, you know, just they want to implement everything consistently across all three units so that it's fairly seamless.

MR. SIEBER: But that doesn't necessarily mean that all the materials will be the same in every location, you know. In one unit they may have replaced a pipe that in the other two is not replaced, and so forth.

MR. POWERS: And I can well imagine that. But I -- other things come to mind. I mean, yes, I can ensure that the operations during normal operations could be very close. Now talk to me about shut-down.

At the very minimum, presumably there are other things that are associated with the maintenance rule. The -- especially on lay-up. How many -- what particular systems can you have out of that offlining for maintenance at the same time that would be different simply because plants are operating a different power?

MR. CAHILL: That's an -- you're going to get that same inconsistency regardless if you're recovering a unit that's been shut down since '85. You've got a three-unit site. And you start implementing an EPU, we'll you're well, then you're going to get a -- at a multi-unit site, units are never ever identical.

Someone is always out of sync, or some

unit has some outage or related mods have already done, the next one's waiting for the next outage to implement those mods. And that's something that the utilities are used to dealing with, and our oversight program is used to addressing. Did we cover that for operationally identical?

Some of the initial perspective the NRC had after getting the news from TVA was that this is the third unit TVA is recovering. And they did have success on the other two that was -- those programs went fairly well. And like I said before, they did have a good period of operation on both those units that established some credibility for TVA's ability to pull off this project

on Unit I.

And there are very similar efforts, and they have -- the approaches that they were laying out didn't cause us any new concerns that we hadn't addressed already on II and III.

Also there was -- originally Unit II was laid out to be the lead unit for the extent of power upgrade, not Unit I. So some of the discussions we're having now about Unit I were not in play back in 2002 when we were discussing this.

Also something that was laid on the table

fairly early was we had some dialogue with TVA. TVA launching into this project had a need or a desire for budget and regulatory predictability.

They knew that they oversight that we had done on Unit II and III was fairly significant. There was -- a lot of resources were applied to it. And they were trying to understand what type of oversight we would apply in this case. And I'll discuss some more, like, one of the points that we raised in that discussion later.

But overall, with the scope of what TVA was planning to do, we did not perceive the need for the same level of significant oversight that we had previously. We had to have formal restart panels through the whole process. And we had to have an extensive amount of resources that were applied to both of those recoveries.

One of the things that also was discussed early in our perspective was things are a lot different now as far as the NRC's oversight at this time in 2002, one of the most significant ones being the implementation of the ROP that was not in place for the -- either of those two recoveries.

TVA had originally requested that we use the ROP for recovery of Unit I. We listened to that,

but we had some fundamental problems with that. We didn't think that would work. And some of the points on that is the ROP complicated documental thresholds. As many of your are familiar with our current report, we don't weight a lot of opinions and just what we saw type of things, unless we have something that rises to the threshold of a finding.

And we didn't -- we did not think that that would be very useful for us in documenting the recovery effort over -- of a unit like Unit I. It also -- things like the inspection procedures that were not really applicable to inspecting an operating unit that's at power, or going through each team refueling outages. Not the unique situation that Unit I was in.

Also enforcement was a key thing we discussed. The enforcement basis for the ROP is a significance determination process. And that significance determination process being a risk-informed process is based on the risk associated with an operating unit.

We are very familiar with the efforts we had done on II and III, and the recent licensing of Watts Bar -- the type of issues you find on a recovery are not the ones that can really be processed through

an SDP based on an operating reactor. They're more of a work -- work -- the quality and program type of issues.

There was also the -- the pre-ROP verifications that were done on all the operating units. There was actually a very conscious effort to roll all the operating units in the country into the ROP. That was never done on Unit I.

Things just validated the performance indicators and things like that. And also the assessment process for the ROP -- the action matrix -- again, very predicated on the color of the findings we get out of the SDP. And that would not really be applicable to the oversight of the recovery units, so --

The need was set that we had to do a manual chapter. And some of the considerations that we laid out when pulling this manual chapter together was a lot of the issues -- and they touched on this briefly yesterday with you, their special programs that TVA defined as necessary to be resolved before they could recover the units.

Those are programmatic issues. And a lot of those had already been fully addressed for the Unit II and III recoveries, and all we really needed to do

was verify implementation of them. We didn't need to do reverification of those programs, because TVA was basically taking them off the shelf, and now just applying them to Unit I.

A good example is like fuse control. They had a fuse control program problem back in the mid-'80s. They implemented that. We are very confident in their ability to control their fuses. We just need to make sure they put the right fuses in on Unit I. So we didn't need to reverify that whole program. So we tried to incorporate those type of things in the manual chapter.

The other thing that was very important to us is to make sure we ensure a clear document trail for everything we did on the Unit I recovery. As I answered before, there are a few reports that we've been working with for the last several years. Are -- they don't document a lot of critical thinking. They document the results of the finding if we have something.

But we recognized that we needed to have a clear way of documenting how we resolved every issue that was open for Unit I to make sure that it was clearly resolved at the end. And our thought process was to be ready at the end when we would be briefing

an organization like you, the Commission, or dealing with any intervenors that might come up and you know, particularly challenge a certain issue and say, How did we resolve that for Unit I?

We wanted to make sure that we could pull a report where it was clearly documented that we looked at it, what we did, and what our basis for closure was.

And also, like I said before, there was a desire to do this with a different type of oversight, not establish a formal restart panel from the beginning, and also not to use the Manual Chapter 0350 process, which is -- has some implications politically as far as the performance of the licensee, and also requires a lot of live oversight wickets that we didn't think were necessary in the beginning of the project.

So the Manual Chapter I'm mentioning now, Chapter 2509, was developed jointly by Headquarters NRR, the IIPB program office, and Region II. It was also done very openly with TVA. After -- till we had come up with a draft product. We did have a meeting with TVA where we shared that with them. We issued that as a public document to make sure that it was clearly out in the open.

That was a very productive effort, because TVA raised some concerns that we had not thought of. So after several months of interaction, we did issue the Manual Chapter in August 2003. And this specific Manual Chapter, specific to the oversight of Unit I recovery, because it's a fairly unique situation, there was some discussion about the applicability of this to new construction. And that was one of the reasons we decided to do a separate manual chapter, because it really was not analogous to new construction.

A couple of key points -- and I have copies of the manual chapter, if any of you would be interested in looking at it.

MR. POWERS: I think I would.

MR. CAHILL: There's a couple of points in the Manual Chapter that I just wanted to emphasize. The open item closure criteria -- we relaxed the criteria that we had used in previous restarts, which was basically the whole thing was open till the very end, and to inspect every last thing until the final implementation.

As I mentioned before, like some of these special programs, we didn't need to reverify those programs. So we took -- we added some criteria that

are laid out specifically in the Manual Chapter that my inspectors and Marc's inspectors use each time they close out an item, that it basically allows a credit to be applied. If TVA is implementing identical solutions like they did on Units II and III, and it's tracked in one of the programs that we've already inspected and have confidence in, we can close out that item before the last piece of equipment is actually installed or the last test is done.

We're still going to be involved, obviously, with the restart testing and all the validation at the end. But it allowed us to make reasonable progress on the list of restart items and to spread those over time.

The Manual Chapter also establishes a lot of public communications expectations. There is a series of meetings that we've been doing, rotating between the sites, Region II, and headquarters, that have been done just to discuss the status of where TVA is in this project, and our perspective on how they're doing.

We just had one of those July 20 here in Region II. And we've been doing those in an approximate nine-month periodicity. Now that we've gotten closer towards the end of the project, we'll

probably accelerate that to more like a six-month periodicity.

But it's meant to just give opportunity for any stakeholders in any locations that would be interested to have a chance to interact with us and to hear what progress is being made.

Another key thing that's laid out in the Manual Chapter is the oversight level. And I kind of alluded to this before. But it keeps the oversight level at a regional level until the restart -- the formal restart oversight panel is established.

And the Manual Chapter alludes that that is a decision by the regional administrator, and the panel would be established approximately 12 months before restart. Right now our intention is to establish that restart panel at the beginning of this fiscal year to -- that's a little earlier than 12 months, but we've decided that it was an appropriate time with the activity base that TVA has over Unit I, that we need to get that level of oversight in place now, to get it set and get it -- get the process moving.

The other thing, that there's a lot of detail in the Manual Chapter talking about the report documentation guidance, that uses the document that we

used to use for reports prior to the ROP. So it allows us to document a lot of critical thinking. And that's an expectation that Marc and I have for inspectors.

That it's very clear to any third party uninformed reader that it's very clear what we were looking at, and what our criteria was, and how we came to the conclusion that this issue was resolved for Unit I restart. That's an important point that we have to continually emphasize with our inspectors.

One thing I didn't mention was -- TVA did this -- did request that we use the ROP. And like I said, we decided that wouldn't really work. But after getting further into the exploratory project for this Manual Chapter, we realized there are parts of the ROP that would be very applicable to Unit I.

And we came up with a framework that would -- that was laid out in detail in this Manual Chapter on how to transition Unit I into the ROP. Like I said, that's not something we had to deal with in Units II and III. So it's unique. It really hasn't been done with any other plant, with the exception, possibly, of DC Cook, who was -- and their long shut-down when the ROP was implemented, and they had to get them transitioned into that.

We came up with a plan to do that on a cornerstone-by-cornerstone basis. There was center cornerstones that -- fundamental tenets of the ROP. And we decided that looking ahead, that several of those cornerstones -- they're not really unit-specific. It would be very easy to give an ROP treatment.

So we laid that out in the plan there, and I'll talk a little bit more in detail about what progress we've made along there later. But that was -- I think TVA was happy to hear that we basically put that part of it in there, because it was a reasonable acceptance of their request to use the ROP. And it also allowed us to keep the parts of the old traditional process that we needed where it was appropriate.

Another key tenet that's in the manual chapter is the use of traditional enforcement during this recovery process and before we put a cornerstone into the ROP. As I mentioned before, the significance determination process, with its risk-informed focus on an operational unit really wasn't going to be a useful tool for us if TVA had performance issues.

We were all very familiar with the traditional enforcement process we used for Unit II

and III recovery, and for construction plans like Watts Bar. We know that that was the tool we needed. So that was a departure from the ROP, and it was something that was -- there was really no framework laid out to do that.

So we put that in the Manual Chapter, and just to make sure that we were doing this as clearly and out in the open as we could. There was an informational SECY paper that was issued in July 2003 to inform the Commission of our plans to do this. And also it laid out a lot of the details in the Manual Chapter about not using the ROP, and approach that we were going to be using for our oversight.

Okay. That was about all that I was going to talk about on the Manual Chapter right now. Is there any questions? I know it's dangerous to ask you guys if you have questions. I learned that yesterday.

The next thing I want to talk about was resources. Very quickly in this process we laid out the resources that were going to be needed for this and the oversight that was going to be needed. One of the very first things was the assignment of the oversight for the recovery in Division of Reactor Projects. And that was a DRP branch chief, which was discussed in there, generically, was assigned part of

the oversight. And that's me. I'm in the Division of Reactor Projects.

But also Mark Lesser is my peer in Division of Reactor Safety. He owns most of the engineering inspectors that were -- that are owning a lot of the issues that are on our restart list and have history with Units II and III. So the residents at the site work for me, and Mark runs most of the specialist inspectors that go out there.

So we jointly share oversight up until the restart panel was established for the day-to-day inspection and oversight of TVA's recovery effort. And that's not to say that the licensing aspects -- NRR took care of that also took care of that also very early, dedicating a full-time project manager, who now is Margaret Chernoff, who I think most of you know, to be over just Unit I, specifically. And that was with the amount of licensing and initiatives TVA had to file. That was a good allocation of resources in hindsight.

We also assigned a Unit I Senior Reactor Operator. You met them yesterday, Bill Bearden. And we also assigned an extra resident inspector, in anticipation of that person being a permanently-assigned resident, when you get up to a three-unit

staffing level, where you'd normally have two residents at the site.

So right now at the site -- you didn't meet all of them yesterday. But I have two senior residents, Bill, and a fellow named Terry Ross. Bill takes care of Unit I. That is his sole focus. He is worried about their -- the activities going on in Unit I, and is not doing any oversight of the operating units.

And Terry Ross, the senior resident -- the normal senior resident, is exactly the other side of that house. He is keeping an eye on Units II and III, and implementing our baseline program. And his only involvement with Unit I is when the activity in Unit I can potentially impact the operating units.

It's very analogous, that I think what you saw a little bit yesterday from TVA, that they are going to have a Unit I organization that's focused on the recovery. And then they have their operating organization.

And we've preserved those roles since the beginning of this project, when Bill arrived. And it's been actually very beneficial. He keeps our focus on what's important for each of them, and doesn't get them distracted in their responsibilities

to it.

And we have two residents over there. And they're a shared resource. They work either for Bill or Terry, depending on what activities are coming up. And we try to look at what their skills are, and whether they'd best be suited. But generally one works primarily on the Unit I recovery, and the other one works mostly on the baseline.

MR. RANSOM: This was addressed a little bit yesterday. But having three units in such close proximity -- does that cause problems when you're working on one to the extent they are in Unit I? And I'm wondering if there is a history of problems, that because of the interaction -- I understand there are some benefits, but --

MR. CAHILL: There was more of a history back with the other unit recoveries about that. And that's one thing I -- TVA didn't really make a big point about that. And they have in a lot of previous presentations, about how they have that separation set up. I don't know if you notice, a lot of the Unit I workers have -- they're like shoplifting-type tags on their badges that would alarm if they cross over into one of the operating units. There's gates they go through.

We walked through a lot of those yesterday on the site tour, that would set off an alarm, lights would flash that say you're entering an operating unit, because the Unit I people are not supposed to be in an operating unit.

And that's just one of the barriers that they put in place to ensure that they can minimize the impacts on the operating units from the significant effort that's going on with Unit I, with the 2,000-plus workers that are in and out of there.

They've created a -- they've got a lot of facilities for -- to support the Unit I workers on the other side of the site that we didn't really get to. There is an extra gate access over there for them to come into security, and even an extra way for them to -- oh, not any more. Bill is shaking his head.

MR. RANSOM: There's a little bit of a concern when you see pipes and wires, you know, crossing from one unit to the other, and --

MR. CAHILL: The only place we -- and there is concern, and there will always be a concern with Unit I, which has been unique at this -- up at -- it hasn't been a problem with the other ones, but you heard yesterday that Unit I needs to -- or they have a lot of shared systems that are intertwined.

And you do run into a lot of work, you know, you'd be in a -- like in a switch gear room, where they're doing Unit I work. But it -- those panels need to be energized and need to be active to support Unit II work. So that type of activity does occur, and quite frankly, there really hasn't been any significant problems that have occurred.

I mean, our inspectors do look at that. That is part of Terry Ross's role at the operating units. If he knows there is Unit I work going on in one of his, you know, operating switch gear rooms, he's going to assess and have his inspectors assess to make sure that all the planning is done right, and there really isn't too much of opportunity for an impact.

But it's been -- considering the scope of work that's been going on, and the intertwined nature of Unit I and II, there really have not been many -- any significant problems.

MR. LESSER: And I can add to that, Steve. Back when Unit II was the only one operating, they really implemented controls to address that when they -- after they got Unit II running. And -- which include color coding of rooms, equipment, and structures to really separate the two, and keep

workers aware of staying off the -- it was really to protect the operating unit. That's what they want to do.

They didn't want any interference from, you know, recovery activities, impacting operating units. So that's been in place for many years.

MR. SIEBER: Most of the licensees relied on the clearance program as a way to make sure there is not a misoperation in an active unit from something that is going on in an inactive unit.

And I saw lots of clearance tags that looked like boundary tags to me, issued by Unit II, which Unit I people aren't allowed to touch.

MR. CAHILL: That's -- they are doing all the tagging out of the operating units just for that precise reason, because that's the primary thing they're trying to avoid, is the operators in the operating unit know what could impact them.

MR. SIEBER: Well, that's where the energy is, and that's where the risk is. I have a quick question for you. When I walked through the Unit I, it looked to me just like a unit under construction. And when I recall days when we had the units under construction, where I -- some that I worked in, there was a different NRC program and inspection method

which looked at things like radiographs, and examination of wells, and so forth. And that was a pretty extensive effort, as I recall it.

And it's certainly different than the kind of effort that occurs in an operating plant. Do you look at all -- at Unit I as a plant under construction, and do you employ any of those inspection techniques and aspects from the old construction programs. Or are you relying totally on 2509?

MR. LESSER: Well, the answer to your question is we do rely on techniques form the construction program, because the Manual Chapter, in fact, does reference inspection procedures that are construction inspection procedures.

So -- and a good example might be pipe replacements as part of their IGSCC program, where they installed new pipes, welded them. We've had inspections of that ongoing for the last few years. In fact, we're just finishing that up. But our inspectors, in fact, did sample and inspect their activities associated with welding, NDE, radiographs, ultrasound and things like that. So the answer is yes.

MR. SIEBER: And I take it the inspectors

that do that are all region-based?

MR. CAHILL: Yes. Actually, Bill Bearden used to work for him, and he has a lot of engineering inspection experience. So he's a good asset to have on the site, because these are helpful planning marks. So it's always a -- as you know from construction, the scheduling challenge -- when is the right time to get there to see things. But --

MR. SIEBER: Yes, I need to study your Manual Chapter a little bit more. And I'm sure I'll better appreciate what you're doing. But I -- your answer gives me comfort that you're doing it the right way.

MR. CAHILL: We set up the Manual Chapter to give us flexibility to use all those old procedures. Basically, we could use any procedure that we can find off the shelf in the manual chapter. And that's what Mark's saying. We pull a lot of those old construction type of procedures as -- because they're the appropriate guidance for the activity we're looking at.

MR. SIEBER: Okay. Well, I think you're doing the right thing, so I appreciate the answer. Thank you.

MR. CAHILL: And the last thing I wanted

to mention under resources was we're currently in the process of assigning another resident inspector out at the site, knowing that one of the existing residents will retire probably at the end of this project. We're basically using our allowance, the double income -- that we would need on an operating site to get somebody out there early so that they can get up to speed and familiar with the site.

And also the support -- a lot of the operational type of activities that are coming up, you presented yesterday with their SPOC and SPA [phonetic] process. That -- a lot of that activity falls into the residents arena for inspection, as they integrate the unit into the -- start integrating and bring systems back and integrating into the operational units. We know we're going to need more resources over there towards the end,

that's going to accomplish two goals for us.

The next item I was going to talk about briefly was the regulatory framework. TVA mentioned this to you yesterday. And they actually did establish a regulatory framework in their 1991 submittal. And they submitted it for both Unit I and III, incorporating the lessons learned as they did from the Unit II restart.

But in 2002, once they announced the project, they basically needed to update that. A lot of it -- a lot had transpired, since that was the last real correspondence on any framework that was done for the Unit I.

So there was a series of correspondence in 2002 and 2003 that updated the Unit I restart scope. And that was TVA's perspective. They submitted that this is what they considered the regulatory framework to be. That was primarily an effort that NRR took on, was to validate that; did we agree with that. A lot of it was, you know, similar or same issues that were on the table for Units II and III.

So we also looked through our databases to verify that such things as generic communications, Three Mile Island action items, things like that -- that TVA had captured them all. And that was some of the correspondence and discussion that went back and forth in 2000 and 2003, was to make sure that we had a list that everybody agreed upon, and that we initially understood regulatory framework.

So in August 2003, we issued a Final Regulatory Framework agreement letter, that basically endorsed the results of our conversations and endorsed the last submittal TVA had.

And that regulatory framework includes things like the special programs that TVA defined when they shut down in '85. It also had other things like bulletins, generic letters. I mentioned Three Mile Island Items -- a lot of things that were out on the docket for previous units, and that we knew that were still open and not resolved.

One other thing though that was beyond that -- after that was established, the Region did an effort to go back and scrub all our databases. We had numerous tracking databases for open items over the years. And as we transitioned between those, sometimes they -- you know, it wasn't a clear trail on how some issues were resolved.

We also went back and looked at all the old Unit II and III reports and other intervening reports, looking to establish where each item was resolved from Unit I.

And what we find is that there is some vague documents out there on the docket as to what Unit I's status. We would close -- for example, we would close a certain, you know, inspector follow-up item for Unit II, or actually, the last unit, Unit III, and it was inferred that it was resolved for Unit I. But it wasn't clear.

If it wasn't clear to us in the documents that we found, we just threw it on our own internal tracking list. We basically reopened the item in our tracking system, and it was put on the resident's list to start running down.

And our effort -- I mentioned before, we were thinking towards the end of this project, we were thinking of the challenges that we could possibly get as to how this particular item was resolved for Unit I. So the focus of our effort was basically to look under eery rock.

So aside from the stuff that was established between NRR and TVA as far as the regulatory framework, what other loose ends were there that somebody went and started, you know, doing their docket search and started looking at old reports that they'd pull out and say, Aha, you missed this one. That was our intent, was to make sure that nothing was missed.

And most of the items that are in this population that I'm talking about were previously addressed for Units II and III, and all -- in almost all cases, they wound up being a paperwork exercise for us to verify that it truly was resolved. But that goes, again, back to our documentation threshold that

we have in our reports, that makes it very clear that we document in the reports that we do look at this and we verify that it's resolved, and now we know it's resolved for Unit I.

MR. LARKINS: So now it's the -- would you say the scope then for the restart is pretty much finalized?

MR. CAHILL: Yes. And I'll --

MR. LARKINS: Because I noticed on the chart before that you talked about scope growth. It sort of seemed like there was still some open items that we're doing --

MR. CAHILL: Scope growth -- we're looking closely at what TVA is defining as when they get into systems and work. And right now I think this regulatory framework is pretty firmly established. We have not -- just after we completed this effort early in 2004 was really the last things we were looking at. There really hasn't been anything of a scope growth issue that it's covered.

There are some things that are -- that a good example of something that we recently are addressing is the maintenance rule -- the implementation of a maintenance rule. That wasn't really an issue for Units II and III recovery because

the rule wasn't out then. And it's not something that was really clearly defined in the regulatory framework.

And it's not truly an open item, but it's something that we know that we are going to have to take a look at to make sure Unit I gets their program up and operating. Just like we did for all the units in the maintenance pool when we did those initial inspections.

That is -- those are fairly isolated examples. And that's about the only extent of those scope growth we see. And we're closely monitoring what TVA is doing physically. I mean, they're constantly just scrubbing their schedule and looking at the project.

And we're looking -- Mark in particular -- his staff looks closely at the schedule, as does Bill Bearden, to see is there any significant scope growth that's going to alter our plans, because we're fairly resource-loaded out to the end. And scope growth can have a significant impact on both TVA and on our schedules.

MR. THADANI: What about issuing -- what's the role of PRA in the scope?

MR. CAHILL: The role of PRA is -- the

regulatory framework is not risk-informed. It's the stuff that was established and all the issues that basically needed to be resolved. Just as any unit that's been shut down, we have a restart list.

The PRA comes in for this. And it's mentioned a little it in the Manual Chapter. There are other -- there's a lot of activity as you saw. And I'll mention it later. We issued our restart list publicly for the first time as part of the meeting summary for this July 20 meeting. That's the first time our version of it has been out there since the framework TVA has established.

But there's a lot of other things going on at that site. There is a lot of -- like the perfect example is the SPOC SPA process you went over yesterday. There is a lot of systems that there really is not anything in the restart scope particularly for, you know, reactor water cleanup. I think that's one we talked about yesterday and in July.

And I'm just speaking off the top of my head, but I don't think we have anything in particular associated with that system. The PRA comes into account when we decide which systems we're going to verify they're SPOC and SPA process. How involved are

we going to get? It's a risk-informed decision.

Those are risk-significant systems that we really haven't touched and other avenues which -- like Mark mentioned, the IGSCC program, when you get other restart piping replacements. We have been very closely inspecting them, and there's really no chance that we missed that. But if there were some other similar type effort going with a risk-significant system, we would add some additional inspections to our routine oversight to make sure that we had a regular footprint there, that we could see and validate some of what their effort is.

MR. THADANI: The generic letter 8820 that went out to licensees, including TVA, asks that the licensees look for opportunities for safety improvements and how they have to do certain things. Is that within the scope to look at that, or has that already been done?

MR. CAHILL: Their -- the improvements that they did on II and III as a result of that are in the Unit I scope. And I don't think there was any -- basically TVA's intention was to make the operation identical on the -- if there is -- not that I know, to look for new things to add on to Unit I.

If they were intending to do something, it

was something they would want to do with all three units. We had -- the PRA has -- it is a special program. So it is a line item on our list that has to be -- a submittal we are going to be inspecting. We have already looked at some of it already.

MR. POWERS: There was probably where we asked a number of questions in connection with fire protection at the meeting, and got a minimal amount of information in that regard.

One of the issues is where they stand on reconstituting the fire protection licensing basis. My understanding now is that they do. They have done that for II and III. And that it's in the works for I. Who is looking after that?

MR. CAHILL: Do you want to take this?

MR. LESSER: Yes. That's -- yes, we got inspections scheduled to look at the whole fire protection, Appendix R implementation.

MR. POWERS: This is more their licensing basis. I mean, it would be what you would look at prior to doing the inspections. That comes to you when you review and approve it?

MR. LESSER: No. Well, no --

MR. POWERS: They just set it up and you look at it?

MR. LESSER: My -- I don't -- they would have a safety evaluation from NRR on their program. Okay. We will -- the region will inspect the implementation of that.

MR. POWERS: They have five exceptions to -- their Appendix R plant. They ought to be the quintessential Appendix R plant. They have five exceptions to that Appendix R. Do you happen to know what they are?

MR. LESSER: I don't know. I can find out.

MR. POWERS: They don't seem to either.

MR. LESSER: Our inspectors know.

MR. CAHILL: Yes. This has been a very big challenge for us in timing when to do this. This is a -- there is a lot of parts to fire protection that fall onto our plate. One is the special program,a nd the verification of that. We're waiting for, you know, TVA to give us good schedule information on when they're really ready for us to be inspecting. It's been a moving target.

We're also -- we have a significant fire protection program in the ROP. And part of our effort, which I'll discuss a little bit later, but we have to figure out a way to transition over to the ROP

inspections. So typically what we've been doing in those areas is first, the most significant ones, we do like the equivalent of a triennial fire protection baseline to try to roll in Unit I to see if our program complied and if there is any loose ends, and if TVA is far enough along.

MR. POWERS: Well, it seems to me that this is one of those things where you'd want to go ahead and do the triennial at the front end here someplace.

MR. LESSER: Well, we're going to -- what I -- we haven't really started that. That's one of the programs that has not been started in too much substance yet. But we're going to do, you know, special efforts on just Unit I first outside of the ROP, outside of the triennial fire protection inspection. Just for Unit I.

MR. POWERS: That's what's -- that's what was very confusing, because at least when you look on the activity charts, somewhere buried down -- if you go enough lines down in the Charter, enough charts through, you'll eventually see there's actually quite a number of activities going on in connection with fire protection.

And you can't figure out exactly what's

being done, and you can't -- now I'm not exactly sure where the fire -- where the inspection part of it comes in.

MR. CAHILL: We issue -- at the end of this month we issue a -- as part of the ROP, we issue our assessment letters. Also we issue an inspection schedule. And for Unit I inspections we've been just issuing them as part of the Browns Ferry assessment letter. So it's one schedule that Bill Crouch gets that shows all the inspections coming from Browns Ferry.

And it's going to have several fire protection inspections. We've got a preliminary one -- I think it was for two people this fall, and then we've got two more scheduled for next year. And they're all -- all in all, it's one of the more significant efforts that we're -- that we have as far as the amount of resources that in the end will be applied before we close up this restart; it will be one of the top five.

MR. POWERS: I wouldn't think that there would be a lot to worry about here, because Unit I is -- has escaped all these troubles we've had with fire protection barriers and things like that over the last ten years. And so they have to catch up. And so

there is a lot of catching up to do here.

MR. CAHILL: Uh-huh. That's all. All right. You'll have him -- Charlie Payne is on the schedule tomorrow. And he is the branch with that responsibility. And he has been -- he is the closest to the planning and the scope of what's going on with this, and he can probably speak to it better than Mark and I can right now.

But it's not something that we have not had on our radar, and it has been something there had been a lot of -- topic of a lot of discussion as far as the sequencing and the scope of what we're going to be doing.

Okay. I'll go to the next one. I'm not going to get too far into this. I just want to talk about the TVA schedule and plant condition.

Overall, we monitor TVA's schedule pretty closely. And their project is relatively on track. You heard a lot of specifics yesterday. And that's obviously something we're going to pay close attention to, because a lot of our milestones are dependent on their performance.

There is a current emphasis by TVA on productivity and making sure that their schedule really does reflect reality. We've been very closely

monitoring the results that they've been getting from that. They want to make sure that they really get the work out of the folks that they need to to keep on their schedule. So that was a significant effort that TVA has been going through the last couple of months, to rescrub their schedules to make sure that they really are where they think they are.

And TVA has been very -- the management oversight of Browns Ferry I we've been closely monitoring, and it is very actively and closely monitored by their senior management. They've been holding people accountable, and they've been changing people out when their performance hasn't gotten to the level that they needed. So that's not something that we've had any concern with. Their oversight is pretty close.

TVA staffing -- I just -- just to give you a perspective, and I was kind of disappointed yesterday when we went to the reactor building, it was lunch time. So you really didn't get a sense of the pace of activity.

But there has been approximately 2,500, 2,600 people dedicated to the Unit I project on site for the last two years. And normally, when you go into the reactor building like we did yesterday, there

would just be tons of people around. It was fairly deserted yesterday because of the timing that we'd gone through there on our tour.

But the activity level, with that many people on site, was very evident normally when you walk around anywhere. And I wanted to make sure that you understood that, because you didn't get that perspective just through the timing yesterday.

MR. SIEBER: Well, that brings up a question that I had, you know. I actually did see some various numbers in my head to come up with the number of 2,500 over that period of time to spend all the money they said they were going to spend. And so that's the number.

When I look at what they're doing, again, it looks like there is construction programs. So I asked the question, are you doing this work under your maintenance and modification program? And the answer, I sort of gathered, was some of it is, most of it is not.

And so I have to ask myself, a plant under construction that is doing this kind of work under a construction program has an altogether different set of procedures than an operating plant has. And --

MR. CAHILL: That's one thing, when TVA

laid out in the beginning they were going to use the same programs and processes, when they're doing all these changes, the physical changes that you see in the plant, they are using their normal design change modification program. They mention DCN as their term, Design Change Notification. That's their term that they use on all their -- all three of their sites, and it's the process that they're using on Unit I, just as Unit II and III were in an outage. It's the same process.

MR. SIEBER: Now, they had a -- most licensees had a set of construction procedures that told you things like how to fit up pipe and how to make welds and how to do M-preps and how to install hangers, and how to determine a wire and label and all this stuff.

I take it those are referenced by their design change process and engineering change notices?

MR. CAHILL: Those are the specific procedures. I mean, I -- they've got -- TVA has a robust set of different procedures off the shelf for all different disciplines. And they've got those, and those just weren't construction-unique. I mean, they still do some of those activities. They still have those.

MR. SIEBER: Yes, most licensees do. One of the things, I guess, that brought all this whole line of questioning into my head was back when I asked them about organization, you had a maintenance program over here and a construction-like program over here. And it was married at a pretty high level.

And you know, I was sort of surprised at that, and needed to know, which they really didn't tell me, whether there is one overall blanket plant maintenance program that includes not only repair, but replacement of commodity-type stuff like piping and wires and so forth. And whether they're treating it as one would treat a small design change like if you're installing a feedwire control system or something like that.

And I think what you're telling me is that, yes, it is blended into the plant procedures, and the construction procedures and the field procedures are referenced in part of the plant set, and when you're inspecting it that way.

MR. CAHILL: What they presented to you yesterday, when they talk about their Mods organizations and their maintenance organization, that's TVA's standard organizational setup at all their sites, and it's the same organization they used

at previous recoveries.

They had a conscious division that modifications is the organization that implements the design changes from engineering all the way up to the final testing before it gets turned over to the operational side. And that's part of what the SPOC SPA process of the men in the maintenance organization wanted, as far as the maintaining and the -- the -- you know, all the things that go with the normal maintaining of the system that is not considered operable, and on the operational side of the plant.

So they keep a firm line organizationally, and in their process with that, that MODS owns it until it's done -- done done, as Rupert said yesterday -- and turned over to the operational side.

MR. SIEBER: I guess how they do it is, you know, up to them. There's a lot of folks who -- some do it that way, other -- a lot of them they don't do it that way. But that's okay. That's not for us to decide. But I did need to understand it.

MR. CAHILL: Just to give some insight on that staffing level. I mean, initially, when the project was started, the bulk of that large work force that I had there was engineers and those type of folks. And gradually, as the engineering work has

been resolved, it has been shifting. The engineers are going away and there has been a lot more craftwork. And it's pretty stable now.

Just to give you some insight. The beginning of projects, there wasn't a whole lot for us to inspect. The engineers were doing design work. And most of the physical work that was going on in the plant was what we phrase demolition. They were removing all that piping that they've been telling you they've been replacing.

We did do some inspections that early in the program. Just one of the ones that comes to mind is the health physics inspections. We verified that they were applying health physics programs and managing, you know, LARA principles and doing all the right things as far as this demolition program was concerned. But it's -- aside from that, there wasn't a whole lot of things that we needed to have on our regulatory plate that we needed to look at in early phases of the project.

The fact that some of the outputs of their design -- and something Luis Reyes wanted to make sure we got involved with early, is doing some reviews, and once they had designs done. And Marks's inspectors were most of the ones doing that early in the program.

And Mark is going to go through -- I didn't really lay this out in the beginning, but he's going to go through a lot of the specific inspections and specific areas we looked at. So I'm not going to go touch too much on that.

I did want to mention I did had a little bit to talk back here about the SPOC process. I mentioned yesterday when TVA was talking about it, this is a process we're very familiar with . It's the same one they've used previously on the Unit II and III recoveries, and they used at Watts Bar when they licensed it.

So we understand that program. We've already inspected it as a program. So we understand it -- they're doing pretty much the same thing they've always done. And we know that the program, if implemented properly, works. So we started on some of those support systems. We had done a couple of inspections on some of those. And then you mentioned, you saw it in some of our reports.

We're not planning to look at every -- I think they have 60-some systems. I mean, obviously this is where it's going to be a risk-informed.

And for some of those ones, their systems will have some other means -- or reasons for looking

at that system, and other ones we're just going to take another -- the ones that are risk and safety significant, we'll make sure that we include those in the scope of our routine inspections.

The second simulator that they mentioned yesterday -- they did just submit a letter to us saying that they completed all of the ANC testing and they gave you enough information on that yesterday, the need for it, that we think it was a very proactive and a good move on their part, because with the number of new licenses that they've got in their pipeline, plus the recall demands for the three-unit site, that it would really be onerous to try to come up and run with just one simulator with the current operator requirements that exist.

So we've looked briefly at the scope of what they put in that simulator, and we don't -- we're not planning to do any more overview or inspections of it. It's complete, and they're going to be using it. Everyone will get a chance to be involved with that when we do re-qual inspections and the initial operator licensing exams.

I'm just going to go through NRC inspection status. And beginning in 2003, we started issues the integrated quarterly reports, so all the

inspection effort that we do for Unit I is contained in one integrated quarterly report that goes on the calendar quarter.

Aside from some Torus support issues that resulted in some escalated enforcement in 2004, which Mark will discuss, Browns Ferry I performance has overall been pretty good. There's been very few issues identified.

Our Recovery Issues List is fully developed now. This is the -- most of the standard restart lists that any other unit that we've ever recovered or been in an 0350-type process, we've always had a recovery issues list.

It incorporates most of the items -- well, it incorporates all the items from the regulatory framework that TVA and the NRC agreed on in 2003. And it also adds some other things on there that we've mentioned before, like maintenance rules, one we're going to be adding on there. Just make sure we've got that tracked as something that we need to take a look at for restart.

And we're going to be using that also as their tool for any other thing that would come out like license renewal, or EPU reviews that will be tied to restart. We're going to try to include them in

also.

But that was issued for the first time as a public document the beginning of this month when we issued that meeting summary. That was a significant milestone for us to get at the point where we could actually share publicly with TVA and make sure we're working off of a common list.

And in that, all items that are in that have an owner. Most of the owners are either the resident inspectors or Mark has a large stable of specialists that own each issue, each line item on there.

And one of the things you also see there is sometimes there is two names. From the beginning of this, a lot of the folks that are owners of the folks that were involved in the Unit II and III restart or have a lot of experience here in the region -- those are the fellows that are close to retirement.

So we paired most of them up with a lot of the newer staff we have, to make sure that we've got defense in depth for any issues. Somebody decides to retire earlier than we had planned, and also just to help with the development of some of the newer staff we've had.

So usually when Mark sends somebody out for a review of a special program, it's two people. It's the owner and the newer fellow or lady that's fairly new to the agency.

Other things that we tried to include on the list which was a significant project to pull together was if there was any Unit II or III precedents for closure issue, and any other actions that were put out. There is a lot of SCRs, particularly from the Unit II recovery. We tried to reference those to make sure this list was complete. And it would -- it's really a very significant tool for our inspectors when they go out, to be able to understand what cross-references and what precedences there are for each one of the issues.

TVA started at the end of last year issuing a quarterly restart items update report. So everything that they have on their regulatory framework they issue a quarterly summary of where they stand with all those, and what their plans are, which ones they consider closed, and when they are planning to tell us that things are closed.

And now that we've issued our list publicly, it will make those line up a lot better in sync, and then we can do more effective planning

between the two of us. But that's been helpful just since TVA has started doing that, for us to make sure our planning is set.

Our work-off projections, which are somewhat dependent on TVA's plans -- but we're looking at trying to get the bulk of the open items closed in advance of when they really start restart activities, because our focus towards the end, as you heard yesterday, is going to be more operational, how to integrate this unit into the operating units, and you know, we're planning to do some sort of ORAT -- operational readiness assessment team -- overview, towards the end.

So our -- this inspection schedule, I mentioned again before, that's going to come out for Browns Ferry is a fairly significant work for us, because it's an 18-month schedule. And it carries through a lot of this project to the end. So we have to make sure we have all the resources aligned to make sure that we get all these things that are on our list closed.

MR. POWERS: We have spent quite a lot of time discussing their operational readiness review. And I think it seems like a fairly-extensive undertaking that they got. Have you looked in detail

at their plans?

MR. CAHILL: The plans that Mr. McGrath presented yesterday?

MR. POWERS: Uh-huh.

MR. CAHILL: Not in detail. We've looked at them and -- from the point of view that what they are proposing to do is fairly similar to what they've done with the other recoveries, what they did with Watts Bar when they started up. And from that point of view, we consider it an appropriate level that they're getting a lot of -- putting the onus on their organizations to do their own self-assessments. And they're also getting appropriate third-party reviews.

I was a resident of Watts Bar when they started up. And what I've seen that he presented to you yesterday is very analogous to what I saw when they did the Watts Bar when they started up.

I -- we don't have any concerns with what their plans are right now.

MR. PLISCO: I think once we stand up to the oversight committee -- that's really one of their primary focuses, is, you know, looking at the end game of what we need to do and what they're doing at the end.

And that's why we stand up there.

Oversight is not only to go back and look what Steve and Mark has done, make sure we've got a ribbon tied around everything, but also looking -- you look at the end game and how we're going to do that.

MR. POWERS: The usual feeling in an operational readiness review is that there is so much to do that you miss things if you try -- start too late. And then you really have to get in very early in the operational readiness review, or you will -- I mean, it's just human nature. You start blowing off things -- just because there's so much to do.

MR. CAHILL: That's one of the things I was driving at. I decided to get an extra resident out there, someone with an operational focus to get there and get acclimated and be able to basically do some inspections of those typical activities.

ROP Cornerstone Transition -- I just wanted to touch on that. And per the Manual Chapter, we're allowed to take an individual cornerstone basis and transition things into the ROP. And some of the framework that was laid out for that was to do transition inspections and track all this with the transition matrix on each cornerstone.

And when I say transition matrix, we're looking at, you know, for us to be able to say a

cornerstone is monitorable under the ROP, means that performance indicators have to be valid, in effect of course, and we need to be able to do our baseline inspections.

So we did transition inspections in 2004 for -- in several areas which I'll discuss later, to make sure that they were ready for that. And that we sent out inspectors that normally did those baseline inspections to say, Look and make sure that these procedures would be -- could be appropriately used for the activities that are going on on Unit I.

And also a thought I had is to make sure there is also no open items -- restart items associated with those cornerstones. So the end of last year we did verify that four cornerstones were appropriately resolved that we could transition them into the ROP.

I'll just -- I'll mention the criteria that's laid out in the Manual Chapter which is doing this transition. It's corrective actions for the restart items have been completed, performance improvement changes have been made in these cornerstones, and programmatic aspects have been verified as satisfactory during the operations of Browns Ferry Units II and III.

And there can be four operational units. II and III have a pretty good track record. So we met those criteria. And we issued a letter on December 29 of last year that put four cornerstones into a ROP approach as of January 1 of this year.

And on the ones you might expect, it's two radiation safety ones, occupational and public radiation safety, emergency preparedness and physical protection. And the commonality with those four cornerstones is that there is really nothing Unit-I-specific about any of them.

As you saw yesterday, Unit I is just one more unit in the site security perimeter. There is no special security provisions for Unit I that would impact that program. So our inspectors can go inspect site security at Browns Ferry and roll Unit I in there fairly seamlessly.

And there is -- of those four cornerstones, there is really no open/restart issues, so as of this beginning of this year, when we sent out an inspection team doing a baseline inspection of units II and III, in those four areas, they're including Unit I.

The other three cornerstones are a lot more system dependent. And as you saw with a lot of

systems, for mitigating systems that will not be ready until TVA starts up. So this is part of the phased approach. It's a lot more effective for us to do it for these cornerstones, but they won't -- we'll hold out until those other cornerstones -- the equipment is ready, and then we can actually do our baselining.

We can do our regular maintenance role inspection on Unit I equipment. And that won't be ready until the last piece of equipment is back in service. So -- and at that point we'll make a conscious decision sometime after the Unit I restart to where those cornerstones are, are they ready to be covered under the ROP? Is there any loose ends? And at some point, after they recover, we'll actually say that they're in the ROP.

Part of that was this -- the performance indicators for some of them that are system dependent, it takes some time for that data to go in. But we do have provisions for that. We used that for DC Cook.

But they -- when you don't have performance indicators, you can supplement that with inspections. So that's part of our plan, is to -- we'll be inspecting some areas that we don't have valid performance indicators for after they start up.

MR. POWERS: We spent some time talking

about growing pains yesterday. And the growing pains are real. And we have a new system, I don't care how much it looks -- how much they think it looks like Unit II, it's not Unit II.

And will that not create a perturbation in the performance indicators? You know, the first six months it's not going to be like the next three years. And did you have to kind of go king's X on the first six months? And -- I mean, it's just -- it's a speculation on my part, but --

MR. CAHILL: And that's part of what Norm was saying, you know, the oversight panel, that that transition and when to say went through the normal routine process. It's -- there is a lot factors that we can't figure out exactly how they're going to fall into place right now. So it will be an informed judgment as to when the right time to say that they're in a normal ROP.

MR. POWERS: Yes, I think it would -- I mean, I suspect that's the answer. It has to be an informed judgment. I don't think you can sit down, okay, six months and 13 days after they start, we're now in the full ROP. I mean, I don't think you can do that.

MR. CAHILL: If you look through the

Manual Chapter you can see that we thought about that when we wrote the Manual Chapter, that, you know, the restart panel will not dissolve once the unit gets up to a hundred percent power. I mean, it's going to stay in effect to make -- to manage this transition.

MR. POWERS: Well, they -- you probably just carry -- it's something like classic inspection and monitoring -- going on, slowly bringing ROP in parallel, and then one starts disappearing and the other one starts taking full force, or something like that.

It looks like that. Otherwise, you create a burden on the plant that's kind of unfair, because that's inevitable that, you know, equipment just never seems to behave quite the way their engineer wrote it down on a piece of paper.

MR. CAHILL: And we were informed -- as I said, we had some lessons learned from DC Cook we were able to apply.

MR. POWERS: Okay, yes. I see you're right.

MR. PLISCO: They had a similar situation. They didn't have any data, and so we took some lesson plans from that exercise and plotted it out how we're going to approach it.

MR. POWERS: That's a challenge you guys face. That's -- better you than me.

MR. CAHILL: One key tenet with drawing those cornerstones in the ROP is that we're going to use the normal process just for inspection, and enforcement, if issues came up like the health physics issue comes up now, we'll be able to use the significance determination process for that, and issue a finding and using a color in a normal process, as opposed to traditional enforcement. And that is our intent.

But the key point is that Unit I is not in the ROP until the last cornerstone is transitioned and there is a decision made that they're in there, and the action matrix is effective.

MR. POWERS: Okay. I understand now.

MR. CAHILL: Even though what we're doing is an ROP treatment of the cornerstones, is the --

MR. POWERS: Yes.

MR. CAHILL: -- phrase you'd like to use.

MR. POWERS: I think that's probably a good idea. Then you can control when you put it in.

MR. CAHILL: Just some plans coming up. I mentioned we're going to establish the restart panel for the fiscal year. We're also -- NRR is planning a

Commission Communication Paper. We recognize we have new commissioners, and that they might not be familiar with some of the stuff that we communicated previously.

So that's going to just be put up as an information paper to make sure the Commission is aware of the status of what our plans have been thus far, and what they are going forward. And we did get both of the new commissioners. They were down at the Browns Ferry very early after they were confirmed.

Just a couple of other topics I wanted to touch on. Safety-conscious Work Environment and Employee Concerns Program and the Allegation Trends -- this is something that we pay very, very close attention to. There is -- whenever you have a large, transient work force of the nature of Browns Ferry I, there are concerns that are going to come up as people's jobs end and they get laid off.

We recognize that. We've dealt with that at the other recoveries. We've dealt with that at Watts Bar. And we want to make sure that we're very proactive with recognizing new trends, and if there is any issues that need to be communicated to TVA generically.

And we've actually had some success in

that. You know, very early in 2004, there was a spike in issues coming up with their labor contractor, but while not being able to divulge specifics to TVA, we saw a trend that we communicated to them, and TVA very proactively went out and addressed those, and did everything we would expect them to do and more to make sure that that trend was nipped in the bud.

So without getting into too much specifics, I wanted to just make the point that we're very closely monitoring this. But the activity and the type of concerns we're seeing are what we would expect of a project of this size and scope.

So right now we do not have a Safety-conscious Work Environment concern with the Unit I recovery. But I just wanted to make sure that it was clear that we were very closely looking at that.

The other thing I wanted to talk about was -- oh, I forgot to mention. Routine interaction -- my senior residents meet monthly with the Employee Concerns Program coordinators for TVA. And they have different Employee Concerns Programs for some other contractors, like Bechtel, the engineering contractor, has one. Stone and Webster, the labor contract, has their own employee concerns program with Lee.

My inspectors meet with them routinely just to see the type of activity they're seeing, to make sure that it -- you know, corresponds with the type of trends we're seeing. So that's just one of the things that we do to make sure we're keeping our finger close on the pulse of this.

MR. POWERS: I'm struggling with the initial, as in SWEC?

MR. CAHILL: That's Stone and Webster.

MR. POWERS: Stone and Webster.

MR. CAHILL: Stone and Webster Engineering Corporation. We throw that around routinely, and we're used to it.

MR. POWERS: I don't.

MR. CAHILL: I tried to scrub out my acronyms, but I missed one. All right. The last thing I want to talk about was this Public Interest and Involvement. Jack mentioned yesterday that -- you know, he saw that we do have a web page we set up; it's linked up with the main ROP page.

But if anybody's going to look for Unit I information, we figured that's probably the first place they'd look. And we put a link there that they can find pretty easily. And it includes that -- links to our Manual Chapter, links to our reports, links to,

you know, significant meeting summaries. So if anybody that's out there, and a member of the public, is interested on what our oversight is on Unit I, and what type of issues are going on in the -- we're finding that they can pretty much access them off that web page.

MR. WALLIS: Do you have any evidence that it's actually visited?

MR. CAHILL: Ed made mention -- I'm glad that he looked at it, but no, actually what I wanted to touch on was there's really not a lot of public interest. There's a lot of opportunities for the public to be involved with Unit I. There has been -- you know, the normal public meetings we have for -- are subsequent meetings for Units II and III. There is an annual public meeting that I conduct, which is talking about how they're doing in the ROP.

We've had several license renewal public meetings. But I mentioned the rotating public meetings that we've had just to discuss specifically Unit I restart that have been in all different sites.

We've had press conferences when some of the Commissioners have visited. And the turnout is very low. The area and the vicinity of Browns Ferry is very supportive of it. And there is not a lot of

active intervenor groups.

There are some groups that we used to see, you know, particularly with Watts Bar. But they're very fervently anti-TVA. And we expected that. This is part of what I was preparing for again. I expected to be challenged by these groups at the end, just like Watts Bar was when they started up.

But we have not seen very much activity out of any of them with the Unit I recovery. So it makes our job a lot easier. But we wanted to make sure that we had the opportunities, that they could understand what was going on and be able to participate as they always did.

MR. WALLIS: So when you say turnout is very small, what sort of numbers are you talking about?

MR. CAHILL: Two or three people.

MR. WALLIS: Two or three people, usually.

MR. CAHILL: Usually it's reporters.

MR. WALLIS: So when we go up to Vermont and we get 2,000 people --

MR. CAHILL: Very different environment. Very different plants.

MR. POWERS: That's exactly the same number, frankly. There are four people around Browns

Ferry. Half of them showed up.

MR. BONACA: My question is regarding the power ascension program. From what I understood yesterday, the plan is the one of, you know, start the power, going up to the license -- to critically licensed power level, and then to continue up to 20 percent above. Okay. Are you concerned at all about that? I mean --

MR. CAHILL: That's something that we -- it will definitely fall into our lap to have oversight of. But right now it's a little -- we just got the submittal from them that Margaret in NRR requested some months ago. So the region hasn't even digested it yet. And that's the restart power ascension plan.

And a lot of that really is going to be tied to the outcome of the extended power upgrade. The region has been involved with the meetings that have gone on in the initial submittal, and what we've communicated consistently to NRR is that, you know, as concerns come out of our approval for the extended power upgrade, if there is anything that is very germane to their decision or concern that they would have that we think should be something that TVA incorporates in their power ascension test program, that --

MR. BONACA: Well, I mean, I understand that if I do not -- my only thought after the meeting was during the presentation, I got a sense that they're going to the licensed power level, it's going to be normal effect. And no, it's not. I mean, this is something new. A lot of the equipment has been changed. It's going to be challenging enough to go to the currently-licensed power level.

MR. CAHILL: They did not get into a lot of the details of what they planned, but again --

MR. BONACA: Well, I say that, you know, they will go up and then come back to the currently licensed one in case there were problems: vibration or whatever.

MR. CAHILL: They do a lot of things at each of those plateaus. Again, what they describe -- and they were very brief with you yesterday. They didn't get into any of the details. But what we have seen and what they described yesterday, again, is very analogous to what we've seen with their other recoveries, and when they started at Watts Bar.

Their SPOC and SPA process feeds a lot of these things. So each of these plateaus will be a huge laundry list of things that need to get accomplished at that plateau before they go on.

MR. BONACA: That would be nice protection, you know, at the existing power level, then you have to sit there and perform a number of tests, I imagine, and then verification of that.

You would want to separate what you're going to expect to see as a result of restarting the plant from the power-up rate. They're two different issues at this stage, and I think that -- okay. I recognize it's kind of premature to expect.

MR. CAHILL: Regardless of the upgrade, and we haven't -- like Juan said, when the restart panel convenes, this is usually a judgment on exactly what type of oversight we're going to have. But typically, what we've had in the past for any of these recoveries has been the 24-hour coverage.

And we're very closely monitoring things that are on their plateau milestone list that they have to get accomplished. You know, specifically there's something that we had some other reasons that we cared about it, because it was related to some special program. And it would be something that would be on our inspection list to make sure that they did get this thing verified at this power level, and so forth and so on.

I can't articulate exactly what we're

going to do yet, because we're still waiting to digest what TVA's plans are. But we've been very close to those efforts in the past, and make it -- the biggest intent of that is basically to be looking over TVA's shoulder to make sure they make the right decisions. I mean, our inspectors are very good at relaying that information up, and we have you know, usually folks in Loren's role are the ones hearing about, Well, what happened last night at this plateau? And if there is any question about, you know, the judgment TVA is applying, it will quickly get communicated and acted upon.

We've had a lot of VIP visits over at the sites. Bill Kane's been over there; Luis Reyes, the NRR division directors, and Chairman Diaz has been there, as have both the new commissioners. So we're getting a lot of -- TVA has been very proactive with the open invitation, because they want to get people just like they got you there yesterday, to see the scope of what their efforts are.

And so most of our senior management has been to Browns Ferry at some point in the recovery to see the scope of that.

So -- and the last thing, I just wanted to mention on communications was we do have communication

plans, both one for the region and one for NRR that have been established to -- some of our communications plan is really incorporated in the Manual Chapter. But subsequent to that we laid out, you know, pulling our current expectations as communication plan, laying out how we're going to do all this. And I think I'm going to let Mark talk a little now.

MR. LESSER: Oh, thank you, Steve. As Steve said, I'm Mark Lesser. And he's tipped you off a little bit of what I'm going to talk about. But I am the chief of engineer Branch III in Division Reactor Safety.

And my role is -- has been coordinating the regional inspections of the licensee's special programs. They don't -- they're not -- the inspectors are not all in my branch, but we're tapping all of the engineering branches and all of the branches in DRS to help support this.

And I coordinate their inspections with their other duties, baseline inspections; make sure that they understand the peculiarities regarding Browns Ferry Manual Chapter, the differences in the ROP, the differences in enforcement, and that they get their plans and their schedules aligned.

But let me give you an overview of what

I'll talk about, basically three different areas. I'll discuss the TVA special programs that are being inspected by Division of Reactor Safety, and I'll just go over two examples of the special program in just a little more detail to give you an idea of what the scope of that is, and how it became a special program.

And then I'll discuss this regional inspection, particularly plans, status, and some results of our inspections. The first grouping of special programs, you may have seen these before already, Civil/Structural. There is a list in there of the programs that have been identified as needing attention: Long Term Torus Integrity, Piping Supports, Cable Tray Supports, HVAC Duct Supports, basically seismic issues, things like that, and prove to Mike that core convenience, because that's how we're assigning them to our inspectors

Electrical programs --

MR. POWERS: When you talk about Long Term Torus Integrity, or -- is that a corrosion issue?

MR. LESSER: No. That was -- it's really the dynamic effects of post-local effects on -- in the water with the Torus that was really identified back in the early '80s on all Mark-I boilers. And that's their program, to get that up in accordance with our

generic letters on that.

MR. WALLIS: When do you inspect a program? I mean, program -- you can expect a very different job. You can just look at what they say they're doing on paper, or you can go and look at, Well, how did you do this torus integrity? And what did you find? And show me the evidence, and that sort of -- you get right down to, you know, understanding what they're doing at the -- what the -- on the deepest level.

MR. LESSER: Yes.

MR. WALLIS: How deep do you go when you do this, the inspection of a program?

MR. LESSER: Well, I was going to get to that. But I'll answer that right now. The programs were really established with the restart of Unit II in the '80s. And at that time, as you know, TVA was under the Office of Special Programs. And their program was being defined through a series of extensive overview with the NRC staff, with -- I guess the Office of Special Programs staff.

And the scope of the program that the engineering is really well-documented in NUREG 1232, which defines how they -- what the problems were, what they needed to do to fix it, what their corrective

action is, and the NRC's acceptance of it.

And the program itself was inspected very heavily with the restart of Unit II. As Unit III and then subsequently Unit I has come up, we made the decision not to spend a lot of resources inspecting the program, as long as it's similar to the other units, because it's already been --

MR. WALLIS: As long as they say they're doing the right thing it's okay?

MR. LESSER: As long as they say they're doing the right thing and then we sample to make sure they're doing the right thing, and that's part of our plan, we want to make sure they're doing the same thing on Unit I as they did on Unit II.

If we can make that conclusion, then our general plan is to sample implementation of that program, through observing of modifications.

MR. WALLIS: There are a lot of things if your sampling theory is fairly well-developed. Is it well-developed here? How much sampling do you have to do to have confidence X that the unsampled portion of the program is flaw-free?

MR. LESSER: Not to that extent. It's a -- the Manual Chapter basically -- we did not define the number of samples like you would see in a baseline

inspection of an ROP procedure. What we have done is, based on the results of our inspection, there is interaction between myself, the inspector, DRP, to decide, you know, how -- do we have problems? Do we have violations in that area? How much more do we need to do?

So it is very much subjective and judgmental to come to the conclusion when we're done inspecting.

MR. McCREE: And just to add, to that extent, it's analogous to the Reactor Oversight Process. We could not employ sample theory, if you would, but it's based on decades of experience to identify what the sample size and frequency is.

MR. LESSER: And I'll give you a good example of where we had this -- where we decided we had to do much more inspection than we initially thought we would.

Next slide, Electrical Programs. These are grouped, Cable Ampacity, Installation, Cable Installation, Splices, Issues, Fuses, Thermal overloads, to give you an example of those.

In Material Programs, there is a special program on Containment Coatings and Inter-granule Stress Close and Crack in the Piping, and in

Engineering Programs, Configuration Management/Design Baseline, Design Calculations, Fire Protection/Appendix R, Environmental Qualification, Probabilistic With Safety Assessment.

MR. DENNING: Hold on, just a second. I'm not getting a good feeling as to what you're actually doing related to Unit I right now on these programs, versus -- and perhaps you could contrast it with, like, Unit II and III? I mean, how do you actually -- I mean, do you go to the plant and you look at how these are being done right now at Unit II?

Is there any difference? At this point, with Unit I, I guess, coming back under this type of inspection, do you do a virtually identical type of review for Unit I as Unit II? Or what are you doing?

MR. LESSER: No. They are very different. Again, Unit II and III are under our baseline inspection programs, under the Reactor Oversight Process.

MR. PLISCO: Are you saying two or three previously?

MR. DENNING: Yes. Right. No, I really mean Unit II and III right now, versus what you're doing with Unit I right now.

MR. PLISCO: Very different, very

different. Unit II and III are being inspected under the baseline under the ROP. So we've got the standard baseline inspections. Unit I is being inspected totally separate from that.

MR. DENNING: And how does that review differ from what you do under the ROP? What do you physically do differently?

MR. PLISCO: It's driven by what the scope of the program is. I mean, you --

MR. DENNING: Yes.

MR. PLISCO: Mark is just going to go out --

MR. LESSER: Well, yes, I'll give you -- actually, a little bit later I've kind of got an example of what an inspector's plan is. And maybe if you'll hold that question, I think I'll get to that.

MR. WALLIS: Doesn't it get back to my other question about the difference between a construction program and a maintenance program? The whole thing is being rebuilt. And we -- they kept telling us they've replaced everything. So that's --

MR. POWERS: No, we've replaced damn near everything.

MR. WALLIS: It's a completely different game. You want to see how well they've replaced it,

and did they really inspect the welds? Did they treat the welds properly when they took a pipe out and put a new one in? It's quite different from routine inspection.

MR. LESSER: Yes. And in fact, and we've had several inspections of pipe welding over the last few years totally above and beyond what would normally be required on an operating unit. Okay. Just to inspect --

MR. WALLIS: And you'd have electrical up here. They put in, I forget how many, 18 miles of cable or something.

MR. LESSER: But we've got inspections of each one of these activities going on, okay, pretty much for the last few years. And --

MR. WALLIS: What about the cable trays? Are they allowed to put as many cables as they like in a tray, so it's all stacked up? Or is this something --

MR. LESSER: No.

MR. WALLIS: We saw these cable trays with all kind of stuff in them, overflowing maybe --

MR. LESSER: They have to install in accordance with the criteria that's been approved within the safety evaluation. Okay.

MR. WALLIS: So you have some assurance that they've done that?

MR. LESSER: That's what our inspections do. Yes.

MR. WALLIS: You actually go and look at it and measure, or whatever?

MR. LESSER: Yes.

MR. WALLIS: Okay.

MR. LESSER: We actually go and sample cable installation.

MR. RANSOM: Have the inspections turned up any problems?

MR. LESSER: Yes. And I think I'll address that one, too. I've got --

MR. SIEBER: By the way, I think it's better to say that you do these inspections on operating plants. And since they don't replace pipe very often or pull new cable very often, these inspections are very infrequent.

MR. LESSER: On operating units, yes, that's true.

MR. SIEBER: And so that's really the difference.

MR. BONACA: One thing of interest to us, as you go through some description of this, you know,

inspection which you went through, is clearly they have replaced components, and in many cases, they have addressed aging concerns in the replacement itself.

For example, they're going to, you know, chromalloy pipes to -- in areas where they knew that there was a concern with an 0600. So to what extent is this information then conveyed to the people that do the inspections for license renewal? I mean --

MR. LESSER: Carl Julian is going to speak after Mark. And he's going to speak to --

MR. BONACA: Okay. Yes. At some point, whenever he gets to that point, it would be interesting to ask where they stand, because it's really significant, it seems to me, to be a license renewal issue.

MR. LESSER: He's actually got some overlap in that license renewal. But I think I'll get to a couple of those questions on Problems, have they been identified? The answer is yes. And I'll talk a little bit about that.

Let me talk about two examples. We can go to the next slide. This is -- what I'm going to do is I'm going to give you an example of what a special program is, how it became a special program, what their corrective action is. And I'll talk about two

of those. And then I'll talk about how we inspect that and then what we found.

One of these examples is Piping Supports. The statement of the problem, just to summarize, back in the '80s, concerns were identified with structural response to loadings, including pressure, temperature, dead and live loads, and seismic loads.

MR. WALLIS: What is a live load?

MR. LESSER: I think that -- yes. Yes, it's to load the process through a pipe -- live loads versus wet, versus weight.

MR. WALLIS: Something like a water hammer, or a break-out pipe? Or --

MR. SIEBER: No, it would be a normal transit.

MR. LESSER: No, normal loads versus -- as opposed to just weight.

VOICE: Well, a water hammer would be a live load.

MR. SIEBER: Closure of a valve would be a live load.

MR. WALLIS: Well, these piping supports don't have to do much with dead loads. It's the live loads that get you.

MR. SIEBER: No, it depends on the piping.

MR. WALLIS: Well, of course, I mean, hanging a pipe for a dead load is trivial. But looking out --

MR. SIEBER: No, it's not. Look at the steam line. Do a hydro on a steam line. And that's not trivial.

MR. WALLIS: Gravity doesn't change very much.

MR. SIEBER: No, but when you change the fluid, it changes the stress on the aggregate line.

MR. LESSER: You guys know, obviously, more than I do.

MR. WALLIS: So live loads might be when you suddenly turn on the flow to something else?

MR. SIEBER: Yes. That would be an example.

MR. BONACA: So these are the concern with the current problem. This is a concern with the division of design.

MR. LESSER: This is a concern with how they were in 1985.

MR. BONACA: Okay.

MR. LESSER: With all three units. They fixed them on Units II and III. They're now fixing them on Unit I. The sources for those back in the

'80s were -- various sources of concerns were raised, TVA quality assurance, NRC inspections, industry programs, and contractor review. And I -- the root cause -- actually this is what is stated in the Browns Ferry Nuclear performance improvement program.

The root cause of these were lack of seismic design criteria, records, weak quality control, failure to identify and track variances, and attention to detail in implementing modifications.

Okay. The nuclear performance plan identified TVA's corrective action to address these problems, which was to revise their seismic ground motion input to the seismic system analysis.

This was extensively reviewed by the NRC back in the mid-80s, with the restart of Unit II, and their criteria, the new design criteria was approved by the NRC and documented in new Reg 12-32. Their corrective action also included implementation of commitments to Bulletin 79-02 and 79-14.

They conducted detailed walkdowns of their systems, and compared that to their new analysis, and they identified what they term as breakage, or any deviations from the new design. And from that, they either evaluated or modified those. So that's their corrective action. And I'll get to a little bit on

inspection.

Let me just go ahead and give you another example of a special program --

MR. WALLIS: So who checks the --

MR. SIEBER: I have a question about this one.

MR. WALLIS: Who checks the -- evaluate and modify as appropriate as being done? Who checks that it's appropriate?

MR. LESSER: That's part of our inspection. Okay. In other words, they may accept something as is. They may find a deviation from the design.

MR. WALLIS: Does this involve some technical analysis? Or --

MR. LESSER: Yes.

MR. WALLIS: -- seismic stuff, and how big the anchors have to be --

MR. LESSER: Yes.

MR. WALLIS: -- and all that stuff? Do you guys do that, or do you have a consultant?

MR. LESSER: We inspect those.

MR. WALLIS: But do you make the calculations?

MR. LESSER: No, no. No.

MR. WALLIS: How do you know how big it had to be?

MR. SIEBER: Maybe I can answer that.

MR. LESSER: Yes.

MR. SIEBER: A lot of licensees use computer terms like new pipe, which tells you how big the anchors have to be, and what all the loads are, and the inspector will come in to see if new pipe was used, or some equivalent program, if it was used properly, if the analysis input was appropriate, and they got an output that reflects itself in hardware. And that's generally the way it --

MR. WALLIS: And knowing when a computer program is properly, often it involves having experience with using it yourself and knowing how you can do it improperly.

MR. SIEBER: Well --

MR. WALLIS: I just wondered if these folks have that experience.

MR. LESSER: In other words, their --

MR. SIEBER: Or read the instruction book.

MR. McCREE: Steve Vias is one of Mark's inspectors, and he's done some of those inspections.

MR. LESSER: Because that wouldn't be an area that I could -- come on up here.

MR. VIAS: My name is Steven Vias. I'm a senior inspector here in DRS. I come from this particular arena back in the '70s with seismic analysis and design.

So this area here we're looking into very heavily. And we're looking for deltas. For anything that they've designed or redone like the piping, we're going to look at their pipe stress analysis, what they've redone, the new configuration of the piping.

Out of that, you are correct, we look at the outputs for each individual node and where they're going to put a support. And then from those, we look at the individual hangars and look at the structural analysis of that hangar. All the way down to the seismic analysis of the anchor bolts.

That's all part of the structural analysis that's done for those particular components. Overall, they start to use the T-Pipe or the super pipe, or any of the basic programs that the industry has accepted or the NRC has approved over the years of doing the analysis.

If they play within those boundaries, we accept -- we output as that's what the output is.

For the field verification, we take some of these drawings on a sampling basis, not a

statistical standpoint basis, but looking at it from a risk -- what are the bigger systems that we have to do, what are the bigger systems that they totally revamped or torn out and put back in? Not something that's been there before, and see what we have to look at for critical components of the installation.

We'll look at the structural members, do we think they are significant for what the loading is for the particular hangar? We'll look at the welding to make sure the welds are put in as designed, and that seems to be an area that we have been finding a lot of problems in at work -- a certain amount of problems, that they say welding is in there, and we go out there and there's missing welds, or it's on the wrong side of the phalange, or undercut, the wrong size, all kind of configuration problems that we have found.

So we go through that and we identify it. If they -- we find more problems in that area, we extend our sample until we get a warm fuzzy that they have recouped their program, brought it back to normal, and that they are implementing it as they say they should.

MR. WALLIS: Well, if you have to find these errors in the size and placement of the welds,

that indicates that their own inspection procedure wasn't very good.

MR. VIAS: That is correct. And Mark can get into that if he's going to cover that. When we did framing -- large frames --

MR. PLISCO: He's going to cover that example.

MR. VIAS: Yes. That was one area that we identified, I guess, about a year and a half ago, that we had extensive issues with, and they revamped their program and we've gone back and looked at their new program.

MR. McCREE: By the way, in the region's vernacular, a warm and fuzzy means we have reasonable assurance.

MR. DENNING: Let me interrupt just a second and ask something of some of our more experienced members who have been through this before. But you know, we -- as -- whenever we get into this inspection area, we get into this question of sampling, and the very experienced-based sampling that's done for inspection, which isn't very comforting to us --

Now, I think that it's comforting to the people that have been in the inspection field. You

know, they go out, they get a feeling. They're pretty comfortable. But you don't really know whether that -- whether it could be done a lot better. And I'm just kind of curious whether people like Dana might make a comment.

Do you see a problem here that something that's a generic problem that ought to be looked into a little bit more seriously, since you raise this question just about every time we get --

MR. POWERS: Yes, I know exactly what you're driving at. And you keep saying, Gee, I can do this -- I can do something here. And the fact is, that yes, I think it's a great academic undertaking to go see if you could have a more optimal inspection sampling.

I myself had far more confidence in the interim while these gentlemen picking at themselves, that it's like safety culture. It's one of those things the pointy-headed professors ought to look at and see if there is something.

But I don't expect any outcome from them coming through, and I think they would struggle to avoid, Lee, to outdo an experienced individual. Yes, I just -- I mean, that's my own personal feeling on this, that yes, there is something called a warm

fuzzy. I don't know whether I could ever put it down as -- at a 95 percent confidence now, because I don't know what the distribution underlying it is.

And so, yes, we asked the question, but that's because they feel obligated to get a question from us. And right now, No, I have a great deal of -- I myself have a great deal of confidence in the very experienced individual. The problem, of course, is the one you just alluded to.

By the time you get enough experience so you can do this really efficiently, you're also starting to attend the lectures on retirement planning.

MR. DENNING: Bill, is your feeling similar? Is it just -- I mean, we ought to just kind of -- I mean, maybe it's a good master's thesis for somebody that's just kind of look at it and see if --

MR. POWERS: Oh, no. It's very, very much more complicated than a master's thesis. I think it is --

MR. SHACK: Well, I mean, we try to do something -- rather than statistical sampling, we do risk-based sampling, which seems to me probably better that we could do with most of the statistical sampling things.

I mean, even for steam generator tubes, which you know, strike you as the sort of thing where sampling really ought to work. You know, really, the judgment of where the problem is and things like that probably -- I would feel more confident and experienced than I would somebody trying to apply an algorithm, you know, beyond the kind of, you know, when you find the problem then you start to expand. I -- there's an awful lot of variables. You know, we're not making lightbulbs.

MR. PLISCO: And I can speak from many times going through relooking at the inspection program, this question always comes up. And there's a lot of things you have to balance, you know, when we're building the inspection program.

And Steve alluded to it when he talked about -- you know, based on having looked at these kind of things for many years, we know where a lot of the problems typically occur. And we're -- and we apply that when we picked our samples.

And now with the risk tools we have now, that gives us another tool that we use to -- you know, if there is going to be an issue, you know, where are the most-important place -- the most-critical places? And that's where we focus our --

MR. SIEBER: Maybe I could add a little something here, having been involved with a number of plants. Defects like bad welds, undercut welds, missed welds, other problems with hangers, in my opinion, are not random.

A constructor -- an engineering and a constructor, when they get into the protocol of not doing things quite right, frequently extend that to a lot of things. And so -- and it depends on the quality of the construction job, you know, the engineer who is responsible for the analysis, and the constructor who is responsible for the fabrication.

The sampling has to, in my opinion, be considered because -- in a way that would recognize that the defects are not random, but are -- if you have people that don't do a good job, you're going to get a lot. And if you have people that really do a good job, you'll work awful hard to find a few.

So when an inspector goes in and inspects and starts to find them, you know, all of a sudden, that alerts that inspector to the fact that, you know, here is a big problem. And it's probably programmatic.

And once they gather enough evidence to be able to state that kind of a case, then I think that

there is the need for a revision to the program. That's been my experience.

MR. POWERS: Yes, this is what the problem is, Jack, is that the constructors -- the average constructor is pretty much average. And if they pick and choose and they happen to dodge the bad project, you never see it. It's an outlier.

So it's -- you're right. At any given craft or activity, the errors there are never random.

MR. SIEBER: Right.

MR. POWERS: Okay. but all the activities on board -- we can take that as a random set. Okay. And how do you pick among that? Well, the problem is, it's also small stat. On most statistical things you would call that a small set.

And I personally would trust their judgment in picking -- they're no longer trying to pick a random representative sample. They're trying to find the bad one. They're trying to find the outlier. And the one where the -- you're going to have these systematic errors. And I trust their judgment better than I would trust a mathematical algorithm.

MR. SIEBER: Well, my experience was that on a given site, you have one constructor. In a given

crew, you may have ten or 20 welders or 50 welders, some of whom are good and some of whom are not so good. And -- but everybody knows who the good ones and the bad ones are after a few months.

MR. POWERS: And that's the beauty of the resident system, is that you're trying to get somebody on your -- from NRC that's in the cognoscenti on --

MR. SIEBER: And you have enough records so you can track the welder to the problem.

MR. WALLIS: Before we leave this, could --

MR. LESSER: And maybe you could skip a couple of slides. If you'll just go to the one titled Inspection Results.

MR. WALLIS: Before we leave this, could we talk about something here. I think you may have left the impression with whoever reads the transcript that things that are done in academia or for master's theses are irrelevant to the real world.

And I would point out that most progress eventually comes out of academia and is actually taught to the next generation. But it's not always irrelevant. It might be useful to at least know what some of these statistical methods are, so you'd know if you were overdoing it, for instance.

I mean, maybe you're taking 20 times as many samples as you need from you know, what point. And it's -- might reassure you that you could back off if you had some greater authority, you know, which is based on logic.

And if you're taking far too few samples,and you're far too confident with your answer in view of the small number of the samples, and you knew what some sort of a theoretical framework was, it might give you reassurance that you were doing the right thing.

And I think if you ever found yourself in court, and you find the opposition really knew their sampling and you didn't, you might have some difficulty persuading the judge that you were wiser than the opposition. So I just hate to leave this with sort of the feeling that the theories are all irrelevant.

MR. POWERS: It would be a wrong thing to leave, of course. But --

MR. SIEBER: I feel chastised.

MR. POWERS: -- the sampling is extremely -- I mean, it's extremely sophisticated analysis you have to do on that.

with respect to courts and the persuasive

power of science, maybe the recent Vioxx case is one to consider.

MR. WALLIS: It makes a difference if you have a jury or a judge I'm told.

MR. SIEBER: I have another question. Before we run away from seismic, 1972 era was a different seismic set of base data than today, because of Charleston's New Madrid and so the analysis that they used in 1972 to base the -- like being in hanger design and component support design, and you know, healthy bolting and all that kind of stuff, maybe different than today.

And I have seen, for example, a two-unit site where one was before and one was after, and the supports were altogether different. In this case here you questioned, I think, the original seismic analysis. That's what I got from one of your sites. Okay.

Does that mean the use of 1972 data is the design basis and the methods that were current at that point were the design basis? Or would there be some kind of attempt to upgrade that to the latest basis?

MR. LESSER: No, there is no attempt to upgrade to the latest basis. There is -- the original license --

MR. SIEBER: So that's the design basis?

MR. LESSER: Yes. They're originally licensed, and in order to deal with their -- configuration problems that they had, they revised it back in the '80s.

MR. SIEBER: Okay. Now, they weren't involved in this business of using the arithmetic addition of, you know, different frequencies, as opposed to the absolute values. They didn't have that, right?

MR. LESSER: I'm not sure if I can answer that. I can go back to the safety evaluations and go --

MR. SIEBER: Well, so can I and I will.

MR. LESSER: Yes. Okay. What I was -- getting back to, you know, how do you find problems by sampling? It maybe useful just to you know, do a quick case study of an actual -- what we actually did find. And I skipped a few slides up to the inspection results.

And I'll talk about the Torus Integrity Quality Assurance Program deficiencies we found back in May 2004, where we documented a severe level-four violation.

But you know, it's basically the concept

if there was a multiple deficiencies, as you said, weld problems are not random. If there are multiple deficiencies, and you target as an inspector a sample of risk-informed systems, there is a good chance you'll find one of the problems.

And that's what happened here. Our inspectors found -- were in the torus, and because in correcting and implementing modifications to structural members, weld sizes, they found welds that were thought to have been repaired were not repaired.

Or welds that were -- and they found a number of them. We found several of them in one inspection. Okay. And what it resulted in was --

MR. WALLIS: Excuse me. You're talking about Unit I here?

MR. LESSER: Yes.

MR. CAHILL: This was found by the inspector actually going out in the field and measuring individual welds and looking for them per TVA's completed paperwork.

MR. WALLIS: Well, I said they've got the pressure to stay on schedule, so this may be part of the trouble.

MR. LESSER: Well, yes. Well, there were several causative factors because of this, which I'll

talk about. But -- and that was one, perceived schedule pressure was one of them.

But several problems occurred in that through their whole, from soup to nuts, in fixing and identifying the welds and identifying structural members that needed repairs inside the torus, from the initials walkdowns were not complete, to misorientation problems by people within the torus as to the azimuth they were on in the torus, to drawings were not -- were difficult to read, to lack of oversight, lack of independence, culminated in multiple examples where repairs were not put into place.

After we found several of them, the licensee went back and fully inspected thousands of welds, and they found more. Okay. And that resulted in our violation. But the causes were -- the next slide, workers became misoriented in the torus, sketches were confusing. Work documents were difficult to use, perceived time pressure, inadequate checking and lack of independence.

So that kind of -- and that's how this was discovered. So it's a good case study to kind of talk about. But the TVA implemented extensive corrective action. We had an enforcement conference. We've

inspected corrective actions.

We're still find -- inspective actions within the torus -- you go to the next slide. The other significant inspection finding that resulted in a violation also has to do with piping supports. Although this is at a less-significant, at a sever level-four violation. But it --

MR. THADANI: Mark, could I take you back to the previous chart.

MR. LESSER: Yes.

MR. THADANI: Now, there's some history behind this -- the issues of QA/QC.

MR. LESSER: Yes. Exactly.

MR. THADANI: And then you said you developed substantial confidence on the basis of what they did to Units II and III, which presumably had pressed this matter. And when you went through this inspection, you found lack of independence as a cause. Does that then take you back to the programs to say, Well, what went wrong here?

MR. LESSER: A lot of it takes -- really is managing resources with -- and understanding expectations, getting expectations to people. When I talk about the lack of independence, we're talking about lack of quality control.

MR. THADANI: That's what I'm talking about.

MR. LESSER: Okay. There was one example where you know, the quality control inspector was not independently locating the weld. He was following the welder. He probably pointed them out, Okay. This is the one you've got to inspect. Okay.

So -- and that was one of the causes where -- or an opportunity to catch this, which didn't get caught. And that was really -- the program is fine. There were some improvements they needed to make in clarifying the drawings, how drawings are, and then training people how to orient themselves. But it was communicating expectations, making sure people understand to get the job done right. Go ahead.

MR. CAHILL: With this finding, multiple barriers failed, the last ones being the KC verifications.

MR. THADANI: Right.

MR. CAHILL: And that's why this turned out to be a severe level-three escalated enforcements. That was very clearly communicated to TVA. TVA knew that we went back and now all their quality assurance work, there was a cloud over it. It cast doubt, and the confidence that we had had up to that point was

now shattered.

And that really drove the extent of the corrective actions that TVA did in response to that, both in reverifying all those torus welds and addressing the QA/QC program. They did a lot of extensive corrective actions both in expectations, changing of personnel, that -- Mark mentioned that we looked at the corrective actions.

We looked closely at that because that -- the message we sent to TVA, which they heard very clearly, was that this finding has a lot of significance in our confidence level. And they recognized that and basically did what you would expect them to do to get that level of confidence back.

But it's -- I mean, they know that it's on our radar. When they came in for the July 20 meeting, they knew that that's something that we wanted on their presentation that we wanted to talk about. We wanted to hear what they were doing so that we could get that level of confidence.

MR. LESSER: And this is an area where we were continuing to inspect, because we're not there yet, on getting that reasonable assurance. So that's ongoing.

Why don't I -- and if you could just back up to the one titled Inspection Status Summary, and I'll just quickly summarize that one.

This is a quick summary of where we are in inspection status of these programs. Inspection is complete. We've essentially completed the IGSCC inspections.

Inspections near complete, which means we've done one or two inspections. We project -- we haven't found significant problems in these areas, so we're projecting perhaps one more inspection.

MR. WALLIS: What is a thermal overload?

MR. LESSER: Thermal overloads on motors.

MR. SIEBER: And electrical.

MR. WALLIS: Overheating of --

MR. LESSER: And it was configuration of those at the light set points.

MR. SIEBER: Too much current.

MR. LESSER: Yes. We're projecting closure maybe in -- probably in one more inspection. And then the next slide shows that --

MR. WALLIS: Do you ever get thermal overloads in these trays that carry all these cables and that all?

MR. SIEBER: You never --

MR. LESSER: That's -- well, that's what ampacity is talking about.

MR. SIEBER: Yes.

MR. WALLIS: Yes. Only if you put too many amps in them, you cook the cables. And so since they're all together, then they heat each other up, and --

MR. LESSER: TVA's run a lot of cables. They haven't put many cables --

MR. SIEBER: Thermal overload is a device, however.

MR. WALLIS: Yes.

MR. SIEBER: And it's located in the circuit breaker, that the -- measures how much current is going to the motor. If you're putting too much current to motor, insulation will fail, and that trips the breaker.

MR. LESSER: Inspections continuing -- as we said, torus integrity, large bore piping, cable installation and containment coatings.

And the status of inspections that are in the early stage or not started -- small bore piping. In fact, there's one this week ongoing there. Design calculations, configuration management. We mentioned Appendix R, soon to be started.

I think we probably are a little bit over time. But that concludes what I wanted to talk about. I apologize.

MR. SIEBER: It's so interesting. Just keep right on going.

MR. LESSER: That's essentially what I wanted to touch on. If you've got any questions.

MR. POWERS: We asked the licensee about the issue. We haven't asked you guys about Fitzpatrick and the torus. I know there is a cottage industry explaining why the torus at Browns Ferry or any of 19 other Mark I VWRs is not like Fitzpatrick. How was the torus at Browns Ferry like Fitzpatrick?

MR. LESSER: Yes, from our -- our info is that they do have spargers on the discharge of the lines at Browns Ferry. And it's not like Fitzpatrick.

MR. POWERS: The trouble I have with that explanation is that's such a subtle effect on the liner, if it's that sensitive, what are all the other things that could be causing localized attack on the liner that just hadn't been seen yet? So that's what I'm asking. Is how is the torus like Fitzpatrick, even though it's not identical, but it's -- what is the --

MR. WALLIS: Well, they told us it was

much thicker. They told us it was a substantially thicker material than Fitzpatrick.

MR. SIEBER: Yes. They told us that.

MR. WALLIS: So you're satisfied this isn't another Fitzpatrick waiting to happen?

MR. CAHILL: We did specifically do some verifications and response to TVA's initial look at it to make sure that we didn't have a dispatcher phenomenon at Browns Ferry. And that was the extent that we did --

MR. POWERS: But I mean, I'd be fascinated to know how you did that. I mean, the exhaust from the HPCI is enough to cause this localized effect. How many other things of that kind of subtle nature -- I mean, it's half a million gallons of water in there.

MR. SIEBER: Any other questions? If not, we're about 20 minutes late, which is okay. We are typically late. And I believe that we ought to take our full 15 minutes. And even though that clock doesn't agree with mine, if we can be back here at ten to 4:00, that would be good.

(Whereupon, a short recess was taken.)

MR. SIEBER: So maybe we can have --

MR. JULIAN: Okay. I will try to be briefer than the last presentation, because you've

probably seen some of our -- my efforts before, I think.

MR. SIEBER: We usually determine what time you actually finish.

MR. JULIAN: The next slide over, please. This is a slide that I've used before in talking with ACRS. I go up for a briefing of each of the plants as we've been approved. Very briefly, for license renewal we've developed a Manual Chapter and inspection procedure. And the inspection cites specific plan. The resources are -- we've done our best in Region II to maintain a consistent five inspectors. And when we've lost two of them in the past, we've got a retraining program.

Next slide over. The scope -- the license renewal inspection includes a scoping and screening inspection. The objective of that is to confirm that the applicant has included all appropriate systems, structures and components in the scope of license renewal as required by the rule.

And recently the manual chapters and inspection procedures, as you probably recall, have been revised to reduce our effort in the scoping and screening arena, and to combine that inspection with the aging management program management inspection.

And the focus of what we do in scoping and screening now has been on 54.4(a)(2), which is the s where non-safety-related components could affect safety-related.

Next slide over. So our main effort now is just a single inspection, Aging Management Program Inspection. The objective is to confirm that the existing AMPs are working well, and to examine the applicant's plans for establishing new AMPs and enhancing existing ones.

Our inspections at Browns Ferry were two weeks in length, and the things we do are we examine the records of past tests and surveillances for existing aging management programs.

We examine implementation plans for new or expanded AMPs. And verify inclusion of future tasks into established site task tracking systems to see that they get done what they say that they will do.

MR. SHACK: How do you decide the length of that inspection? Is the two weeks fixed, or --

MR. JULIAN: Yes, it is. We have specified we'll do it for two weeks. We're able to cover all of the aging management programs that they've committed to within two weeks. Sometimes we're going really fast and resolving issues at the

last second. Sometimes we're done by Wednesday of the second week, depending on how well the applicant has done in that arena.

MR. WALLIS: But existing AMPs are working well, is this for Units II and III?

MR. JULIAN: NO, this is for aging management programs they have a combination of thing that they've been doing all along, like in-service inspection and like the fire protection program, and things that they're going to do down the line which they've not even approached, like one-time inspection for selective leaching --

MR. WALLIS: But nothing has been aging in Unit I. And those -- we're told most of it's new anyway. So how can you evaluate an AMP for a system which is being rebuilt?

MR. JULIAN: For Unit I, it will be particularly challenging. What we've been looking at for in-service inspection would be the records of -- past sampling of records of what they've been doing on the operating units. We're looking at for the most-recent stuff.

Separate from that, they are doing a lot of baseline in-service inspections on Unit I.

MR. WALLIS: So we should award the

license renewal to Unit I on the basis of what they've been doing for Units II and III?

MR. JULIAN: That is correct. They are --

MR. WALLIS: Is that your position?

MR. JULIAN: That is their position. They are --

MR. WALLIS: I know. I wondered what your position is.

MR. JULIAN: They are saying that for example, in-service inspection has been conducted routinely. Each outage on Units II and III will continue on Unit I, with the same success it's had on II and III.

And they are doing a significant effort at baseline Unit I, which you'd expect, looking at the inside of the reactor vessel and all the new piping, of course, that's being radiographed and examined as it's constructed.

MR. BONACA: Well, that doesn't concern me, because, I mean, you will verify that when they start to do it that it's being done, so that will be inspected anyway.

The issue that we have discussed and raised -- I don't think we have reviewed yet, is the you know, extrapolation of aging mechanisms to Unit I

being identified as the aging mechanism on Unit II and III.

In general, that would be true. And in general, the goal processes are generic enough to cover those issues. But there are special cases of components, of systems, and here we have new materials. So that's the question that I think we would have to resolve by discussions with the licensee and it's tough.

MR. JULIAN: Well, I think so. One would think that in general, Unit I probably has suffered less wear and tear than Units II and III. And with the rework that they're doing on it -- for example, the recirculation piping, we probably have more faith in the recirculation -- the new recirculation piping on Unit I than we do any of the rest of it on the other units.

MR. SIEBER: I think -- you know, I have the same concerns that others of our members have expressed. And I share all those concerns to myself by thinking if you were to build a new plant today, the very first day that you put in on line, you'd be responsible for managing aging in a brand-new plant.

You would not have all the infrastructure that goes with license extension or renewal. On the

other hand, you have your chemistry program, your ISI program, your IST program, and all these other programs that are basically designed to control and manage aging.

And so Unit I, that's substantially being rebuilt, is not much different than that. And then when you look at the way you license a new plant, you license it for four years, and with the 25-year time-out on Browns Ferry I, even with the license extension, it's probably going to be in that 40-year range.

MR. BONACA: I think they would have to review this and get a better understanding of -- there is no question that there is a recognition that they are rebuilding much of the plant. We can't understand how much of it. We haven't looked at it yet.

MR. JULIAN: Yes, it's an interesting problem to deal with.

MR. SIEBER: Well, as long as they establish the programs and implement them as they commit to do and satisfy the requirements of the rule, and obviously they know how to chemically treat, protect, and inspect these plants like this, because they have units II and III that one could reach a conclusion that they meet the qualifications for

license renewal. You know, that's up to the eye of the region, the eye of the inspector and the eye of the Commissioners.

MR. BONACA: Well, one positive thing is that they've dealt with aging of many components by just replacing them, and replacing them with better materials. So they also have provided solutions, I think, they've implemented in the field. I would expect that they would have less commitments for Unit I than they'll have for the other Units.

MR. SIEBER: I think where attention needs to be --

MR. BONACA: Anyway, we'll let -- yes.

MR. SIEBER: Where attention needs to be placed is things that age whether they're used or not, like concrete, Hilti-bolts, nuts and fasteners and things like that -- if they aren't replaced, which -- and they aren't replacing concrete. I didn't see any place where they were actually replacing the concrete, then those programs -- those structures are going to age whether the plant's running or not, and that's where I would put a little extra attention.

MR. RANSOM: I think about buried piping.

MR. SIEBER: Yes.

MR. SUBBARATNAM: Yes, I totally agree.

We cannot put out for SCR to the committee only like about ten days back in time.

I think the committee members haven't had the time to look at it.

MR. SIEBER: That's right.

MR. SUBBARATNAM: But when you go down to Chapter 3.7, there we deal with the Unit I systems at length. This chapter functionally diverted them into common -- the aging mechanism type of a rationale in making a finding how these systems have been refurbished, how much have been left in place, how much of the AMPs are going to apply to those piping which are left in place. We kind of developed the rationale as we went further down.

Of course, you guys can make a finding of it and come back and tell us whether the staff rationale is fine or not. Then you're also doing system-specific items. How will that do with each one of those things with respect to the aging management programs we have?

But the basis what the licensee had started doing for Browns Ferry is for Unit I, II, and III they don't make any distinctions in AMPs. They're all the same for all of them. Except the only problem what happened was when Unit I got shut down in 1985,

most of the AMPs, which is applicable to II and III, the announcement which was done for II and III, have now been implemented for Unit I.

They got to stop the clock of implementing all of them. There are enhancements to shore them up. Like, enhancements in license renewal space; Cardell [phonetic] is going to verify all the enhancements, whether they've been properly implemented before we could close out. And we have like about 25-page long commitment list how this is going to be done, and we want to attract them.

And finally, there's one program which Cardell hasn't looked at, which came after we finished our AMP inspection -- we told them that even though you guys had -- your view of the place, not refurbished, not replaced, but you made a determination that they are okay from metal thinning and wall thickness and stuff, staff was not completely satisfied, and then said there could be some latent affect, which is not seeable right today at restart. We just can't let you go like that. You've got to give us some commitment how they're going to do it.

So we got the one extra inspection -- we created one -- which is called the Unit I periodic inspection, which will continue into the licensing

renewal extended space. They will continue to monitor it for any degradation for around the two refueling cycles, three or four till the staff is satisfied that there is no dormant effect. And that's how we'll write it up. So that's one thing is that.

So much of that is up there in Section 3.7 of the SCR. When we go down farther, License Renewal Presentation Group, staff will explain it in more details.

MR. SIEBER: Okay. For the record, would you state your name?

MR. SUBBARATNAM: My name is Ram Subbaratnam. I'm the license renewal PM for the Browns Ferry project.

MR. SIEBER: Okay. Thank you.

MR. JULIAN: So that's one new aging management program that TVA has just recently committed to.

MR. BONACA: Right. And that's an important one, because clearly --

MR. JULIAN: And that's something brand new that they have just committed to. So there is nothing there yet. They've got to get on down the road and do that as time goes on.

Bill may have a comment if --

MR. RANSOM: I'm curious how buried piping was being treated. I think in the past they've always argued for opportunistic inspections, I guess. I don't know what is the situation at Browns Ferry.

MR. JULIAN: The buried piping inspection program has evolved a bit from GALL, from the Generic Aging Lessons Learned. Originally we were accepting, as you say, opportunistic. Whenever I happened to dig something up for another reason, I'll look at it.

And I think now we've come around to the point that we say, Well, if you get to the end of 40 years, then you'll dig something up on purpose, and you'll go for the place that you might expect problems, if you haven't encountered any.

So that's where we're at in the industry. And we're not particularly pursuing Browns Ferry as being any worse. We don't know of any bad particular bad history of buried piping at Browns Ferry. In fact, I was reading a document the other day that was advocating that they've had zero problems with buried piping. Bill, did you have something to add?

MR. CROUCH: Mind if I make a statement in regard to GALL. I'm Bill Crouch. I'm from Browns Ferry. I'm the site-licensing manager over there. And as we discussed the issue of license renewal

yesterday, and we talked about the fact that we've got operating experience from Units II and III and how it applies to Unit I, and there was a little bit of a concern over that.

One thing that we didn't talk about was the fact that in -- when we talk about operating experience from Units II and III, one thing that we've got in Unit III is operating experience in a shut-down laid-up condition.

Unit III was shut down in 1985, and laid up just, like Unit I, for ten years. before it was restarted. So any type of latent effects that you would see from extended period of shut-down, we saw in Unit III. We took the lessons learned from that and went over -- and we went and started the application on Unit I, we took those things.

And we saw some specific examples of it. And one thing that somebody may have mentioned yesterday was the RHR service waterpiping, for example. We had significant problems with the RHR service waterpiping inside the reactor building, not outside the building.

Once the piping got outside the building into the tunnels, it was fine. But inside the building, due to the warmer environment, it had a

severe problem. When you go over into Unit I, in Unit I systems for the RHR service water, one loop was in service, one loop was laid up just like Unit III.

You saw the same phenomena over in the laid-up loop as what you saw in Unit III.

So we had to replace all that piping, the alpha Charlie loop. The loop that was in service is just like the Unit II piping. It was full of water and operational the whole time, and it has not had any problems at all. It's still got plenty of min wall with it.

So the lay-up process for that piping in Unit III showed us that we had a problem in that particular type of a system, and we took that lesson learned and applied it over here. So we've got operating experience that is not only true operation, but also a shut-down laid-up condition.

MR. WALLIS: Was it laid up dry or partly dry or --

MR. CROUCH: It was laid up dry, with dry air being blown into it.

MR. WALLIS: Did it have condensation in it?

MR. CROUCH: But that system -- it comes from the RHR service waterpumps. The piping is

underground. It comes up out of the ground through the tunnels and into the building. So there was water vapor coming up through the underground piping, through the service water tunnel into the building.

Once you cross the wall from the tunnel, which is basically in a cave and cool, over into the building, where it's normal building-type temperatures, then you saw the aging mechanism occur. So we took those kind of lessons learned that we saw from Unit III and applied them to Unit I.

MR. RANSOM: Was there any problems with buried piping?

MR. CROUCH: No, there's not any problems at all.

MR. RANSOM: Well, was any of that laid up?

MR. CROUCH: Well, it really wasn't laid up. Like the RHR service water pipe, it's all in service for Unit II. IT's a common pipe that takes off and it splits at each unit.

All the other buried type systems like raw coolant water, EECW, all that's been in service ever since we shut down. And you can't take those out of service, because they're supplying your normal cooling loads for such things as spent fuel pool cooling.

MR. SIEBER: I guess we'll review all the details of license renewal as a subcommittee meeting coming up here in a month or so.

MR. JULIAN: Yes. I think it's scheduled for October 5 and 6.

MR. BONACA: Yes. And you know, I think that point, I mean, we recognize that a lot of the operating experience, it's similar from unit to unit. I mean, these -- however, we have seen in the license renewal applications for twin units or three units on a site, some uniqueness about the -- for example, one particular component attached to a vessel, or something that made that experience unique to one of the three or two units on the site that required some specific inspection.

And you know, we need to understand from reviewing the material, which we haven't done yet, if there is anything of that type that we should be concerned about. That would be the exception on the fact of relying on the other unit's experience, rather than this specific one.

MR. CROUCH: Can I give you one more example on that?

MR. BONACA: Sure.

MR. CROUCH: This is Bill Crouch again.

An example exactly along those lines was what's called the cross-under piping. Do you remember when you saw yesterday the piping that comes out of the high-pressure turbine that goes down and goes to the moisture separators. It's large pipe.

In Unit I, we found out many years ago, even while Unit I was still operating, that that piping material did not meet the specs that it was supposed to meet. It was low on chromium content. And it was found to have problems. And they continued to operate it one more cycle, I think it was, before they shut it down.

When we got ready to do Unit I, they -- we went and looked at it, and you could look at the pipe, and it was in horrible condition. It looked like someone had taken an ice cream scoop and just scooped gouges out randomly throughout the pipe. And the surface of those gouges was black, shiny. It looked almost like a piece of polished coal or something, it was that black.

And it was due purely to the inadequate chromium content. You go over into Unit II and III, that piping was supplied with the proper material properties. That piping is just as smooth as this table today. I've been -- crawled through that

piping, and with the exception of a very light rust cover, it's not rust like you normally see it, it's just a powder, that piping is just as smooth as this table.

But over in Unit I, where it had wrong properties, it was severally degraded, and we had to replace the entire piping. So in our inspections for Unit I, we've gone and looked for instances like that, where we might have had a wrong application of materials.

MR. BONACA: Okay. So you do have some experience that, based on the operating in 1985?

MR. CROUCH: That's right.

MR. SIEBER: Well, I know that the SCR is sitting on my kitchen table. But I haven't read it yet. When I do, I'll be prepared to ask questions.

MR. CROUCH: You have a much stronger kitchen table than I do.

MR. SIEBER: I've already added gussets to it.

MR. JULIAN: The SCR is a challenge, I believe, for this one.

MR. SIEBER: Yes. And --

VOICE: It's only one CD, like any other SCR.

MR. SIEBER: Yes, you should do that more often. But in any event, detailed questions I think we should reserve until that time, after we've had a chance to review the material.

MR. SHACK: I want to ask one detail. Did they do a baseline UT on all the welds in the recirc system?

MR. JULIAN: I believe they did. I'm sure they were -- I'm sure those were radiographed in the baseline UT.

MR. SHACK: Well, the radiograph would be required by code, because the baseline UT --

MR. CROUCH: Yes, both were done.

MR. JULIAN: And I believe they're working on reactor vessel now. Is that still ongoing, with the internals and --

MR. CROUCH: That they're talking about doing the MS -- oh, yes. They're doing the internal reactor vessel inspections right now.

MR. SIEBER: The vessel itself is scheduled for a vessel inspection itself.

MR. CROUCH: Yes, the vessel inspection is a full inspection scheduled --

MR. SIEBER: It's scheduled for the future?

MR. CROUCH: Yes.

MR. SIEBER: Okay.

MR. SUBBARATNAM: John, can I ask -- this is Ram Subbaratnam. If the committee members would be interested in discussing the detail of our personal experience, Bill Crouch is the guy who could definitely come in for our subcommittee meeting in September.

And he could probably devote some time explaining those things for you, including we can bring Darlene, the in-service inspector for TVA, to explain how these UT inspections -- what she did and her experience.

MR. BONACA: Well, I think we have, in fact planned the meeting in a way that we would talk about license renewal, say, in the morning, and then we'll like to dedicate a couple of hours to understanding this issue of applicability of experience from Unit II or III, plus other sites which are just measuring right now to Unit I.

That is the key issue that makes this different from other applications, not necessarily the number of years. I mean, we are not sticking to the 20 years as if it were essential. But the applicability of -- and how do you -- and how do we

feel comfortable that that meets the requirements of the rule?

So you know, to the degree that anyone can provide insights on that subcommittee, that would be welcome and useful.

MR. SIEBER: Okay. See what I mean about us controlling your schedule?

MR. JULIAN: Of course. I expected that.

MR. SIEBER: Continue on.

MR. JULIAN: I figured -- I thought we would stray from the slide. Next one, please. Very briefly I'll finish this up. The third -- it's an optional inspection that's needed. And in the past we've done these in two to three days in length. We close any open items from previous inspections, and close any inspection items that NRR requests us to do. Sometimes they have some specifics. Would you go make sure that what they said is right in this area, and verify that the applicant has loaded future casts into the established site tracking system?

And we also verify that they have a transition plan, an organized way for completion of the license renewal project. So those people are finished, and they transition all these tasks to be done in the future over to the established plant

system, so we have good assurance that they will actually get done.

And as we've discussed before, we have plans -- the NRC does, to go back and do a verification at Year 39, coming to 40, to see that all these commitments that they made were actually accomplished for each of the units in the U.S.

Next slide just shows you where we are in Region II. We started off with Oconee and we've been more active, of course, than the other regions. And those are all the things we have got accomplished so far.

Next slide over. And the two we are having progress right now are Browns Ferry and Brunswick. We've completed the inspections at Brunswick and we're quite pleased with the results from those inspections.

The next slide is just the text that came out of our one inspection that we did at Browns Ferry. That was November 29 to December 17. I used exactly the same words, because I think they reflect exactly the status. We observed that they were not nearly as far along as we would have expected int he implementation process. It really hasn't done anything towards implementation of aging management

programs.

They haven't -- for existing programs, the identification and selection of which particular existing procedures constitute aging management program have yet to be done. That is, for fire protection they had a piece of paper that had lists of every procedure that had to do with fire protection on site. But when we asked them, now, like most folks do, what constitutes the aging management program there, no answer. They hadn't thought that far yet.

And so we concluded that we need to go back again to Browns Ferry. And we're going to do that -- we have that scheduled right now for September 19. We have a one-week inspection plan. We'll take as much time as we need. And we've discussed the progress that they've made with them.

There's nothing necessarily wrong with the results that came out of this. We were there early. They weren't ready. And we didn't know they weren't ready. And they've been dedicating most of their efforts towards NRR's dealing with NRR's REIs that they've that they've been given and hadn't put the necessary resources or forethought into beginning implementation of aging management programs.

Next slide over. In walking plant

systems, we went quite a few places on the operating Units II and III, and I walked a bit through Unit I myself. Of course, Unit I gets detailed inspections day by day by various inspectors, more than we can possibly do with our team.

But we didn't identify anything that was of significant concern to us. There was one today issue, a degraded condition was identified where Unit I construction activities had instructed the emergency equipment cooling water discharge catch basin -- it was kind of literally a catch basin out there for Units II and III that was -- had been covered over with construction trailers and hadn't been sufficiently regarded as part of the Unit I construction effort.

So our plans are to go back to Browns Ferry, and we're looking forward to significantly improved results for their plans for implementation. That concludes what I have to say about license renewal. That's where we are at Browns Ferry and in Region II. Any questions?

MR. SIEBER: If not, I'd like to tell you that the work you do is important to this whole program, and your reports are important to us, and particularly your visits to headquarters at White

Flint, to tell us firsthand what you find, because implementation, the existence of the programs and the implementation is truly the most important part of this.

So we appreciate that and thank you very much.

MR. JULIAN: Well, I appreciate the thought. We think our work is important. And coming up and talking to the ACRS is always interesting.

MR. SIEBER: Okay.

MR. JULIAN: They always manage to go off somewhere where I had even expected.

MR. SIEBER: Okay. Thank you very much.

MR. JULIAN: Thank you.

MR. SIEBER: Next will be the Engineering Pilot Inspection.

MR. OGLE: Hi, I'm Chuck Ogle. I'm a DRS Branch II, and I have responsibility for doing the engineering inspections we do in the region, the SSDPC inspection, and this inspection was done -- the pilot inspection we did was done under my watch.

I'm joined here by Jim Moorman. Jim Moorman was the team leader for this inspection. He's also a branch chief in the operation branch here in Region.

Next slide please, over. As I said, we're going to talk about the region's experience with the Engineering Pilot inspection. As you probably know, each of the regions performs one pilot inspection. We did ours at V.C. Summer per that TI 158, and we did it in October and November of last year.

Next slide, please. If you go into the TI and take a look at what it tells you to do, it discusses identifying and verifying low margin risk significant components and operator actions. And in that sense, what that was translated for us, and what we did was we identified risk significant operator actions and components using the standard risk tools that we have available.

And then additional on-site work was done to try to understand which components had low margin. What did we really need to spend our time looking at? And that included things like understanding the engineering design of the components, taking a look out at the plant of the material condition. And also any operating experience or corrective action program issues that were out there.

The TI specifically called out to take a look at operating experience. You can do it per the SSDPC module. We do it that way in this region

already. Also the TI advertiser was not limited to mitigating system, which is the standard focus of the SSDPC inspection.

So if you go back and take a look at what the team actually spent time looking at, the components that were identified, the items that were reviewed were in those systems: EFW, Service Water, CCW, diesel, and the CCW systems.

MR. DENNING: And did you base that on SPAR? Or did you base it on going to the utility and using their --

MR. MOORMAN: We used the licensee's PRE model.

MR. OGLE: Okay. Next slide, please. I'd like to talk just for a second about the team composition, because I think that was a critical part of this inspection and why it was successful. As I said, Jim was

the team leader for the inspections, a very experienced inspector. He had a lot of experience leading SSDPC inspections. He's also a very competent inspector.

We also had a region-based electrical and mechanical inspector. So we had both an electrical and mechanical. And they were chosen for their

experience and for their abilities to accomplish the inspection.

We also had the resident inspector for the site on the inspection. That's a very powerful multiplier force when we do an inspection. They know how to use the information gathering systems at the site, so there's zero learning curve there. They know where some of the problems are, where some of the issues are. And they know the people too at the site, who to talk to, who is the system engineer. It's pretty quick to come up to speed.

We also had three contractors on the inspection. And they were very experienced, very knowledgeable contractors that added quite a bit to the inspection. We also -- and this is, I think, another critical part of this inspection, why it was successful, is we had a lot of our SRA support on the inspection.

We had the SRA go on the bagman trip with us. He also was involved in the component selection at the site. And he also came out for the last week of the inspection, just so any issues that we would have to process through the SDP, he'd be there to gather the information first-hand.

That's a lot more than we normally would

do. In this region, we usually -- it's not unheard of us having the SRA out there on the inspection, at least for the bagman trip. That's -- we've had a fair amount of that going on.

And the SRAs will also get involved in preparations. They'll give training, they'll talk about the systems, they'll help the inspectors, they'll guide the inspectors on selecting components. But this was above and beyond what we typically will see. And this was a lot of support.

And the bottom --

MR. SIEBER: Let me ask a question about that. For the last couple of years we've gone to different regions.

And one of the things that I and a couple of my colleagues have done is to try to picture the workload through the senior reactor analysis, and all -- particularly when the SPAR models were being developed, and there was a lot of interchange with the licensees, and some cases where there were significance determinations that were in question.

It seemed to me that the SRAs were perhaps even overutilized in some regions. Do you find that situation in Region II, since their role in life seems to be expanding?

MR. McCREE: Well, the short answer is yes. We've tried to manage that and balance it over the years. What we've done, and it's really helped us considerably, is have both of our SRAs working for a single branch chief. We've gone through several iterations of how many -- who they were working for.

There was initially a regional administrator ten years ago. They replaced him under the Division Director of Reactor Safety. And now we've placed them -- then we went to two separate branch chiefs, and now we have them both working for a single branch chief, which helps us to better manage their workload and make sure that it's balanced between the two of them.

One of the things that we do a bit differently than our counterparts in the other regions is we try to minimize the number of inspections. In fact, the SRAs need very few inspections. And we place them on inspections very selectively, because they're such a significant resource to us in our day to day operations.

So the combination of the managing, what they do, and selectively deciding when to place them on inspections -- that helps us to levelize their work and get the best out of them.

MR. SIEBER: Okay. You're aware that the -- there is a potential out there for saying this is my expert in this area, so I'm going to, you know, keep putting rocks in their knapsack until finally they become useless, or the results that they produce are so late that they --

MR. McCREE: Right. And again, that's one of the benefits that we derive from having them work for one branch chief. The other thing I'll mention is that we are the only region that has the first two SRAs that went through the development program. We still retain those.

The other regions have unfortunately, but fortunately those individuals are very knowledgeable, very capable, and they've developed themselves into branch chiefs. Some are in the SES program now. But we managed to retain or keep very employed our two original very capable SRAs. And we're very happy with that.

MR. SIEBER: Well, the ones I've met throughout the agency I think are pretty good and very conscientious. And I think they're important to the agency. And I think their talents need to be focused on things that are most useful to the agency.

MR. McCREE: That's what we try to do.

MR. SIEBER: Okay. Thanks.

MR. OGLE: I guess the last point, and I think it's critical, is that we stacked the deck for this inspection. It was very experienced folks, a lot of SRA support. The team was very competent. And there were not a whole lot of distractions.

Sometimes our inspectors -- they're still finishing up the work that has to be done from the last inspection. They don't get the time to correct. Something might come up that distracts them. So that did not happen in this situation. So we had a very focused team and a very experienced team.

Next slide, please. Some additional things that I think we did that helped us achieve some successes -- Jim went up and took a look at the VY inspection, the Vermont Yankee inspection. That was the first one. He went up and watched how they -- he observed how they were selecting the systems and components, the items they were going to look at.

Our division director was involved in the development of the TIs. So he helped us from getting too far astray. And historically, the inspections that we've done in this region, the design inspections have been focused on events. We take a look at -- and not exclusively, but we've done a lot of tube

ruptures, load codes, a loss of offset power, those are things we'll go out and look at. And so you end up looking at a lot of different things.

You already are going to get looking at operator actions. You're already going to look at OE. So a lot of what was in this TI was stuff we were probably already doing. We weren't out just looking at the SI system. We weren't out just looking at RHR. We were looking at broad programs and things.

So I think that the way the inspection of the TI came down was very similar to what we were already doing. And just some of the details of what we did -- we had a bagman trip. They had to leave the SRA -- and my slide is incorrect. Also the --

MR. SHACK: No, Chicago when -- you know, the bagman trip. whether it was something you needed to do.

MR. OGLE: Well, we call it the preinspection visit. So I'm sorry. Our preinspection visit was to leave the SRA and three contractors. Then we had three on-site weeks --

MR. WALLIS: So this bagman trip is just a pre-inspection? Was that it?

MR. OGLE: Right. It's to get them laid out --

get the references.

MR. WALLIS: Same in Chicago.

MR. OGLE: Get the material, get the paperwork. Check baggage, badge and stuff like that. As I said, three on-site weeks for the team, which is more than we typically do. And as I said earlier, we have the SRA on site for the last week.

Next slide, please. The inspection results. The overall result was that the things that we looked at, we were pretty comfortable that they were capable of performing their functions. We had, as far as the accounting goes, we had two green non-cited violations. One was a diesel generator surveillance inadequacy that the licensee had previously identified. And also some inadequate corrective actions for operator timeline.

We also had one potentially greater than green finding, which involved -- which was subsequently determined to be a green NCV, and that involved tubercles, some biologicals that were growing on the inside of the piping between EFW suction and the service water. It was ventilated through piping. There was biologics that were growing in there.

And then if you take a look on the downstream side of the EFW pumps, there are float

control valves with -- that have very small passages in them, about an eighth of an inch -- it was an eighth of an inch. Right?

A very small -- hundreds of them, but the concern was that this dead leg of piping, if the EFW pump had to start and the CST was depleted, you'd eventually have to go through your service water piping, and some of this stuff would slough off and potentially render your EFW pumps inoperable.

MR. SIEBER: So now this is the summer plant?

MR. OGLE: Yes.

MR. SIEBER: Okay. At Browns Ferry?

MR. OGLE: And we --

MR. SIEBER: Just so that's clear.

MR. OGLE: We ran that through -- we ran that through our SDP. It came out as initially white, yellow. We had a regulatory conference with the licensee, and we were persuaded that it was a green finding.

We still have one unresolved item pending with the licensee. It involves the potential for certain components to be damaged by tornadoes. And right now headquarters is working on an RAI to interface with the licensee. We have a TIA on that.

So that still hasn't been resolved.

I guess for me personally, the most startling aspect of this whole inspection, the thing I took away from it was every one of these problems, the licensee knew about, every single one.

In other words, we didn't come in and find anything new. It was more a case of the licensees' response to the problems was not adequate. And they had loitered; they had lingered. So that was, for me, a real take-away on this inspection.

MR. SIEBER: What was the rationale from going from a white finding to a green finding?

MR. OGLE: I think the -- and you can correct me on this if I'm wrong. But I think we couldn't get the initiating-event frequency high enough to require the licensee to draw on the service water system.

We have a large CST; it's very robust. It's sheltered by a bunch of other tanks. It's unlikely that they're going to have to go to the service water.

The other thing is --

MR. SIEBER: In a deterministic world, however, that would have been a sock it to you.

MR. OGLE: That's why it got our

attention.

MR. McCREE: That's exactly right. And they also made an argument that we accepted, too, that they wouldn't necessarily shut down the plant right away even if they did lose the CST, so we spent a lot of time on that.

MR. WALLIS: What's the last bullet mean? I mean, that last bullet. What's -- it seems a bit like governmentese, that last bullet there? What's it really mean?

MR. OGLE: I guess I was surprised that every one of the issues the licensee knew about. I mean, that is not typically what we see in an inspection. I mean, when my guys go out and do an inspection, I typically don't have them saying the licensee knew about this and the licensee knew about this. That was surprising to me as an inspector.

MR. McCREE: This is another example of what we had identified several years ago with Summer's inadequate corrective action, their public notification and resolution, specifically the implementation of effective corrective actions.

We had engaged them two years ago at the senior management level to explore -- to determine whether we had gotten their attention. We have done

our biennial PI&R -- problem identification and resolution inspection for our inspection, and had identified similar issues.

So at that point, we did get their attention. They did implement an improvement program. And by the time the team went out in the fall of last year, they had made substantial progress. However, as Chuck mentioned, these issues had been identified. They had not taken effective corrective action. And we used this as additional ammunition to say, Okay, guys, we still need to make progress here.

And they need -- they scheduled the regulatory conference for this potential white finding. They had already scheduled a meeting with us I think about a few weeks later to come in and talk about the actions that they had undertaken to address the challenges in their PI&R program.

So what this points to is an issue that we had already engaged the licensee on, and that is that they needed to improve their ownership of their corrective action program.

MR. SIEBER: It's why you might call a safety management issue? This is --

MR. McCREE: Safety -- again, their effective implementation of the existing program.

MR. WALLIS: What? They had a corrective action program, but they were lethargic about implementing it or something?

MR. McCREE: In this particular area, yes.

MR. OGLE: I'm not sure we ever decided why. I don't think we ever went back and tried to figure out where the corrective action program didn't fix the problem, whether it was resources, or --

MR. WALLIS: Well, was it because senior management was letting them get away with a sloppy program, or --

MR. OGLE: I don't think we ever did that analysis.

MR. SIEBER: It doesn't sound like the program is sloppy. It sounds like they identified things, but just don't -- they said, Well, I know that's there, but that's okay.

MR. OGLE: No, I don't think -- that was not what we took away. They had attempted to fix some of these -- well, they had attempted to fix, like for example, in the tubercle issue, they thought they had done enough. But at the end of the day, when we went up to look, they still had the problem.

MR. SIEBER: Yes.

MR. OGLE: And if you've been doing that

for 12, 15 years, that's not adequate corrective action. Now, I can't tell you that's a resource problem. I think maybe that that's management. Okay.

But I can tell you there was a nice paperwork trail that can justify everything, but it's -- the bottom line was it wouldn't work. But we didn't go into an analysis of why the corrective actions were not. It just jumped out that they were all known.

MR. SIEBER: And I take it right now it's too early do see if there is a change in performance.

MR. McCREE: As far as their corrective action program?

MR. SIEBER: Yes.

MR. McCREE: We have seen improvements in the implementation of the adequacy of the corrective actions that they've implemented. We have seen evidence of that. Some of that comes out of the lack of identifying findings, where they -- the effectiveness of their corrective actions has been inadequate, so the lack of problems is an indicator of improvement as well.

MR. SIEBER: Okay. Thank you.

MR. OGLE: Okay. Next slide. Okay. Overall, I guess as the guy that was in charge of

this, I'd rate this as a thorough inspection. And my sense of it, when I went out to the site and listened to the issues, watched the interaction with the licensee, I think it was very thorough, a lot of good rocks were turned over.

The issues were all solid. We didn't get any pushback from the licensee that, Hey, you don't get it. You don't understand. I'm not saying that they were 100 percent everything we said we were right. But a lot of times you get pushback from the licensee, and we didn't get that.

Very clear communications on this: no "we didn't understand what you meant by this." A lot of good dialogue on this. And also as far as the cross-cutting problem identification resolution, we -- those were identified in this report. The cross-cutting aspects and no pushback, no argument from the licensee on that.

MR. WALLIS: This is the place where they had a stalactite the size of a person. It was a long time ago.

MR. OGLE: It certainly would be a --

MR. SIEBER: Well, this is where the crack in the piping was.

MR. OGLE: Correct.

MR. SIEBER: Moving on.

MR. OGLE: And finally, we met our timeliness goal for the one issue we did put through the SDP. Areas that -- next slide, please. Areas that I thought we could improve in -- management of assumptions in the SDP. There was some critical assumptions in the SDP that I think if we had given them -- I had given them a more thorough scrub-through we would have perhaps saved a little time.

And also they -- during the course of the inspection, the inspectors I thought raised some pretty good questions about how come the EFW system is operable with this tubercle issue? And I know I was slow to pick up on that during the conduct of the inspection. So those were both fair questions I think we could have done -- I could have done a better job on.

All right. Questions going forward -- and this served as the model of the new engineering inspection that we're going to start in January. Sustaining the team composition. As I said a couple of times, this was a pretty accomplished team. It is not typical of the team that we typically send out on an inspection. Not that -- you know, we have good inspectors, but this is a very knowledgeable team.

Also, the knowledge transfer from the contractors -- as you'll see in my next slide, contractors -- embedded contractors are part of the schedule or the routine for the new inspection. And transferring the knowledge that the contractors have, they come as very experienced individuals. Transferring that knowledge to our inspectors so that we're eventually able to do the inspections is going to be a challenge for us. We're not at that point yet.

And finally, the impacts on the inspection schedule. New inspections, I'm going to show on the next slide, it's a little bit longer. And just the sheer number of weeks we have to spend on-site is going to make it more challenging to schedule and for us to get out and do them.

The final slide was something I put together that shows the difference between the three inspections, and gives you an idea of the resources.

You can see that if you go from what we're doing currently for the existing inspection to the pilot if we drop by one for the NRC personnel, and under the new pilot inspection, we'll -- or I'm sorry, the new engineering inspection, we'll only have three NRC personnel.

We'll have a team leader, a mechanical inspector, or an electrical inspector, either or, and an operations inspector. Our contractor support -- right now in the region we usually get probably five to seven contractors a year, it just depends. And we split those between -- usually between the fire protection, the SSDPC inspections, so if you do the math, I figure we have one contractor on a half to a third of the SSDPC inspections.

The new procedure calls for two contractors.

MR. DENNING: What is the source of those contractors? Who are these people?

MR. McCREE: Source -- it's NRR is -- our program-sponsored budgets allocates each region contractors, contractor by number of contractors, and the number of different companies to, of course, bid for the contract is the primary.

MR. DENNING: I was just wondering what kind of companies don't have conflicts of interest that have the kind of experience you're looking for that there are obviously companies that --

MR. SIEBER: Yes.

MR. McCREE: Every once in a while we'll see ex-NRC boys on there.

MR. SHACK: Now, are they particularly --

are you looking for particular areas of expertise, by and large, or -- when -- so if you have a mechanical inspector, will you get the contract to provide an electrical inspector? Is that the --

MR. OGLE: I want to say usually we are trying to fill a need. Usually that's the case. I think on the new inspections we'll see one mechanical and one electrical. Usually we're trying to fill a hole.

Inspectors in training, our new inspectors, we usually have one -- we usually have several on the inspections we're doing now. Right now the new module calls for one. I suspect we'll go a little heavy on that just so we can try to transfer knowledge.

The length of the inspections is probably one of the big changes. We're going to go from fundamentally five weeks of inspection with two on-site weeks to seven weeks with three on-site weeks that's a big step-up force.

MR. SIEBER: That balances the fact that you're cutting back on the number of people. But overall, it's the same kind of an effort it just takes longer.

MR. OGLE: Right. We've still got to put

three weeks into the schedule on site, though. That's challenging.

MR. McCREE: Yes, and not to minimize it, the impact on contractors, at least the contractor budget, is significant. It's over a 300 percent increase for each region in the number of contractors that will be allocated.

MR. SIEBER: As a former contractor, that's okay.

MR. OGLE: That's --

MR. LARKINS: Did the other regions come up with similar findings in terms of areas for improvements or questions stemming from --

MR. OGLE: I don't know that I can tell you in terms of findings they had during the inspections. They had at least as many as we did, maybe more. But I don't know about other observations.

MR. LARKIN: But I mean, the other regions conducted pilots. And there was some agreement, I guess, across all the regions on a similar approach to these engineering inspections.

MR. McCREE: Right. And I think that's how the new engineering inspection was developed. It had -- the folks that did the inspection actually got

back together. So yes, there was consensus.

MR. OGLE: I talked a little bit about SRA's support. I don't think that we'll see a whole lot of difference there. And then just something I threw in there just at the end to reflect, I think, the amount of findings we had on this pilot inspection. We had a fair number of findings compared to what we historically -- it's not uncommon for us to go out on an SSDPC inspection and have no findings. That's not unheard of. It happens a lot, in fact.

But we had a lot -- we had four issues, three of which were findings and one still to be determined. So that's more than we typically get.

And that's what I wanted to talk about today. If you have any questions, I'll be more than happy to answer it.

MR. SIEBER: I think that's very good. I'm encouraged with the work you're doing right now. And -- but I think you're headed in the right direction.

VOICE: These engineering inspection initiatives are really important.

MR. SIEBER: Uh-huh. Okay. Thank you.

VOICE: I think we're through for the day.

MR. SIEBER: Yes, we are. That's totally

amazing. How did we finish early?

What I would like to do is recess for the day and -- but I -- before we do that, I'd like to ask any of the members if they have any comments about what they preferred today or concerns that they may have so that we can talk about them for a little bit before they escape our memory. And what the Region II folks know.

Mario, do you have anything that you'd like? Rich?

MR. POWERS: I'm going to have to confess to having lost track of the inspection processes that we have in the ROP. And we used to have baselines and complementaries and things like that. I've lost track of all that, and I wouldn't mind a little tutorial once he recesses this meeting, if you could just spend a few minutes with me to outline the general classes, strictly for my education, not for the benefit of the committee, just for me.

MR. SIEBER: I think that's a good idea. And you may have company.

VOICE: You'd be entirely welcome.

MR. SIEBER: Okay. Vic? Nothing? Graham?

MR. WALLIS: I found it very useful and

informative meeting, and I look forward to more of the same tomorrow.

MR. SIEBER: Okay.

MR. DENNING: Actually, I did have one thing, Jack. And that was, you know, I had expected to see a little bit more of the time schedule for activities that are going to be done by the NRC for the Browns Ferry relative to you know, yesterday we heard kind of the time frame of what the plant's doing. But I didn't quite get that -- and I thought we were going to hear today kind of what the overlying NRC activities would be.

MR. LARKINS: There is this recovery issues list which is, quote, fully developed. It may be useful if we could get a copy of that and you could use that as the review, as a focal point for some topics you may want to pick up in a meeting back at headquarters.

MR. DENNING: Okay.

MR. McCREE: And if you're asking for a schedule, one of the -- I can't remember in response to this question, that Steve Cahill mentioned that they shortly will be issuing our mid-cycle assessment letter, which will have as an attachment the schedule of inspections for the next 18 months, that we'll be

sending such letters out to all the sites, all the regions, in fact, will be sending this letter out.

And that report -- it's called Report 22 in our reactor program system, has a detailed schedule of all the inspections that we'll be doing. Now once the restart panel is in place, that schedule may change some. But the major inspections that we will do will be on that schedule. So we can provide you a copy of that.

MR. SIEBER: So if there are no further questions, what I would like to do is recess until tomorrow morning at 8:30.

(Whereupon, at 4:55 p.m., the meeting was recessed, to reconvene at 8:30 a.m., Thursday, August 25, 2005.)

CERTIFICATE

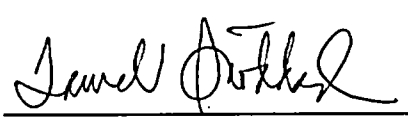
This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

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

Docket Number: n/a

Location: Rockville, MD

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.

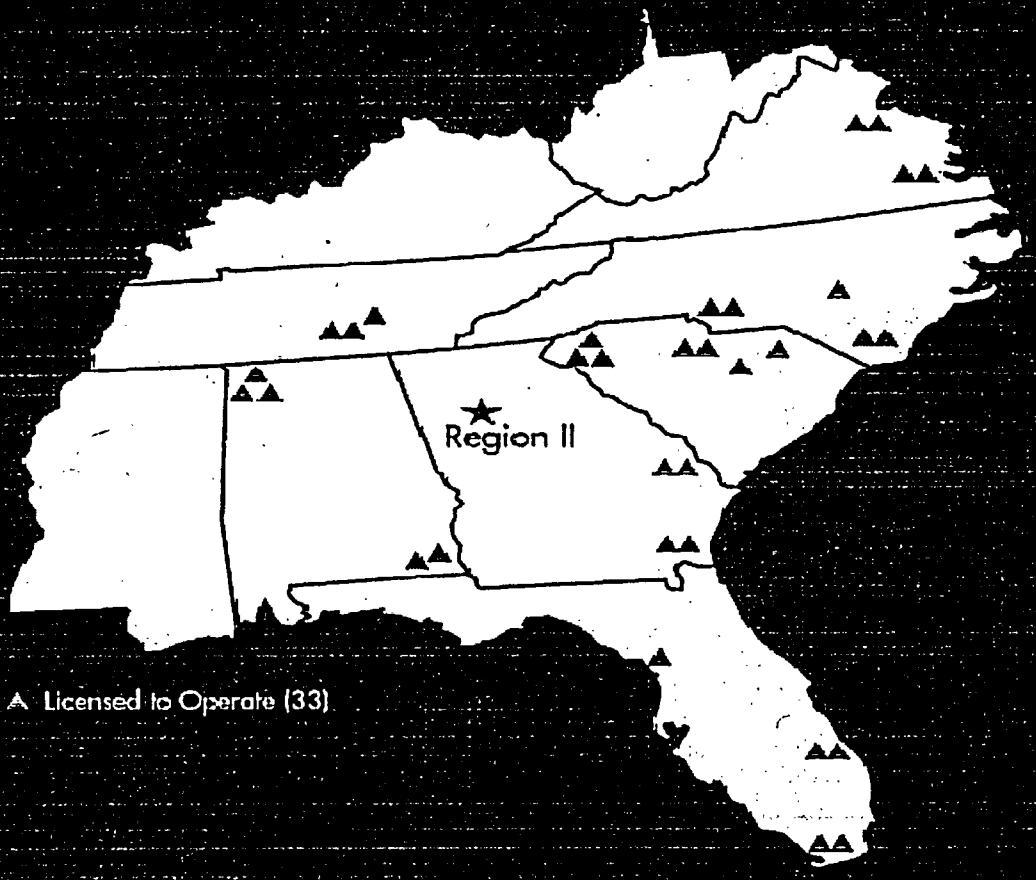


Laurel Stoddard
Official Reporter
Neal R. Gross & Co., Inc.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II

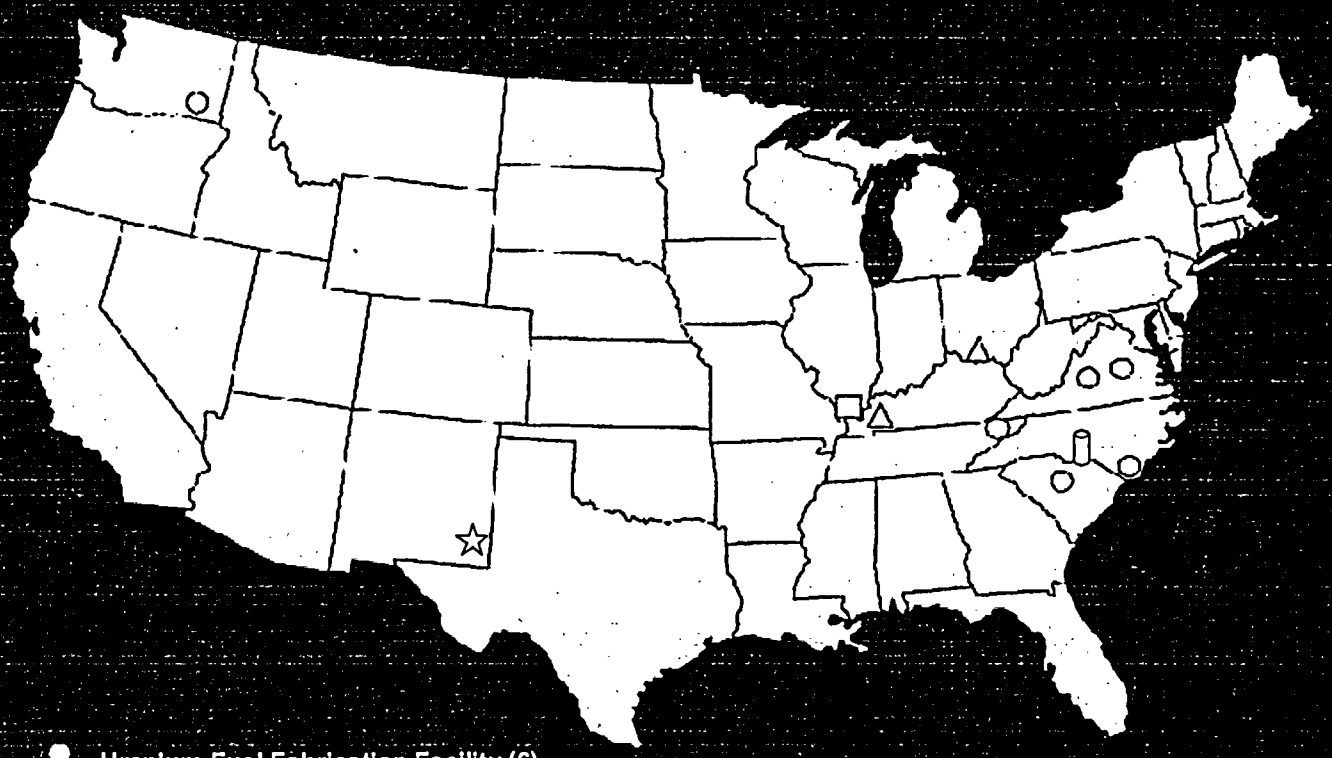
Visit of
The Advisory Committee on Reactor Safeguards
Plant Operations and Fire Protection
Subcommittees
August 24 – 25, 2005

Region II Power Reactors



▲ Licensed to Operate (33)

Region II Fuel Cycle Facilities



- Uranium Fuel Fabrication Facility (6)
- Uranium Hexafluoride Production Facility (1)
- Gaseous Diffusion Enrichment Facility (2)
- Proposed Gas Centrifuges
- Proposed MOX Facility

Region II Data

Number and Type of Licensees

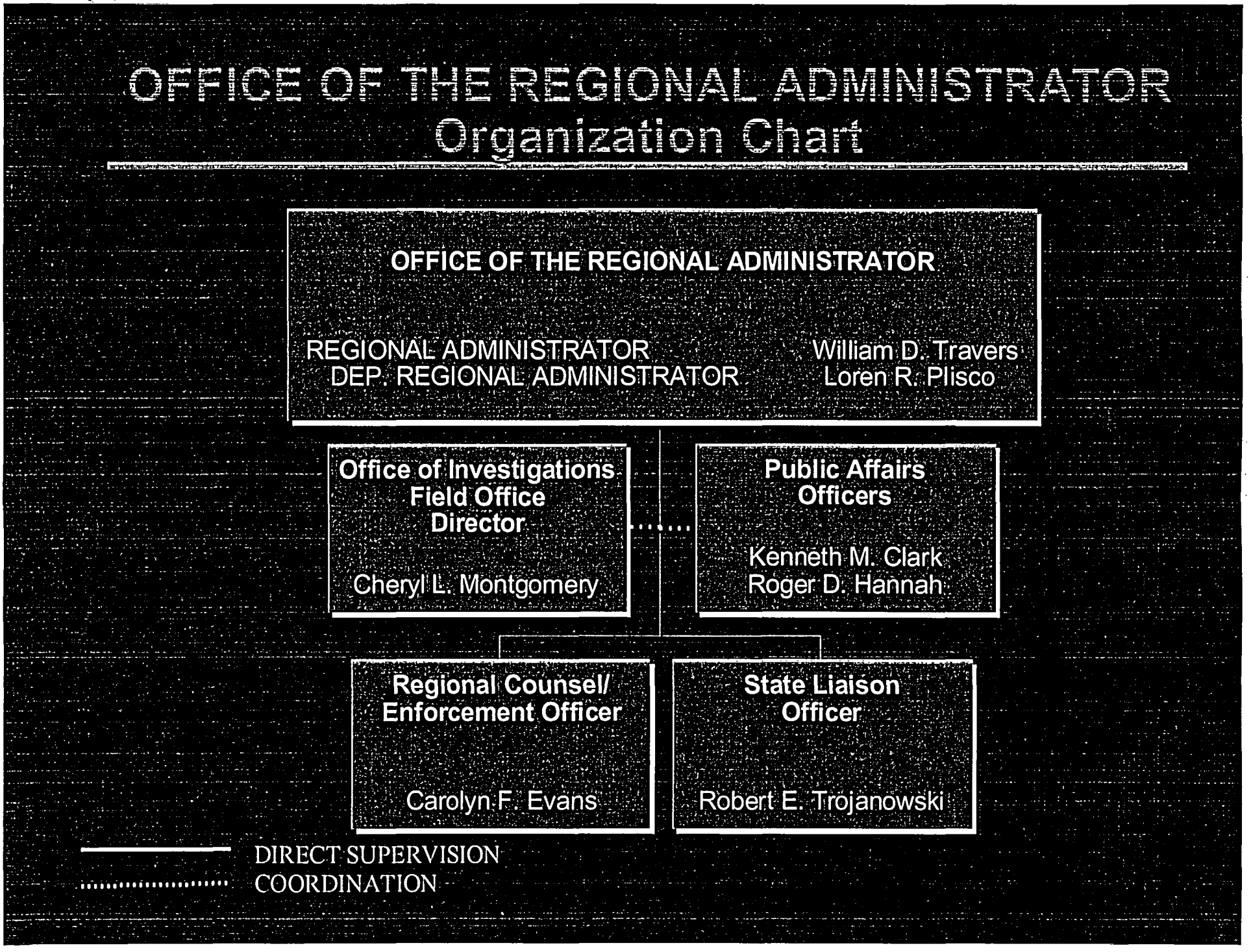
- 18 Power Reactor Sites
  33 Operating Reactors
  3 Reactors Under Construction (Deferred)

- 20 Westinghouse (PWR)
  7 General Electric (BWR)
  4 BWX Technologies (PWR)
  2 Combustion Engineering (PWR)

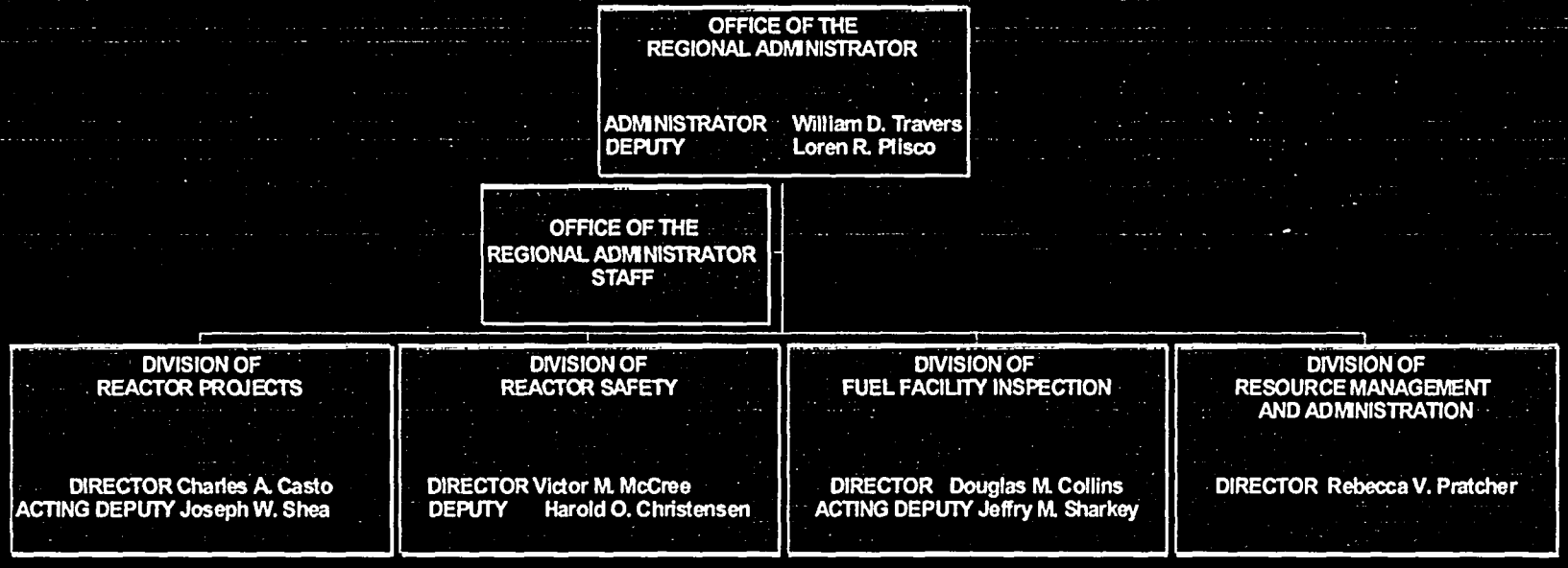
- 10 Fuel Facilities

- 1350 Licensed Operators

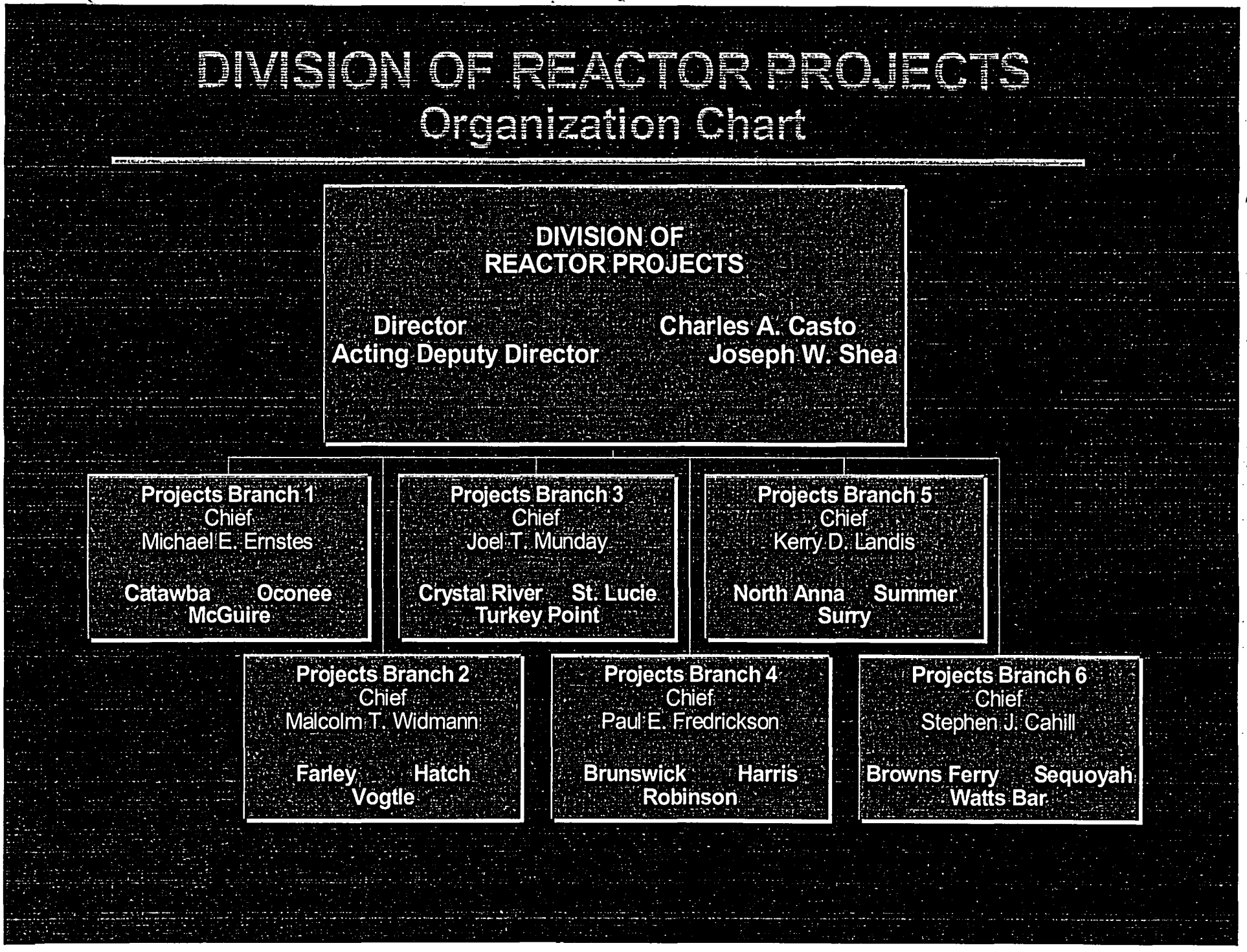
OFFICE OF THE REGIONAL ADMINISTRATOR
Organization Chart



United States Nuclear Regulatory Commission
Region II Organization Chart



DIVISION OF REACTOR PROJECTS
Organization Chart



Major Functional Responsibilities of the Division of Reactor Projects Include...

- Coordination of the overall nuclear power plant inspection program at nuclear power sites

- Coordination of the assessment of licensee performance
  - Quarterly
  - Mid Cycle Assessment
  - End of Cycle Assessment
  - Agency Action Review
  - Commission Meeting
  - Licensee Public Meeting

- Support incident response activities

RESIDENT INSPECTION PROGRAM

- Management and implementation of the Resident Inspector Program

- Site coverage requirements
  - 2 Residents minimum every site

- Keeping the Resident Inspectors' outlook fresh
  - Rotation every 7 years
  - Participation in inspections at other sites
  - Refresher training
  - Periodic Resident Inspector meeting (2 per year)

DIVISION OF REACTOR SAFETY
Organization Chart

DIVISION OF REACTOR SAFETY

Director Victor M. McCree
Deputy Director Harold O. Christensen

Engineering Branch 1
Chief
Charles R. Ogle

Engineering Branch 2
Chief
D. Charles Payne

Engineering Branch 3
Chief
Mark S. Lesser

Operations Branch
Chief
James H. Moorman

Plant Support Branch 1
Chief
Robert C. Haag

Plant Support Branch 2
Chief
Brian R. Bonser

Major Functional Responsibilities of the Division of Reactor Safety Include...

- Conducting inspections in the areas of Engineering, Fire Protection, Maintenance, Operations, Radiation Protection, Emergency Preparedness and Security.

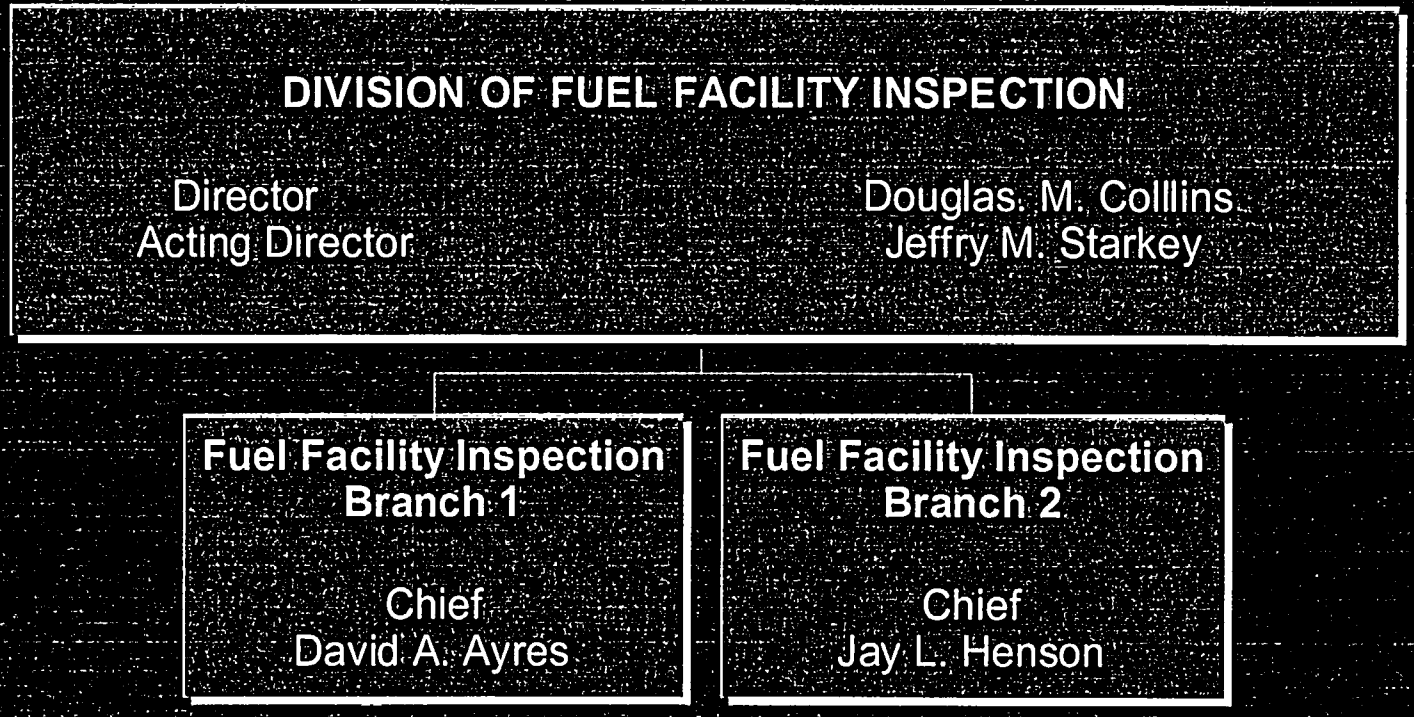
- Leading special team inspections
  - Response to operational events
  - Fire Protection
  - Emergency preparedness exercises
  - Safety System Design and Performance Capability

- Administration of reactor operator license program
  - Examinations
  - License issuance
  - Requalification inspection

- Supporting incident response activities

- Overseeing Senior Reactor Analyst functions

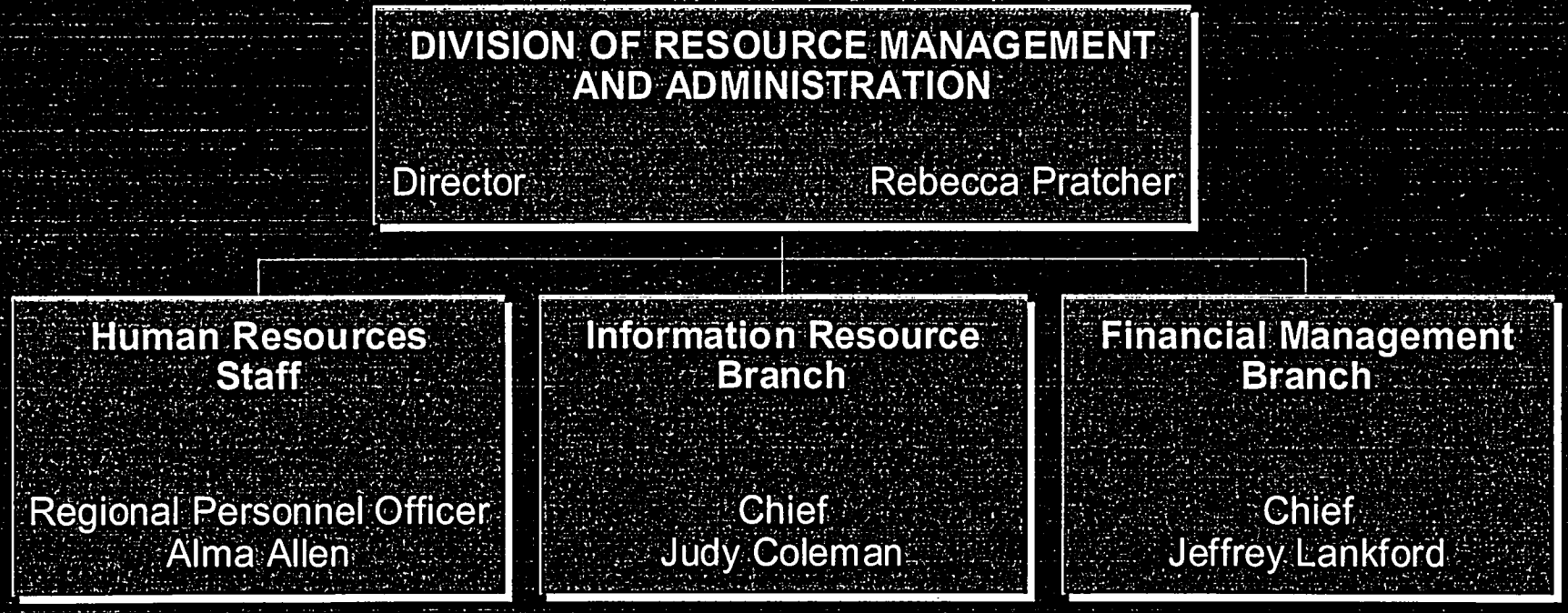
DIVISION OF FUEL FACILITY INSPECTION
Organization Chart



Major Functional Responsibilities of the Division of Fuel Facility Inspection Include...

- Providing inspection project management for fuel facilities nationwide (high and low enriched, gaseous diffusion, gas centrifuge, uranium conversion)
- Supporting incident response activities
- Providing Resident Inspectors for two high enriched uranium facilities and one gaseous diffusion plant
- Overseeing the expansion of current fuel facilities and construction of new fuel facilities (MOX)
- Periodic Licensee Performance Reviews
- Inspection program and procedure development
- Inspector Qualification program development

DIVISION OF RESOURCE MANAGEMENT AND ADMINISTRATION
Organization Chart



Major Functional Responsibilities of the Division of Resource Management and Administration Include...

- Managing Human Resource Activities
- Managing Information Technology Requirements for the Region and Resident Sites
- Managing Budget Formulation and Financial Management and Execution
- Managing Travel and Procurement Activities
- Coordinating Training and Development
- Providing Administrative Support to the Region
- Coordinating FOIA Request
- Coordinating Licensee Fees

Advisory Committee on Reactor Safeguards Plant Operations and Fire Protection Subcommittees

August 24 - 25, 2005

BROWNS FERRY 1 RECOVERY

Background and Oversight Plans

Stephen Cahill
Chief, Branch 6 (TVA Sites)
Division of Reactor Projects

TVA BACKGROUND

- Unit 1 in Lay-up since mid-1980's
  - Routine Region II Oversight of Lay-up Program
- September 17, 1985, NRC issued a 50.54(f) letter
- Unit 2 restarted in 1991, Unit 3 in 1995, following Commission briefings & staff approval
- TVA Preparations in 2002 for Board Decisions
- Key Assumptions / Plans

NRC PREPARATION BACKGROUND

- Initial NRC perspective & considerations
- Determined need for NRC Manual Chapter
  - ROP implemented since Unit 2 & 3 recoveries
- Other considerations creating need for a MC
- MC 2509 issued in August 2003 specifically to govern oversight of the Unit 1 Recovery
  - was developed by RII & IIPB
  - done openly with TVA involvement
  - final draft shared as public document

NRC PREPARATION BACKGROUND

(Continued)

- Key attributes of MC 2509
- Resources: personnel moves in Region, at site, and in NRR
- Regulatory Framework established
  - TVA sent letters in 2002 & 2003 to establish U1 restart scope
  - NRC issued a final Regulatory Framework agreement on August 14, 2003

Current Status

TVA SCHEDULE AND PLANT CONDITION

- Schedule success & scope growth
- Emphasis on productivity by TVA
- TVA BF1 staffing
- Phases of Recovery
- System turnover to Operations process - SPOC

NRC INSPECTION STATUS

- Quarterly Reports
- TVA Performance
- "Recovery Issues List" is fully developed
  - Issued as public document
  - TVA Quarterly Updates
  - planning tool
  - Item closure progress
- Focus of Inspections

NRC INSPECTION STATUS
(Continued)

- ROP Cornerstone Transition
  - Cornerstone (CS) Transition Matrix
  - Criteria
  - Inspections done for readiness
  - Transition letter issued December 29, 2004
  - Four CS's into ROP approach as of January 1, 2005

Current Plans

- Establish Restart Oversight Panel by October 1, 2005
- Commission communication paper

OTHER TOPICS

- SCWE / ECP & Allegation Trends
  - Receipt activity
  - TVA improvements to ECPs
  - Routine NRC interaction with TVA and SWEC ECP Leads
- Public Interest / Involvement
  - Information available publically
  - Many opportunities for public involvement
  - Public Meeting Schedules

BROWNS FERRY 1 RECOVERY

Regional Inspection Activities

Mark S. Lesser
Chief, Engineering Branch 3
Division of Reactor Safety

Overview

- Discuss TVA Special Programs being inspected by DRS
- Discuss Two Examples of a Special Program
  - Summary of the problem
  - TVA Corrective Actions
- Discuss Regional Inspections
  - Plans
  - Status
  - Results

Civil / Structural Programs

- Long Term Torus Integrity
- Large Bore Piping Supports
- Small Bore Piping and Instrument Line Supports
- Control Rod Drive Piping Supports
- Cable Tray and Conduit Supports
- HVAC Duct Supports
- Steel Platforms and Frames
- Seismic II/I

Electrical Programs

- Cable Ampacity
- Cable Installation and Separation
- Cable Splices
- Flexible Conduits
- Fuses
- Thermal Overloads

Material Programs

- Containment Coatings
- IGSCC

Engineering Programs

- Configuration Management / Design Baseline
- Design Calculations
- Fire Protection / Appendix R
- Environmental Qualification
- Probabilistic Safety Assessment

Example: Piping Supports

- Problem – Concerns identified with structural response to loadings including pressure, temperature, dead and live loads, seismic loads
- Sources – TVA QA, NRC inspections, industry programs, contractor reviews
- Root cause – lack of seismic design criteria records, weak quality control, failure to identify and track variances, attention to detail in implementing modifications

TVA Corrective Action

- Revise seismic ground motion input to seismic system analysis; approved by NRC
- Implement commitments to Bulletin 79-02 (Anchor Bolts)
- Implement commitments to Bulletin 79-14 (Seismic Analysis for Piping Systems)
- Conduct detailed walkdown and analysis of piping systems
- Identify "breakage"; evaluate and modify as appropriate

Example: Cable Ampacity

- Concern – Potential for undersized safety related cables
- Source – INPO finding at Bellefonte
- Root Cause - Lack of design calculations and incomplete design standards to account for effects of environment on cable ampacity

TVA Corrective Action

- New Design Standard written for power and control power cables
- Includes derating factors for coatings, fire wraps, cable tray covers, etc.; criteria approved by NRC
- Determine extent of non-conformance
- Evaluate, Derate, or replace cables

NRC General Inspection Plan

- Review References (BF Nuclear Performance Plan, NUREG 1232, SE)
  - Understand Scope, TVA Resolution and NRC acceptance for the Special Program
- Identify if U1 resolution is same as U2/U3
- If different, review method in detail
- Assess adequacy of licensee's walkdowns for "breakage"
- Sample Implementation of Evaluations and Modifications

Inspections

- Lead Inspector assigned to each Special Program
- Alternate inspectors assigned
- Trainees included as practicable
- Inspection schedule integrated with other baseline inspection responsibilities
- Open items included (TMI Action Items, Generic Letters, etc.)
- Regional inspections coordinated with one DRS Branch Chief and DRP Project Engineer

Inspection Status Summary

- Inspections Complete
  - IGSCC
- Inspections Near Complete
  - Thermal Overloads
  - Cable Splices
  - Fuses
  - Cable Ampacity
  - Cable Tray, Conduit, and HVAC Supports
  - EQ
  - Steel Platforms and Frames

- Inspections Continuing
  - Torus Integrity
  - Large Bore Piping Supports
  - Cable Installation and Separation
  - Containment Coatings
- Inspections in Early Stage or Not Started
  - Small Bore Piping and Instrument Line Supports
  - Control Rod Drive Piping Supports
  - Design Calculations, Configuration Mgmt, Design Baseline
  - Fire Protection / Appendix R

Inspection Results

- Torus Integrity (Quality Assurance Program Deficiencies)
  - SL III Violation issued May 2004
  - Failure to ensure compliance with drawings and procedures, and to conduct adequate oversight of quality activities, resulting in multiple examples of omitted repairs

- Causes
  - Workers became mis-oriented in torus
  - Sketches confusing
  - Work documents difficult to use
  - Perceived time pressure
  - Inadequate checking
  - Lack of independence
- NRC completed inspection of corrective actions

Inspection Results (cont.)

- Large Bore Piping Supports (Activities not accomplished in accordance with drawings)
  - SL IV Non-cited violation documented May 2005
  - Undersized pipe support components (plate, strap, welds)
  - Pipe support base plate mis-oriented 90°
  - Pipe support dimension out of tolerance
- NRC inspections of corrective action and additional work ongoing

LICENSE RENEWAL ACTIVITIES IN REGION II

Caudle Julian
Senior Project Manager
Engineering Branch 3
Division of Reactor Safety

License Renewal Inspection Program Implementation

- License renewal manual chapter - MC 2516
- License renewal inspection procedure - IP 71002
- Site-specific inspection plan for each applicant
- Scheduled to support NRR's review
- Resources - consistent team of the same five inspectors
- Training program for replacement team members

License Renewal Inspections

Scoping and Screening Inspection

Objective: To confirm that the applicant has included all appropriate SSCs in the scope of License Renewal as required by the Rule

MC 2516 and IP 71002 have been revised to reduce the scope of Scoping and Screening inspections and combine them with Aging Management Program inspections
Focus is on 10 CFR 54.4 (a) (2) situations - non safety related that could effect safety related equipment

Aging Management Programs Inspection

- Objective: To confirm that existing AMPs are working well and to examine the applicant's plans for establishing new AMPs and enhancing existing AMPs
- Two weeks in length
- Examine records of past tests and surveillances from existing AMPs
- Examine implementation plans for new or expanded AMPs
- Verify inclusion of future tasks into established site task tracking system
- Verify that material condition of plant was being adequately maintained to date

Third (Optional) Inspection: Open Items

- 2 - 3 days in length
- Close any open items from previous inspections
- Close any inspection items requested by NRR
- Verify that applicant has loaded future tasks into established site task tracking system
- Verify that a Transition Plan for completion of license renewal project was established

RENEWED LICENSES ISSUED IN RII

Oconee
Hatch
Turkey Point
Dominion – North Anna & Surry
Duke – McGuire & Catawba
St. Lucie
Robinson
Summer
Farley

LICENSE RENEWAL REVIEWS IN PROGRESS IN RII

Browns Ferry
Brunswick

Browns Ferry License Renewal Inspection
AMP Inspection Conducted November 29 - December 17, 2004

The inspection concluded that LR activities were conducted as described in the License Renewal Application (LRA). The inspection also concluded that existing programs to be credited as aging management programs (AMPs) for license renewal are generally functioning well.

The inspectors observed during this inspection that the applicant had not yet begun the implementation process for new and enhanced AMPs and that the AMP procedures have yet to be defined and composed. Also for existing programs, the identification and selection of which particular existing procedures constitute the AMP had yet to be done. Therefore conclusions could not be reached on the acceptability of most AMPs. The inspectors concluded that NRC will perform another inspection when the applicant has progressed further with AMP implementation.

Browns Ferry License Renewal Inspection
AMP Inspection Conducted November 29 - December 17, 2004
(cont'd)

In walking down plant systems and examining plant equipment the inspectors found no significant adverse conditions and it appears plant equipment was being maintained adequately. One degraded condition was identified by NRC where unit 1 construction activities led to obstruction of units 2 and 3 Emergency Equipment Cooling Water discharge catch basins as described in paragraph II.C.12. The applicant took prompt action to clear the obstructions.

Second AMP inspection scheduled for September 19 – 23, 2005

ENGINEERING PILOT INSPECTION

Chuck Ogle
Chief, Engineering Branch 1
Division of Reactor Safety

Jim Moorman
Chief, Operations Branch
Division of Reactor Safety

PURPOSE

Discuss Region II's experience with the Engineering Pilot Inspection

BACKGROUND

Inspection performed per TI 2515/158 at V.C. Summer 10/4/04-11/19/04

Inspection Focus

- Low margin risk significant components and operator actions
  - Identify risk significant operator actions and components using risk tools
  - Further on-site review to identify components with low margin
  - Engineering design review
  - Observed material condition
  - OE or cap-review
- Operating experience specifically considered
- Not limited to mitigating systems
- Components selected primarily in EFW, SW, CCW, EDG and CCW systems

Team Composition

- Team leader
- Region-based electrical and mechanical inspectors
- Summer Resident Inspector
- Three Contractors
- Enhanced SRA support throughout inspection (with inspection experience)
- Team chosen for success: experienced and available

Additional Contributors

- Benchmarked VY inspection preps
- Division Director involved in development of TI
- Inspection not far removed for Region II's historical event-based approach

Conduct of inspection

- Bagman trip (lead and SRA)
- 3 onsite weeks for team
- SRA onsite for last week

INSPECTION RESULTS

- Components & systems reviewed were capable of performing their functions
- 2 green NCVs (EDG surveillance inadequacy, CA for operator timelines)
- 1 potentially greater than green finding determined to be green NCV (tubercles in EFW suction source)
- 1 URI still pending -tornado vulnerability
- Licensee's historical response to some conditions adverse to quality was not adequate

Successful Inspection

- Thorough inspection
- Solid issues identified
- Inspection issues clearly communicated
- Sound basis for cross-cutting PI&R issues
- SDP timeliness goals met for one issue put through SDP

Areas for Improvement

- Assumptions in SDP
- Timeliness of NRC questions regarding EFW system operability

Questions Going Forward

- Sustaining team composition
- Knowledge transfer from contractors
- Impacts of inspection schedule

	EXISTING SSDPC	PILOT INSPECTION	NEW ENGINEERING INSPECTION
Staffing (NRC)	Nominally 5 Team Leader Mechanical Inspector Electrical Inspector 2nd Mechanical/ Electrical Inspector Operations Inspector	4 NRC Personnel Team Leader Mechanical Inspector Electrical Inspector Summer Resident Inspector	3 NRC Personnel Team Leader Mechanical Inspector OR Electrical Inspector Operations Inspector
Contractor Support	1 on ½ to ½ of the inspection	3 contractors	2 contractors
Inspectors in training	Usually	None	1 (+)
Length	5 weeks. Two onsite weeks	6 weeks. Three onsite weeks	7 Weeks – Three on site weeks
SRA Support	Bagman trip (frequently)	Bagman trip Onsite system selection week Portion of last onsite week	Bagman Trip
Findings	19 findings / 46 SSDPC inspections	3 Green NCVs 1 URI	

U.S Nuclear Regulatory Commission, Region II

Division of Reactor Projects

and

Division of Reactor Safety

Succession Planning

August 25, 2005

Victor McCree's Presentation

Topics

- Strategic Workforce Plan
- Recruiting Philosophy and Strategy
- Staff Development and Training
- Resident Inspector Succession Planning
- Use of DRS Skills Matrix
- RII Demographics

Strategic Workforce Planning

- Promotes NRC Management Alignment on Human Resources Needs:
  - Enables Recruiting
  - Facilitates Training
  - Increases Efficiency and Effectiveness

Recruiting Philosophy and Strategy

- Geography
- Use of Tailored Vacancy Announcements
- Targeted Recruiting Sources
- Established University Contacts
- Use of Internships and Co-Ops

↓ Joe Shea

Staff Development and Training

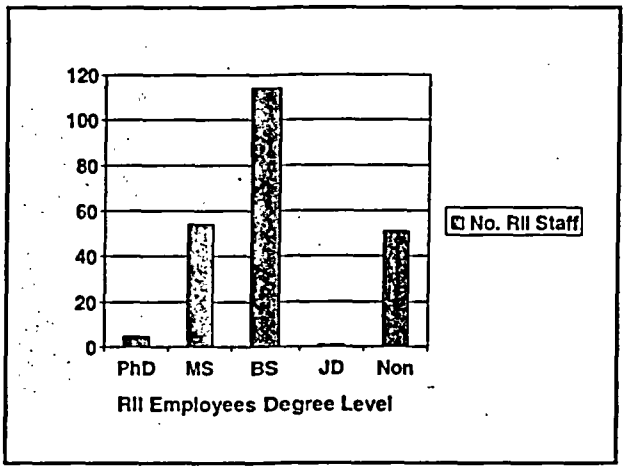
- MC 2515 Certification and Qualification
- Training Classes
- Inspection Observations
- Mentor for New Hires

Resident Inspector Succession Planning

- Resident Inspector Staffing Requirements
- - Relocation Policy
- Resident Inspector Development Program
- Development Matrix for Qualified Inspectors

Use of DRS Skills Matrix

- See Human Capital Management Program
- Targets Multiple Skills in 17 Elements
- Identifies Staff Needs, Current Staffing, Projected Losses, Projected Gains, and the Succession Plan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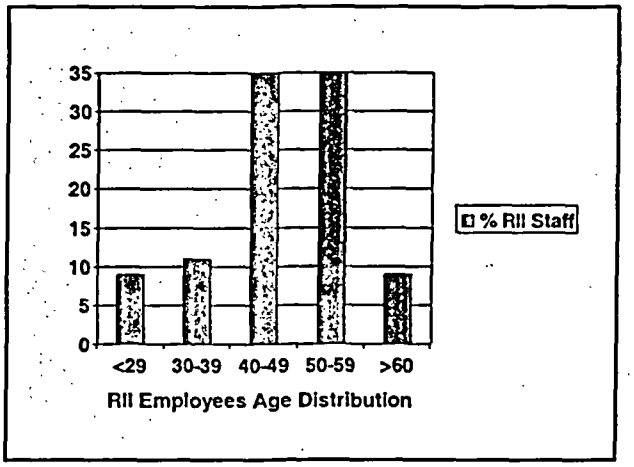
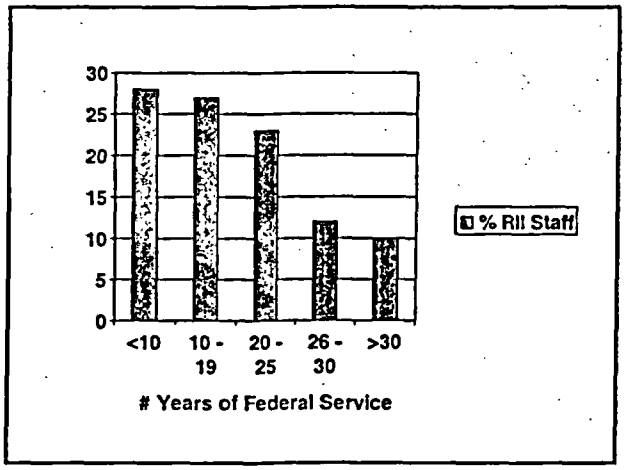
100
80
60
40
20
0
PhD
MS
BS
JD
Non
No. RII Staff
RII Employees Degree Level


35
30
25
20
15
10
5
0
<29
30-39
40-49
50-59
>60
% RII Staff
RII Employees Age Distribution


30
25
20
15
10
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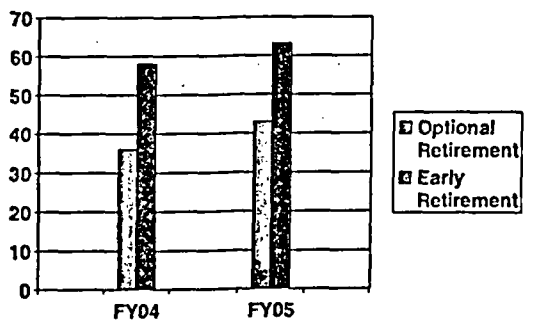
0
<10
10 - 19
20 - 25
26 - 30
>30
% RII Staff
# Years of Federal Service



RII Employee Retirement Eligibility

OCONEE 95002 INSPECTION

Bob Schin
Senior Reactor Inspector
Engineering Branch 2
Division of Reactor Safety

PURPOSE

Discuss Recent Inspection for Degraded Mitigating Systems Cornerstone

BACKGROUND

Inspection performed per IP 95002 at Oconee during 5/23/05 – 6/2/05

Inspection Focus

Provide assurance that for the two White findings the root causes were understood and corrective actions were adequate. Also, independently assess the extent of condition and extent of cause.

Two White Findings

1) A third quarter 2003 finding involving inadequate standby shutdown facility (SSF) pressurizer heater capacity.
   (NOTE: This finding had been closed by a previous 95002 inspection.)

2) A third quarter 2004 finding involving inadequate procedural criteria for manning the SSF during a fire.

SSF Pressurizer Heater Finding

- Finding was licensee identified during testing development on March 7, 2002
- Insufficient capacity of pressurizer heaters powered by the SSF to assure natural circulation cooling
- Pressurizer ambient heat losses of 143 – 178 kW (for Units 1, 2, & 3) greatly exceeded the 70 kW in the original design basis documents
- Inadequate corrective action because licensee had numerous prior opportunities to identify

Manning the SSF During a Fire Finding

- Finding was NRC identified during a triennial fire protection inspection on February 8, 2002
- Procedures did not staff the SSF until after fire damage caused a loss of all steam generator feedwater or loss of all high pressure injection
- Consequently, RCS pressurizer relief valves could lift many times and potentially fail open, rendering the SSF inoperable
- Failure to meet fire protection licensing basis for promptly staffing the SSF during a fire, before fire damages cables

Team Composition

- Lead inspector
- Senior reactor analyst
- Basic qualified inspector

Conduct of inspection

- Bagman trip (lead inspector)
- One onsite week
- One additional week in office

INSPECTION RESULTS

- No findings of significance were identified.
- There were opportunities for improvement in licensee processes for determining root and contributing causes, extent of cause, and corrective actions.
- Corrective actions (completed and planned) were adequate.
- The one open White finding was closed.

SEQUOYAH WHITE FINDING ON BINDING OF THE 1A RHR BREAKER

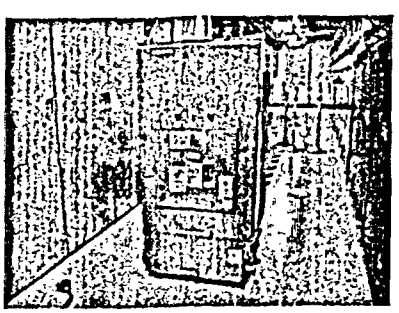
Scott Freeman
SRI (Sequoyah Site)
Reactor Projects Branch 6
Division of Reactor Projects

BACKGROUND AND TIMELINE

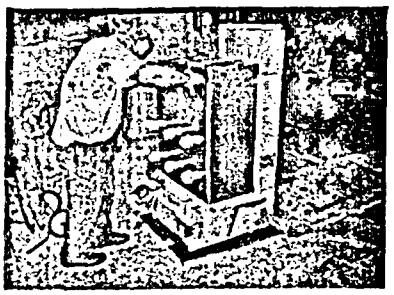
- December 1996 - ABB Services Begins Refurbishing Sequoyah Breakers
- 1997 to 2000 - Many Problems with ABB Workmanship
- September 2000 - Refurbishment Cost for Safety-Related ABB Breaker at $31000.00
- January 2001 - TVA Decides to Replace Safety Related ABB Breakers with Siemens Breakers
- November 2001 - TVA Begins Installing Siemens Breakers

MOC SWITCH MECHANISM

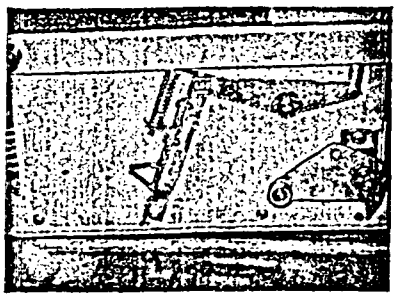
BREAKER OVERVIEW



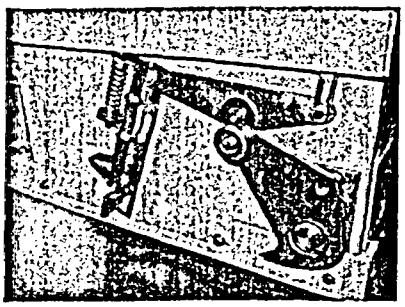
BREAKER OVERVIEW



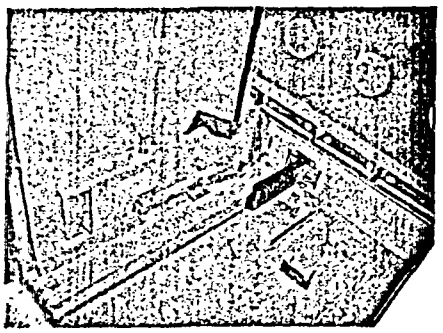
SLIDE BRACKET



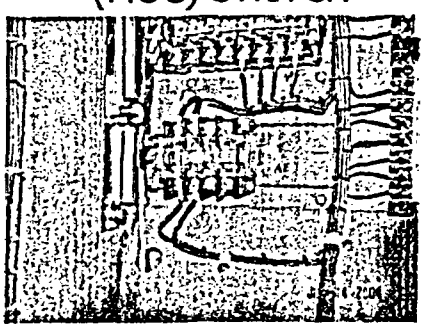
SLIDE BRACKET



BREAKER CUBICLE



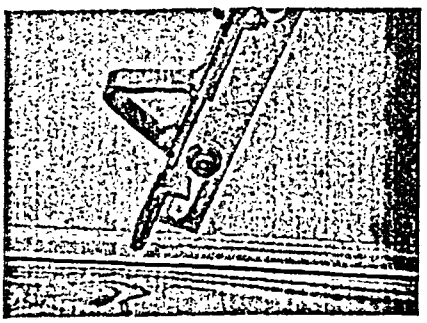
MECHANISM OPERATED CELL (MOC) SWITCH



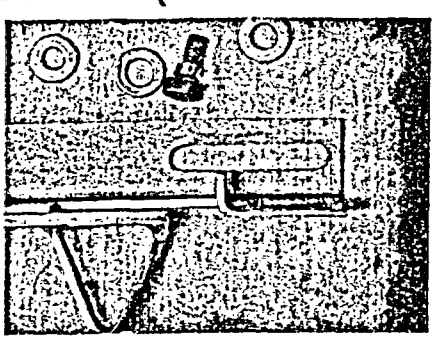
LIST OF BREAKER FAILURES

- January 31, 2002 - Siemens breaker failed to close while racked to the TEST position (Initial checks)
- June 6, 2002 - Siemens breaker for ERCW Pump M-B failed to close while racked to the TEST position (PMT)
- July 31, 2002 - Siemens breaker failed to close while racked to the CONNECT position (PMT)
- February 11, 2004 - Siemens breaker for ERCW Pump P-B failed to close while racked to the CONNECT position (PMT)
- February 18, 2004 - Siemens breaker for Containment Spray Pump 2A failed to close while racked to the CONNECT position (PMT)
- April 9, 2004 - Siemens breaker for ERCW Pump M-B failed to close while racked to the CONNECT position (PMT)
- April 26, 2004 - Siemens breaker for ERCW Pump P-B failed to close while racked to the CONNECT position (PMT)
- July 7, 2004 - RHR Pump 1A failed to start on demand during surveillance testing. (On-demand failure)

SLIDE BRACKET (FAILED BREAKER)



BRADDING (FAILED BREAKER)



TVA ACTIONS AFTER BRADDING DISCOVERED

- Visually Inspected 12 Breakers Designated as Spare and Not Installed in the Plant
- Visually inspected 6 breakers installed in the A train of ECCS, including RHR Pump 1A
- Visually inspected 12 breakers installed in the B train of ECCS
- Vendor had Indicated that a Functional Test would be more Accurate

NRC ACTIONS BEFORE RHR FAILURE

- Performed Maintenance Inspection in Spring 2003
- Performed Operability Evaluation Inspection on Two Breaker Failures (June 2003, July 2004)
- Performed a Second Maintenance Inspection in 2004 (began in Spring but extended when they went a1)
- Performed Three PMT Inspections on Different Siemens Breakers
- Began a PI&R Annual Sample in Spring 2004

NRC ACTIONS AFTER RHR FAILURE

- DRS Inspected the RHR Breaker Failure as Part of PI&R Sample (Raised Questions About Qualification)
- Residents Researched CAP for Previous Occurrences (The same failure occurred in June 2003 During Receipt Inspection)
- Branch Chief and DRS Director Visited SQN for Discussions on Breakers

ROOT CAUSES

- Equipment Problems Were due to Vendor Deficiencies
- Root Cause Was Program Deficiencies In the Design Process
  - TVA Used the Engineering Document Change Process to Perform the Design Change. This is the like-for-like process.
  - TVA Did not Hold the Vendor Accountable for Documentation Showing the Required Qualification and Testing

ISSUE DISPOSITION

- White Finding for Failure to Identify and Correct the Problem With RHR Breaker
- Unit 1 RHR A Train was Inoperable for 14 Days
- Reduced Sump Recirculation for Small or Medium LOCAs
- No Sump Recirculation for Loss of 125 VDC Battery Board 2

CONCLUSIONS

- The Process Worked
- The Process Didn't Work
- New Breaker-in-the-Existing-Cubicle Upgrades Must be Watched Closely for Unforeseen Problems

Fire Protection Issues/ SDP Timeliness

Charlie Payne
Chief, Engineering Branch 2
Division of Reactor Safety

TYPES OF FP FINDINGS

- Hemyc/MT Fire Wraps
- Circuit Analysis/Associated Circuits
- Manual Actions In Lieu of Fire Barriers (subset of circuit analysis)
- RCP Seals/Safe Shutdown
- Other

HEMYC/MT FIRE WRAPS

- Long standing issue
- Affects four Region II plants
- Recent testing has found these wraps do not meet 1-hr or 3-hr fire resistance times
- Draft Generic Letter issued for comment
- Plan – NRR to track issues to closure

CIRCUIT ANALYSIS

- Another set of long standing issues
- Primarily related to associated circuits/spurious equipment operation
- RIS 2004-03, Rev. 1 issued to resolve
- Enforcement discretion 1/1/05-12/31/05
- No risk evaluation required
- Only one finding closed to date
- Plan – assess licensee progress to resolution and close those meeting criteria

MANUAL OPERATOR ACTIONS

- Subset of circuit analysis issues
- Often used to mitigate spurious equipment operation in lieu of cable protection
- Licensees long believed was an acceptable alternative to App. R, III.G.2 requirements
- Extensive use of manual actions is pervasive among all Region II facilities
- Most not evaluated for feasibility or timeliness
- Often have high Human Error Probability (HEP)

RCP SEAL ISSUES

- To date, 5 Region II licensees have been identified with this issue
- Failed to apply Westinghouse guidance on actions to take on extended loss of seal cooling (related to SBO)
- Most allowed restoring seal cooling 60-90 minutes following complete loss
- Risk significant due to lack of ECCS equipment to mitigate in fire scenarios

NFPA 805

- Duke Energy (Oconee, McGuire, Catawba)
- Progress Energy (Harris, Crystal River, Robinson, Brunswick)
- Possibly Dominion (Surry, North Anna)
- Oconee and Harris are pilot plants
- Enforcement discretion during transition (applies to old issues if commit during '05)
- Risk evaluation only to determine less than Red or Severity Level I
- Findings remain open until transition complete

FP SDP TIMELINESS

- Fire protection and SSDPC shared inspection resources up to 10/1/04
- Scheduling of 15 team inspections per year usually precluded assignment of an inspector to resolve open findings
- Inefficient and loss of continuity over time
- Licensee corrected problem or implemented compensatory actions

FP SDP TIMELINESS

- Complicated FP issues can not be quickly resolved with FP SDP (MC 0609, App. F)
- SDP is 24 pages long with another 116 pages of explanation and guidance
- Most RII issues involve RCP seal cooling or safe shutdown capability concerns
- Requires additional site visit to collect information necessary to complete SDP

FP SDP TIMELINESS

- Step 2.8 of App. F is particularly difficult
- Requires excellent knowledge of integrated plant operations (most FP inspectors are electrical engineers)
- 90 day SDP timeliness goal unrealistic for complicated FP issues (RCP seals/SSD)
- Goal requires SDP completed within 2 weeks of report with no errors

FP SDP STATUS

- 31 current open items (7 new this year)
- 17 tied to plants going to NFPA 805
- 4 Hemyc issues (all NFPA 805 licensees)
- 7 circuit analysis issues
- 7 pending SDP - 3 potentially GTG (Turkey Pt)
- 4 pending additional inspection/information
- 8 resolved; pending closure in report
- 1 reg. conf. complete; pending final significance determination

CORRECTIVE ACTIONS

- Obtained assistance from DRP and NRR to help work off open items
- Obtained additional contractor support for FY06
- Using two separate FP inspection teams
- Hiring 2 FP and 2 operations inspectors
- Restricted support of other inspections

SDP TIMELINESS

BACK UP SLIDES

FP STAFFING OBLIGATIONS

- Six triennial team inspections/year
- 6-8 NFPA 805 observation visits/year for next two years (pilot program)
- Browns Ferry U1 restart inspections (electrical and fire protection)
- DFFI fire protection inspections each year (1 FTE)

NOMINAL TIME LINE

- Phase 1/2 SDP: 2 weeks (No Phase 3)
- SRA review: 1 week
- Pre-SERP: 1 week
- SERP: 1 week
- Choice letter: 1 week

NOMINAL TIME LINE

- Schedule Regulatory Conf.: 4 weeks
- Final significance determination: 1 week
- Re-SERP: 1 week
- Final significance letter: 1 week
- Total: 13 weeks