Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Reactor Safeguards
Plant Operations and Fire Protection

Docket Number: (n/a)

Location: Atlanta, Georgia

Date: Thursday, July 28, 2011

Work Order No.: NRC-1020 Pages 1-153

NEAL R. GROSS AND CO., INC.
Court Reporters and Transcribers
1323 Rhode Island Avenue, N.W.
Washington, D.C. 20005
(202) 234-4433

1
2
3
4 DISCLAIMER
5
6
7 UNITED STATES NUCLEAR REGULATORY COMMISSION'S
8 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
9
10
11 The contents of this transcript of the
12 proceeding of the United States Nuclear Regulatory
13 Commission Advisory Committee on Reactor Safeguards,
14 as reported herein, is a record of the discussions
15 recorded at the meeting.
16
17 This transcript has not been reviewed,
18 corrected, and edited, and it may contain
19 inaccuracies.
20
21
22
23

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

+ + + + +

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SUBCOMMITTEE ON PLANT OPERATIONS

AND FIRE PROTECTION MEETING

+ + + + +

Thursday, July 28, 2011

+ + + + +

Imperial Ballroom Salon B

Atlanta Marriott Marquis

265 Peachtree Center

Atlanta, Georgia

+ + + + +

8:30 a.m.

SUBCOMMITTEE MEMBERS:

JOHN D. SIEBER, Chair

SAID ABDEL-KHALIK

DR. DENNIS C. BLEY

MIKE CORRADINI

HAROLD B. RAY

JOY REMPE

MIKE RYAN

DR. WILLIAM J. SHACK

JOHN STETKAR

NRC STAFF:

ALAN BLAMEY

WILLIAM GLOERSEN

ANTHONY GODY

WILLIAM JONES

MARK LESSER

VICTOR McCREE

DAVE TIKTINSKY

WILLIAM WEBSTER

LEONARD WERT

I N D E X

AGENDA ITEM PAGE

Opening Remarks & Objectives 4

Region II Staff Introduction 5

RII Plant Performance Overview/

Plant Performance Trending 9

Center for Construction Inspection 76

Overview/New Reactors 76

Watts Bar Unit 2 Overview 91

Mixed Oxide Fuel Fabrication Facility 102

Regional Safety Culture/Plant Safety Culture

Assessment Process 116

Excellence in Operations and

Emergency Response 124

Region II Focus Areas and Opportunities 148

Closing Remarks 152

P R O C E E D I N G S

CHAIRMAN SIEBER: The meeting will now come to order. And good morning. This is a meeting of the Advisory Committee on Reactor Safeguards Subcommittee on Plant Operations and Fire Protection.

My name is John Sieber and I'm chairman of that subcommittee. Other members in attendance are Harold Ray, Said Abdel-Khalik, who is chairman of the full committee, Michael Ryan, Michael Corradini, Dennis Bley, John Stetkar, Joy Rempe and William Shack.

The purpose of the meeting today is to discuss the Construction Inspection Program, the Reactor Oversight Program and other items of mutual interest. 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. Ilka Berrios 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 -- in 2010. A transcript of the meeting

is being kept and will be made available as stated in the Federal Register notice. It is requested that speakers identify themselves, speak with sufficient clarity and volume so that they may be readily heard. Speakers should go to the microphones that are placed throughout the room for that purpose.

Now, earlier this week we've had interesting, enlightening visits to the Mixed Oxide Fuel Fabrication plant and the tritium recovery facility at the Savannah River plant. We also visited the Vogtle Nuclear Power Plant near Augusta, Georgia to review Vogtle units 1 and 2 operations and to review the construction progress on -- at the site of Vogtle units 3 and 4.

I would like to take this opportunity to thank the staff of Region II and the Region II management for all of the assistance that they have given to us for this visit and for their ongoing excellent work in the pursuit of nuclear safety in Region II.

With that, I would like to introduce the Region II Administrator, Mr. Victor McKee -- McCree. Excuse me.

Victor?

MR. McCREE: Well, good morning, Dr. Shack

and Dr. Abdel-Khalik, members of the committee. Welcome to Region II. And welcome to Hotlanta for those of you who don't live outside the south. I'm glad you were able to make it through your visits at the Mixed Oxide Fuel Fabrication facility and Vogtle without undergoing any heat stress or heat exhaustion. It's been very warm the last few days. But welcome to this very comfortable room. It's a good-sized room. While it doesn't belong to us we use it quite often because we don't yet have a main conference facility in our new Region II office space. But hopefully, on your next visit -- I'm keeping my fingers crossed here -- we'll be successful and we'll be in the Region II office proper.

Today -- this morning -- we appreciate this opportunity to share information with you on Region II and the great opportunity we have to lead several areas of the agency's mission, regulatory responsibilities. Region II is unique in a number of areas, one of which is we have responsibilities in three major program areas. We have responsibility for 33 operating reactors in the southeast. We have the responsibility for the oversight of all the nation's fuel cycle facilities. We are a center of excellence for fuel cycle facility oversight.

In April of 2006 the Commission gave us responsibility for overseeing all new nuclear construction in the U.S. so we have that responsibility, as well. So this morning we appreciate the opportunity to share a bit on what we're doing in each of those areas.

We also for those reasons happen to be the largest of the four regional offices and also, the third largest office in the NRC with over 300 staff. And we'll grow a bit, at least based on our staffing plan, over the next couple of fiscal years.

And again, I mentioned we moved into our new office space here adjacent to this hotel in April of last year. So we have a very modern office. And for those of you who frequent Atlanta, I'd love the opportunity to give you a tour of our space at some point in the future based on your convenience.

And lastly, I would mention one of the unique areas. Region II has the lowest -- if you look at cost-effectiveness, ours is the lowest labor cost per hour in the non-nuclear waste fund of -- the second lowest actually of all the offices in the agency due in part to our location and the way we staff the organization. So we're very cost-effective. You get bang for your buck when you -- if you would,

when you invest people and time and resources into Region II.

I noticed that some of you have the Region II guidebook. And I'm glad you have that. It certainly introduces a number of things to you, not only what we do but how we do it and the people, as well, a number of whom are in the audience with me this morning and will be speaking are to my left. Bill Jones.

Bill, if you'd raise your hand.

Bill is the deputy director for the Division of Reactor Projects. He will provide you an overview of our oversight of operating reactors and be ready to answer any questions you have. Tony Gody.

Tony?

Tony is the director for the Fuel Facility -- Division of Fuel Facility Inspection. Tony will provide an overview of the current and the proposed, if you would, fuel cycle facility oversight process. We also have Alan Blamey.

Alan?

Alan is the chief for the construction infrastructure development branch in our Center For Construction Inspection. He'll provide an overview for you on construction, the Construction Inspection

Program.

Mark Lesser? Mark?

Mark is the acting deputy director for the Division of Construction Projects. He'll give you an update on our oversight activities at Watts Bar 2, which as you know, is actively under construction under 10(c) of our Part 50.

And finally, Bill Gloersen to my immediate left. Bill is a senior inspector in our Fuel Facility Construction Fuel Facility Inspection Branch and the Division of Construction Projects. And he'll talk about our Fuel Facility Inspection Program, specifically at the Mixed Oxide Fuel Fabrication Facility and the integrated safety assessment associated with that that we're leveraging to target what we do and when we do it.

So let me stop there. I think I had five minutes to give an introduction. But I'd ask if you have any questions for me right now I'd be prepared to respond to them. Otherwise, I'll turn it over to Bill.

Thank you, sir.

Bill?

MR. JONES: Okay. Good morning. My name again is Bill Jones. I'm the deputy director for the

Division of Reactor Projects in Region II. I've been with Region II approximately seven months. Prior to that I was in Region 4, where I held numerous positions, chief of our Allegations Coordination Branch, Engineering Branch, and Operations Branch. I was the senior reactor analyst and then a senior resident inspector, as well as resident inspector.

So I've had a lot of experience with the Reactor Oversight Program, including the transition from the previous program, which was the SALP program, to the Reactor Oversight Program. Was involved extensively with Dr. Mallett in developing the new program.

The program I want to talk about today has been in effect for many years and it continues to develop and I would say actually refine itself. What I'm going to talk about today initially are the licensees and where each of the specific plants lie with regard to the action matrix.

And just to remind others and members of the audience, there's numerous columns associated with the action matrix which are fed by inspection findings, as well as performance indicators. And depending upon the licensee's performance they can fall into one of several columns. The first being the

licensee response columns. And that is where all of our inspection findings are green and the performance indicators also reflect the performance in the green band.

The regulatory response column, where you have one white input or two inputs in different areas. And that's where we initiate supplemental inspections. Degraded cornerstone. Again, further to the right on the action matrix where you have white findings or potential yellow findings in different strategic areas and cornerstones. And again, the NRC's interactions with those licensees continues to escalate, as well as the level of management involvement with those areas.

Then takes us to the multiple repetitive degraded cornerstone. And here we're looking at multiple yellow findings, combinations of white findings or red findings. And here again, it's an additional inspection activities almost essentially to the level of diagnostic-type inspections. And again, the level of NRC management continues to escalate.

Then it takes us to the licensee performance. I won't go through each of these. But I do wish to call out a couple of examples. Starting with Brunswick. Brunswick Units 1 and 2. They

previously were in the obligatory response column that we initiated a supplemental inspection. This involved an emergency preparedness issue. Upon satisfactory completion of that inspection activity this licensee moved to the licensee response column.

Another one I wish to point out is Crystal River. Following steam generator replacement activities at Crystal River, well, they had cut into the containment building itself, there was subsequent delamination of the containment structure. And the licensee initiated repairs. Subsequent to that they had additional problems when they were tensioning and they experienced additional delamination. Well, this licensee has essentially been in a shut-down condition since September of 2009.

DR. BLEY: Let me ask --

MR. JONES: Yes, sir.

DR. BLEY: -- with regard to Crystal River 3. Has the licensee determined what caused the additional delamination and are they on a track to identify any possible additional delamination and to repair the damage that's already incurred?

MR. JONES: The delamination that occurred following the subsequent tensioning activities -- they have evaluations ongoing. They did identify that

there was a possibility that this could happen as they were initiating the tensioning. They are currently doing evaluations. They're taking measures to mitigate any further delamination and the licensee is working with outside contractors, other engineering firms to determinate what the actual repairs would be. So to answer your question they are taking actions now to mitigate any further degradation and they are looking to identify what repairs they will be initiating.

DR. BLEY: Thank you.

MR. JONES: Thank you.

Right now the NRC will be conducting mid-cycle reviews to review each of these facilities coming up in the August time frame. And based upon those evaluations some of these licensees may actually move from different columns based on review of the inspection results, as well as the performance indicators.

Talk about those plants in the regulatory response column. Robinson Unit 2. This licensee experienced a fire in a component last year. As a result of that there were numerous or several issues identified with regard to command and control by the operators, issues with procedures -- operator

procedures, as well as training -- the conduct of training.

The NRC conducted a inspection, what we refer to as a supplemental 9502, which is more intrusive than just being in the regulatory response column. And as a result of that this inspection was completed in June. We found out it was satisfactorily -- the licensee's actions addressed the issues and that they were making satisfactory advancement in their corrective actions.

As a result of that we identified that the licensee would not be in column 3 any longer and as a result of a continuing inspection finding they're currently in the regulatory response column. There's no additional inspection planned for this licensee in the supplemental area. And that is based on the issues that had them currently in this -- in the regulatory response column we addressed as part of the overall review that we performed. And they will remain in that column based on the four quarters for inspection finding which will come to conclusion at the end of September. We do continue to perform the baseline inspections at this facility.

With regard to Turkey Point 4, the licensee was in the regulatory response column because

of unplanned scrams. And we completed an inspection of this -- of the reasons and the licensee's corrective actions, four in-plant scrams in July. This performance indicator that resulted in them going to this column actually went back to the green band at -- earlier this year. So following satisfactory conclusion of the supplemental inspection we expect that licensee also to transition back. Right now the branch chief there is working with the inspection team to verify that the licensee's corrective actions and understanding of the reasons they had the number of scrams they did are satisfactorily addressed.

Next is the Browns Ferry Unit 1. This licensee is currently in the multiple repetitive degraded cornerstone column. This is based on a red finding involving a low-pressure coolant injection valve associated with the B train. This issue was identified last year as a result of a component failure.

We conducted numerous inspections. As a result of that we identified that this particular component failure combined with the licensee's fire mitigation strategy resulted in it having very high safety significance. We issued a inspection report. We issued a letter to the licensee identifying that

they were in column 4, that is the multiple repetitive degraded cornerstone, and we identified a performance deficiency associated with that and associated with in-service testing, as well as a technical specification violation.

The licensee subsequently challenged the NRC with regard to our specific performance deficiency, looking at what they considered to be clarity of the specific in-service testing requirements. We took a look at that, and actually, that review is currently ongoing as far as the specifics of that performance deficiency.

We are looking at the -- based on the licensee's request we determined that we would take a -- an independent review through an independent review board headed by Mr. Cobey of Region II and the DFFI organization, who was completely independent and not involved with the original assessment.

As I indicated, that review is currently ongoing, and we expect to have those results identified in about the next two weeks. But again, we're continuing to look at the performance deficiency and the testing aspects associated with that. We are also looking at a -- at this time the licensee does remain in the column 4 for the multiple repetitive

cornerstone as we proceed with this review.

Also wanted to talk about the areas of significant cross-cutting issues. This is a process that we look at specifically with regard to each of the inspection findings to determine if there are underlying causes or contributing causes for these -- for the findings which can be either violations or findings against the industry standards and practices.

Out of this we did identify that at Browns Ferry Units 1, 2 and 3 two substantive cross-cutting areas. These are in problem identification and deal with appropriate and timely corrective actions. And the second deals with thorough evaluation. We -- this process is well defined. It speaks to specific criteria, as far as the number of cross-cutting aspects in a certain area. And then we look at those to see if they're -- to see if those -- as far as the commonalities which the process and the program provides for.

Then we also look to make sure that we're -- whether or not we have confidence in the licensee's actions. If we see that they may have a number in an area, however, we have confidence in the actions they have taken that they've identified and they're moving forward we would not identify a

substantive cross-cutting area. So -- and these areas that I identify, whether we're talking about substantive cross-cutting areas, we did not have that confidence moving forward.

Another facility was the Oconee Unit 1, 2 and 3, where we had a human performance substantive cross-cutting area that involved work control in -- and at Robinson we had a substantive cross-cutting finding in the area of human performance. These again, will be evaluated and reviewed during our upcoming mid-cycle reviews which are scheduled for August. I will be issuing letters to each of the licensees. And these are all publicly available, as are the inputs to the action matrix, as well as all the performance indicators.

CHAIRMAN SIEBER: Bill, you mentioned cross-cutting issues. Something striking on this presentation is Browns Ferry's in the red column --

MR. JONES: Yes, sir.

CHAIRMAN SIEBER: -- Unit 1. Unit 2 is perfectly fine. They have -- they share operators. They share management. Are the failed valves identical on the two units from the same manufacturer --

MR. JONES: There are --

CHAIRMAN SIEBER: -- and do they undergo the same testing? Curiosity that -- why isn't Unit 2 highlighted?

MR. JONES: The way we are currently set up is the specific unit where the failure occurred is where we find it actually gets counted against. However, when you're looking at it now the inspection activities that we are currently planning for this 95003 supplemental inspection it is essentially a diagnostic.

CHAIRMAN SIEBER: Okay.

MR. JONES: A diagnostic will look at exactly what you are talking about, operations, maintenance, engineering. And I'll talk a little bit further about that. But you're exactly right.

CHAIRMAN SIEBER: I'm glad to hear that. That's good.

MR. JONES: Yes. It does not -- it will not just isolate itself to Unit 1 and silo just that unit as far as the reviews are concerned.

With that, I would like to proceed to the Browns Ferry Unit 1. And I briefly mentioned that this involved a failure of a low pressure safety-injection valve. And actually, the fire mitigation strategy that the licensee had initiated contributed

to the overall risk significance in that this valve as a result of the fire mitigation strategy took on additional risk importance of the risk achievement worth on this would be increased. As a result of that it did contribute to -- and rise to the level of a red finding.

And as I mentioned, the licensee challenged the performance deficiency. We do have that independent review panel ongoing. And we are utilizing the reactor oversight process. We are staying within process as far as the reviews, the agency review or the independent review panels. And then the final outcomes as we're going to express those to the licensee in about two weeks. And as I indicated, the licensee is in column 4 and we are continuing with our planning for the supplemental inspection.

So what is the Browns Ferry supplemental inspection activities? And this gets to some of your questions. This is -- the inspection activities, although Browns Ferry Unit 1 is in the licensee response column, it was -- there was an observation made that the -- there were cross-cutting areas in performance in PINR, Performance -- excuse me -- Problem Identification Resolution. They were talking

about resolution and so forth. Clearly, those are kind of things that we are going to look at under the 95003.

CHAIRMAN SIEBER: Do they all have the same fire mitigation strategy that you had a problem with?

MR. JONES: Each unit does. Although it's -- because of some differences in the configuration of each of the units -- unit 3 in particular is a little bit different -- those mitigation strategies would differ. However, there have been changes to their fire mitigation strategy since this issue was identified. So the -- all of the factors that played into our risk assessment previously would not necessarily be valid today. And they are continuing to work to address those fire mitigation strategies. So if you were to do the risk assessment today I would expect a different outcome to them.

We are going to be involved in multiple inspection activities. And this will -- the first part will involve looking at essentially the scope of the condition. In other words, do we understand that the licensee has identified the failures, are there other components involved, what does the scope of our

real in-depth review need to involve.

And that part is looking to be initiated if the independent review board and our process upholds the performance deficiency or a similar performance deficiency we're looking at the August, September time frame to get thoroughly involved in that.

The 95003 inspection -- supplemental inspection is unlike the ones we talked about for Robinson and for Turkey Point. This truly is a diagnostic inspection. There are several elements to it and it really gets to addressing the key attributes, particularly in the area of reactor safety. And it involves the licensee performing safety culture reviews, the NRC performing grading safety culture reviews, also. So this is a very thorough review that will get into the licensee's programs. It looks at operations, maintenance, engineering, across the board. And so although we're looking at Unit 1 for being in the -- in column 4 Units 2 and 3 clearly will be included, as far as the overall assessment, particularly with regard to the Management Corrective Action Programs, those programs that are similar, which are essentially all the ones I just described.

We're looking to get the initial reviews, like I mentioned, done, completed in the August, September time frame and then we'll proceed with the more extensive diagnostic preparations. And these are all very intrusive, very time consuming, very in-depth. And for individuals who are interested in actually looking what is involved, it's involved in our inspection Manual Chapter 95003. And it speaks to -- it's a very voluminous document with a lot of requirements, as well as descriptions of how we go about implementing them.

Next area I'd like to talk about is the perspectives on the reactor oversight evolution. And as I indicated, my background took me from the systematic assessment of licensee performance back up through my senior reactor analyst days where I was working along with Dr. Mallad and many others on the new Reactor Oversight Program. And to watch it move to where it has today, it has evolved.

I would say that the current status of the Reactor Oversight Program today is not that it is evolving, but that we are continuing to refine the process. And I think what I do see is the accountability that comes out of this process, both from the NRC perspective -- in other words, how did we

get to the decisions we are, what actions are we going to take. And the licensees are accountable, too, in that if there are certain issues or findings that come up they know what our reaction and what our inspection activities are going to be above what we would normally do as far as the baseline inspection activities.

As part of this there are a lot of initiatives ongoing. Just to mention a few, each of the regions over the past year has been involved in reviewing aspects of the Reactor Oversight Program. And there are -- they have a report due out the end of July. And the areas that were specifically addressed by this review panel were application of the ROP in Manual Chapter 0305. That's the document that implements ROP. The reactor oversight process best practices. And from that there were numerous recommendations as far as inspection planning, reviews and so forth. And those are all being shared.

Self-assessments of inspection reports. Again, we're looking for consistency of an application of the inspection process, as well as how we're going about documenting. And then inspection resource sharing. This is an important area, particularly as we look at knowledge management transfer and new

individuals are coming in and individuals that have been around for awhile and seen the program in place as to how to reassure we get consistencies. And part of that is resource sharing where we get together and we put some of our newer individuals with maybe experiences that are a little bit different and focus on that.

We also have biweekly calls between the four regions at the division director level. We talk about issues that we've seen with ROP, Reactor Oversight Program implementation. And that takes us to areas that we may want to focus on in the region or within the regions themselves. It's also an excellent forum for identifying a need for resources.

For example, if we proceed forward with the Browns Ferry supplemental inspection, 95003, provided we do uphold that, that there will be a need for a lot of experienced inspectors from the other regions to support that activity. And that's a good forum. And not only that, but it -- again, that's part of the ROP sharing and resources.

We also perform reviews following inspection activities. The Robinson supplemental inspection that we performed -- there were several lessons learned that came out of that. The branch

chief put those together and has presented that to the other branch chiefs who were taking the lessons learned from that, as far as how do we go about planning and executing those inspections in the future, as well as looking at the program itself from the standpoint of the licensing of operators and what we specifically look at.

So these are things that we can feed back into our ROP, specifically inspection procedures through feedback process of -- a formal feedback process that we have where we can -- headquarters would evaluate our feedback and then provide either changes to the inspection procedure or maybe look at it more holistically.

In addition, there are public meetings conducted in -- through headquarters on the ROP, the Reactor Oversight process. And as I indicated, these all involve numerous stakeholders at our public meetings which gives individuals an opportunity on a monthly basis to provide input to the NRC.

Yes, sir?

CHAIRMAN SIEBER: I've heard but I don't want --

VOICE: That is a result of the Robinson event of what, a year-and-a-half ago or something, two

years ago?

VOICE: There were activities -- follow-up activities at other plants. Can you say anything about that or is -- even if that's true?

MR. JONES: I can't speak that there were -- I mean, we took lessons learned, as far as the licensee's emergency implemented procedures, command and control, things like that. So those are lessons learned that we share, not only amongst Region II but also with the other regions. And one of the things that we're looking at is the operator training aspect. And that's being looked at in bigger picture.

So to answer your question is there are -- there were very some short-term reviews and sharing of information, as well as longer term activities that we look at from the use of feedback forms or looking at specific training. And actually, the Division of Reactor Safety that has the operator licensing aspects has been extensively involved in that. And we -- and there were a couple of individuals from the Division of Reactor Safety operator licensing involved in the supplemental inspection that truly have firsthand knowledge of that. So --

VOICE: Thank you.

MR. JONES: I'd also like to address that

we continue to learn. And that's one of the -- I think one of the benefits of the reactor oversight process is that it is not a stagnant process. And I think the recent Fukushima tragedy, although it -- you know, it was -- there are definitely lessons learned that come out of that -- and part of that is going back and looking at what had we learned previously. And following September 11 we came out with specific requirements, the B-5-B that focused licensees on really mitigation strategies for extreme events. And from that --

MR. ABDEL-KHALIK: Let me just follow up on this.

MR. JONES: Yes, sir.

MR. ABDEL-KHALIK: You know, since 2008 inspection of B-5-B equipment has been a part of the tri-annual fire inspections. And clearly, since that time each plant has had at least one tri-annual fire inspection. So in light of the non-compliances that were found in post-Fukushima inspections what are you doing to enhance the effectiveness of these tri-annual fire inspections?

MR. JONES: I would -- well, I'll speak to that two ways. First is we've taken the issues that we've identified from the -- or excuse me -- from the

temporary instruction 183 and 184, which the Commission just was briefed on last week and a report has been issued as far as the -- I believe it was 12 area recommendations. We are taking those and looking at those from all inspection activities as to what we need to be following up on.

With regard to specific challenges -- or changes to the tri-annual, I would have to provide some feedback to you on that -- at a later time on that one unless there's anyone in the audience that can speak to any of that. But I don't have any specific knowledge of changes that we've made to the tri-annual inspection activities as a result of the B-5-B findings. So I'd have to -- I'll have to get back to you on that.

MR. ABDEL-KHALIK: All right.

MR. JONES: Okay.

I do want to -- in saying that, what we have done is by going back and looking at the licensee's actions, their procedures, their severe accident management guidelines, I think that we do have a good understanding again, of where each of these licensees are. And they're taking actions either from their internal processes to address where equipment may be located to ensure that it is truly

available, to the NRC looking at, for example, hard events to make sure that they are accessible, that the power supplies and those types of things are there. So where there were deficiencies found those are being corrected.

But there's still a lot of activities ongoing and I expect -- the Commission is taking 90 days to review the recommendations from the independent review panel. And from that I would expect to see additional inspection activities, as well as different focus areas coming out of them.

Just another example, of course, would be the groundwater initiative. I think that was temporary instruction 173 that we were following up on. You know, these are areas that, you know, involve, you know, radiological protection, public -- you know, on-site versus off-site mitigation and ensuring that the licensees understand sources of, for example, groundwater contamination, i.e., tritium, and the proper monitoring of those.

Under perspectives on oversight again, I'd talk about the inspection procedure review. This is a bi-annual activity where we look at the effectiveness of the inspection procedures we have out there, our allocation of resources and what are the results from

those inspection activities. And based on this we do look to see whether or not we need to revamp procedures, maybe focus in different areas and/or maybe eventually to completely remove a procedure and implement a different area.

I think the component design basis inspection is a good example of that, as well as the 5059 reviews, where we have increased our reviews in those areas. The component design basis inspections. We used to do the vertical slices and the horizontal slices through different inspections. And this component design basis got us down to the component level. And from that we've identified several findings, some of them having significance that I think have enhanced licensee safety and overall helped us to -- ensured us -- ensured that we have met our mission to the public.

MR. STETKAR: Excuse me.

MR. JONES: Yes, sir?

MR. STETKAR: Since you mentioned that, I was thinking of it earlier. This planned -- assuming you get confirmation of the deficiency -- I think you called it diagnostic inspection at Browns Ferry.

MR. JONES: Yes, sir.

MR. STETKAR: Will that still be kind of

horizontal and vertical slices or is that going to be more general? Or have you planned --

MR. JONES: That will essentially be both areas. When you look at that it looks at specific components. It will look at design aspects, and it will look across the board as far as corrective actions are concerned, for example. And it will look at the communications between organizations, as well as the specific outcomes from a specific organization.

For example, engineering design reviews. How is that communicated between operations and engineering? Or what is the results of the engineering reviews themselves? And then we can get down into specific components the same way where we can look at, for example, the high pressure cooling injection system, as well as looking within a specific component itself. So it can -- it will go both ways.

It is a -- it is truly the -- it's the old diagnostic inspection. When you really look at it, that we performed at Palo Verde and South Texas from many, many years ago under the old diagnostic program. But when you look at those two they are -- you see a lot of similarities between those programs.

I want to talk a little bit about the safety significance evaluations. As an agency we are

continuing to improve our abilities to review external events. And I think as time goes on we are -- we're understanding better the -- how to evaluate performance deficiencies and to assess the true significance of events and conditions out there.

And I would take the Robinson cool-down and safety injection, the one that led to the '95 002 as a good example of that, where we looked at the -- we defined the performance deficiency and out of that we performed a overall risk assessment that looked in several specific areas. Command and control, procedural adequacy and the training.

And as a result of that I think we really got to the heart of the issues and we were able to focus our efforts, as well as the licensee and their root cause and contributing cause evaluations. I think had a good understanding of the type of problems that we saw and were able to build on that. But I would use that as a very good example of one of the integration issues within a performance deficiency to get the outcome that definitely improved safety.

The last is development of SAPHIRE 8. I remember back when I first became an SRA, was in a -- in the original class. We'd run a computer program and it would be -- come back the next day and

hopefully, it was done. And you would look and you may not have your ultimate heat sink model and things of that nature.

This program has made leaps and bounds since then. And as to that, we are looking at implementing the SAPHIRE 8 which will actually be able to be utilized at the sites by the resident inspectors and others. And so if we have a program in place with pilots identified to implement the SAPHIRE 8 and to continue to move forward -- this does not replace the evaluations the senior reactor analyst but it does help to inform the resident inspectors and to keep them focused in the right areas. And this also helps them to identify and to address findings that they might have.

And like I say, anytime we can put information that deals with risk, risk sequences and specific components in front of the inspectors I think that benefits us greatly. The -- it just continues to reinforce their training and their background, as far as what is important and why are we looking at this. And I think that that's -- you know, these models become more and more developed I think that really helps us in the long run.

MR. STETKAR: Bill, a couple of questions

before you move on from that. I mean, it's nice to have a whiz-bang new tool that --

MR. JONES: Uh-huh.

MR. STETKAR: -- quantifies things a lot faster and has bells and whistles on it. But the important thing is the underlying risk model. And I think what we've seen and many times it's more important for people to understand in some detail what is not in the risk model versus pushing a button and seeing something that is in the risk model either pop up to the top or stay at the bottom.

MR. JONES: Uh-huh.

MR. STETKAR: How are you training your resident inspectors in that area? I mean, just having the capability to push a button and see something pop to the top --

MR. JONES: Uh-huh.

MR. STETKAR: -- or stay at the bottom doesn't necessarily give them much of a perspective if they don't understand what may or may not be modeled --

MR. JONES: I'll --

MR. STETKAR: -- for that particular plant.

MR. JONES: I'll answer that in two areas.

One is the training -- the basic training and knowledge that goes into these vector qualifications. That is the training that we run our inspectors through in Chattanooga with regard to systems, system responses, simulator responses, so that they truly have an understanding of the reactors that they're overseeing.

There are individual experience levels where you look at the demographics for our senior resident inspectors is very good. We've got very, very experienced individuals who have seen a lot of conditions and events and have been able to build on that.

And then from a -- from the building up to analyze information. They still have to understand in putting input into this program what are the systems, what are the interactions. They have to be able to consider operator performance. And although it may be very general, we still have to go back to -- in many cases to the senior reactor analyst to understand the human error probabilities, you know, to really get into the analysis.

But what it does is I think it's not an answer in itself. But it's a tool to help inspectors to understand what areas they may need to continue to

focus on. And I think it's --

MR. STETKAR: Not quite. And I'll press you a little more. For example, Browns Ferry. You said you ran a safety significance evaluation on the Browns Ferry, the valve failure.

MR. JONES: Uh-huh.

MR. STETKAR: I suspect that the Browns Ferry models don't have any shutdown risk modeled. And that was an RHR valve, also.

MR. JONES: Right.

MR. STETKAR: So you don't really have a sense of how important that event might have been to shut down risk because it's simply not a parameter that you can challenge.

MR. JONES: Right.

MR. STETKAR: You can only look at power from its low-pressure injection function at power from that particular valve. So my question is how are you training your people to have that perspective, that there may be another element of risk of that power plant that simply is not -- you cannot push the button on that risk model --

MR. JONES: Right.

MR. STETKAR: -- and have any sense of it. And your inspectors, when they're making these

determinations, ought to have some of that sense. That's the genesis --

MR. JONES: Yes.

MR. STETKAR: -- of kind of my question.

MR. JONES: And I would take it back to the appendices we provide as part of our significance evaluation process, which takes us to, for example, the shut down risk models. What type of things are considered. But yet those type of issues, because you can't talk about -- you're absolutely right -- we don't have detailed models for all of the sites dealing with the shut down risk, mid-loop operations, all of those type of things that are very important.

We want to make sure that we focus on the right areas. But there's a realization -- and I think we continue to reinforce the use of the significance appendices that help us with the risk evaluations. And I think that that's an area that keeps the inspectors focused in that area. The branch chiefs are experienced and continue to focus in those areas. So there's -- we don't have inspectors out there that I believe are -- that feel that they're isolated. There's open communications with the branch chiefs, in many cases daily, with the division directors and others. And the SRAs are extensively involved.

And also, we have a 915 safety meeting. We conduct that four days a week. Our senior reactor analysts attend that meeting. And in that meeting we talk about events and conditions for the power plants. And that is an opportunity where there's an open discussion between division reactor safety, division reactor projects about, Hey, I remember something about this, you need to look at this. And, you know, sometimes people say, I've looked, I've looked.

But, you know, in many cases there are times when people are, Ah, good opportunity to go take a look and either verify that it is okay or will result in additional reviews. So there's a -- there's the resident inspector, the training we give but there's also the open communications, the collaborative environment that we have between the -- within the division reactor projects, as well as division of reactor safety to keep these issues out and to utilize all that information.

MR. STETKAR: Okay.

MR. JONES: And I think that really does -- to observe that meeting -- there are at times some very good, in-depth discussions that really speak to why we do that meeting. It's not just a formality.

MR. STETKAR: Good. One other. And you're fine on time. So we can slow you down.

MR. JONES: Okay.

MR. STETKAR: Region II happens to be fortunate that you have -- both share in Harris and Oconee in the region and they just recently successfully got their SUIs for transition to the NFP 805 fire -- Risk-Informed Fire Protection Program.

Couple of questions. What involvement did the region have in terms of the reviews of those submittals. Did you folks have people involved in those reviews, or was that all strictly headquarters staff?

MR. JONES: I would -- from Division of Reactor Projects we were aware of the reviews that were ongoing.

MR. STETKAR: Uh-huh.

MR. JONES: And I would actually have to look at the Division of Reactor Safety as far as what specifically, you know --

MR. McCREE: Yes. As regional administrator it's sort of hard to sit and not comment. We were very involved. NRR, the Office of Nuclear Reactor Regulation obviously had the lead on those reviews, but our involvement extended to having

our -- several senior reactor analysts very involved. They're very knowledgeable of the site. We participated in meetings, both in NRC headquarters, as well as at the site on inspections.

We had again, our senior reactor analysts as well as our senior inspectors very involved. We participated very closely in the update to the creation actually, of the post-transition tri-annual fire inspection procedure, which I believe is close to being done.

We're very fortunate today to have Fred Brown with us. Fred is the director of the Division of Inspection -- DIRS -- whatever RS stands for -- Regional Support. There we go. And we're getting very close regional support while he's here, but we've been working very closely with them to develop this procedure which we will implement at both Oconee and Harris to confirm the adequacy of their transition to the new risk-informed fire protection licensing basis at both sites.

MR. STETKAR: That's a -- and that was going to be my follow-up. You said that that inspection procedure is currently being developed. Is it --

MR. McCREE: It is near final, if it's not

final.

Do you know, Fred?

MR. BROWN: [inaudible from audience]

CHAIRMAN SIEBER: You have to -- actually, because of our protocol, you have to come to the microphone and identify yourself.

MR. McCREE: Very good. Thank you.

CHAIRMAN SIEBER: Sorry.

(Pause.)

CHAIRMAN SIEBER: Or sometimes the microphone apparently will come to you.

MR. BROWN: Yes. I'm sorry. I took all the time to run up here to tell you that I've been down here for two months now and I have not been following that. But the state of the procedure was that it was ready for use. Whether it was formally issued or whether we were going to pilot it, I don't remember, but it was done.

CHAIRMAN SIEBER: Okay. But it's close.

MR. BROWN: Yes. That's correct.

CHAIRMAN SIEBER: Thank you.

MR. JONES: We also have the branch chief for the Division of Reactor Safety here, Rebecca Nease.

MS. NEASE: Yes. I'm Rebecca Nease. I'm

the Engineering Branch 2 branch chief. And that inspection -- the inspection procedure was issued. It will be effective on August 1, and we will be using it at the Harris inspection.

CHAIRMAN SIEBER: Great.

MR. JONES: Thank you.

To speak to past performance, to start off with, we are seeing and have seen safe operation of each of our licensees across Region II. That's part of the reactor oversight process: the openness that's provided through the action matrix, our performance indicators that are published, as well as the inspection report results.

They all feed into how we go about making that determination. And areas, places where we do see degradation in the safety performance, we do engage them. Two examples are Robinson and Browns Ferry.

We are addressing performance deficiencies. We have open communications within the region and with headquarters to ensure we vet out the -- each of the issues. And you're seeing that in inspection results. We continue to identify areas for continuing inspection, inspection findings that have in some cases the white, yellow or red significance, and those we deal with aggressively.

Fire protection aspects: We continue to look and learn with regard to understanding the risk from fire protection. And I think Browns Ferry is a example of that, where the significance of a failed component was increased because of the fire protection aspects of it.

If you were to just look at the component failure under reactor operations without the conclusion of the fire aspect, the significance is significantly lower. But with the fire mitigation strategy, that component becomes significantly -- or that component failure became significantly more important.

With regard to reactor inspections, which all -- which kind of plays into the trending, the number of reactor inspections that we have conducted this year is less than what we saw last year. I wouldn't make any statistical conclusions from that.

We have in place a process of management directive 8.3, where we look at events and conditions to take a look to determine if there are deterministic or risk insights into the event that would cause us to go out and take a very quick look to determine if there are -- to determine or get an idea of the significance, as well as if there are other actions or

if the problem could be bigger than we originally thought.

And those are identified in -- through inspection reports, the ones that we actually do conduct. And you probably heard referred to as our special inspections and augmented inspections, and then the very rarely performed incident investigation teams.

So from an overall perspective I would not -- or I would say that we are continuing to see safe performance from each of our licensees. We have not seen a increase specifically in events or conditions that have resulted in elevated significance. We've had yellow findings previously. There's been white findings for many of the licensees over the past several years. But clearly, it's an area -- licensee performance -- that we do focus on.

And I think some of the -- the combination of our review and the performance indicators, which is -- looks at material conditions, looks at the diesels, looks at the number of scrams, which are unplanned shutdowns and many other items, you know, combined with our inspection results gives us a good picture of the licensee's performance and the actions we need to be taking.

So with that, if there's any questions in other areas you'd like me to address, I'll be glad to.

MR. BLEY: You've indicated that for Browns Ferry 1 the licensee has challenged performance deficiencies. What is the basis for the challenge?

MR. JONES: The challenge involves our assessment of the in-service testing requirements for that specific valve. In other words, when we took a look at their in-service testing, we had concluded that the program they implemented was not adequate, and we determined it was not adequate or appropriate, in that part of the verification of the valve movement was their looking locally at the valve stem, which did not necessarily indicate movement. Part of that was whether or not there needed to be verification of flow, pressure changes, things of that nature included, also.

The licensee challenged and said that the way they were implementing the code requirement was appropriate and that there was maybe some ambiguity or misunderstanding among the industry as to what the code requirement truly spoke to.

The licensee provided feedback from several individuals that supported their position. We had our own experts who provided feedback to us that

the way they were implementing their in-service testing program was not appropriate; that they really needed to look at flow or pressure, some other, to verify that you were actually seeing the response you expect from it.

So based on -- that -- I would say the professional opinions that differed we took another look at that performance deficiency to verify that we were appropriately reading the code and that was the appropriate performance deficiency to apply to this case.

And that's where we currently are now with the independent review that Mr. Cobey has led, and we'll be looking at the results of that and determining what is the performance deficiency as we initiated appropriate; should we be looking at separate performance deficiency, possibly something involving testing but not quite so specific as the in-service testing or should we just, you know, look at it -- or not to consider that performance deficiency at all.

So like I say, I would expect in the next couple of weeks that we will actually come to a decision on that and issue that letter back to the licensee. But as I indicated, we are in -- moving

forward with the 9503 as it currently stands. We did not hold that in abeyance because there's a lot of planning and activities that have to occur. And like I said, we do have a public meeting scheduled, I believe, for August 23. So pending that out, we are proceeding forward with that inspection activity.

CHAIRMAN SIEBER: You folks have any other questions?

DR. BLEY: Yes. I would like to follow that one up --

MR. JONES: Yes.

DR. BLEY: -- just a little bit.

Given your previous discussion -- I haven't -- I wasn't aware of this one till we got here today -- it sounded like the real key basis for your position was the fire mitigation strategies which would seem to me, you know, how do you risk going at any kind of position. And I'm curious as to relying on codes to address that kind of issue. Is that -- are you forced to do that? Is that appropriate? I assume by this you're not talking about the fire code; you're talking about something else.

MR. JONES: Yes. I'm referring to the in-service testing code --

DR. BLEY: Yes.

MR. JONES: -- that we're speaking to. And that is, does -- what in-service testing -- what is the licensee required to perform for this valve to verify that it was operable. And that's what we -- that's where their contention is. It doesn't have anything to do with the risk. Now, there was no challenge to our risk analysis. There was no challenge to the violation that was initiated. It was really the performance deficiency as to whether or not did we identify the appropriate performance deficiency to support the continued --

DR. BLEY: I just want to go a little further because --

MR. JONES: Yes.

DR. BLEY: Just suppose in your review it's decided the code doesn't require the kind of checks you were asking for, but, you know, what you're raising is indeed a failure mode that occurs.

MR. JONES: Yes.

DR. BLEY: And where do we go from there? I mean, if the code doesn't cover the things that are important to the failure modes that matter to operation, what are our options to make sure that the plants really are operable when we look at these?

MR. McCREE: Hey, Bill?

MR. JONES: I will take it --

MR. McCREE: Bill, can I -- let me try it.

MR. JONES: Okay.

MR. McCREE: Victor McCree, regional administrator. Fundamentally, what's at issue or the question is whether the licensee was responsible for identifying -- preventing, but certainly identifying and then correcting the stem disk failure in this low-pressure coolant injection valve. It turns out, as a matter of fact, that the exposure period was significant. I believe it's March 2009 up through November -- November 23, 2010, but a significant period of time within which the valve was in a degraded position, and that function via that one train was unavailable.

Our process requires us to -- for producing a finding requires us to first identify a performance deficiency, something the licensee did or did not do that contributed to or caused that condition. Based on our assessment, it was a failure to implement an adequate in-service testing program, which we believe could have -- should have enabled them to identify the failure -- the -- some stem disk separation earlier.

There is language in the in-service -- the

ASME code requirement operating and maintenance code that is perhaps not as clear as it ought to be. That's what the licensee spoke to. There's language that indicates that they should assure obturator movement, a new word in my lexicon. But essentially that's the fact that the disk should have moved along with the stem, which did not occur here.

Our process, Manual Chapter 0305, attachment 2, gives a licensee the opportunity, once the staff -- I sign out a final significant determination, to appeal it on certain grounds. There are some specific criteria in that attachment of the Manual Chapter that a licensee has to meet. Although TVA did not meet the explicit criteria, we felt that the issues they were raising, one of which has to do with the clarity of the code requirements, was sufficient that an independent review was warranted.

The process indicates that I should form an independent panel, we use that as guidance. They've essentially completed their work and we have some internal discussions to complete before I sign the results out. It would appear that there is a sufficient basis to move forward with a deficiency. We're still confirming what that -- how it should be characterized.

But the significance determination, which I think is what you're -- the significance of this deficiency and/or perhaps another deficiency at Browns Ferry at that time is significantly influenced by their fire mitigation strategy. They have a very high CDF contribution due to fire.

We've had several -- in fact, we had a yellow and a white finding in calendar and assessment year 2010 associated with fire protection issues. So the risk significance -- risk contribution due to fire again, at Browns Ferry remains a significant factor in what makes it of high risk significance.

And again, the licensee is not contesting the significance of fire and the significance of the -- the significance determination. But they're contesting what is -- what were they deficient at, what could they have done differently.

DR. BLEY: That's a very thorough and, I think, careful statement. And I understand it. But -- and I guess I don't need a response to this. But I -- you know, we get concerned when -- if the language in a requirement doesn't look for the things that are important what do we do to make sure that we look for it the next time, was really what I was going toward. Sounds like you're going to be okay on this

one. But I can envision other cases where somebody says, Gee, you know, following exactly what the rules are --

MR. McCREE: Right.

DR. BLEY: -- I'm okay. But I'd sure want the next guy to find this problem.

MR. McCREE: Right. And that's -- it's certainly a very good question. And that will certainly lend importance -- does lend importance to the licensee's root cause analysis which is in process. And we will thoroughly investigate as part of our 95003 inspections should again, we decide to do that. And again, there will be insights for TVA. There will also be insights for us. And should anything of generic import come out, we'll make sure that that's communicated, as well and factored into our oversight process.

CHAIRMAN SIEBER: Any further questions?

Dr. Ryan?

MR. JONES: Yes, sir?

DR. RYAN: Bill, thank you for your -- I'm just trying to decide if I'm on. There we go. On your slide. Since you talked a little bit about the ground water issues -- and I'd appreciate some additional information, particularly with regard to,

you know, what in the region have you seen as the extent of condition for ground water contamination and then kind of a discussion of what are on-site versus off-site issues.

And the on-site versus off-site, from my interest, is really one of how do you hand off from one regulation to the next, because they have different bases by which you can make that handoff. That's a mouthful, but --

MR. JONES: Yeah. From the on-site standpoint we clearly have the requirements in place that include our oversight inspection activity as far as where tritium contamination has been identified. We look at the areas where the monitoring's occurring, and we see whether or not there's a progression to those monitoring wells, for example.

We're also looking at just the potential sources of where the tritium may be coming from, whether or not there is leakage within a pipe or system that runs along the licensee's property that may be leaking that could be contributing to those type of things.

So those are clearly areas that fall within the Reactor Oversight Program and take us to the site boundaries and looking at that.

Other than that, there's the reports that are issued as far as the outcomes from the monitoring at the wells. And, you know, we really focus on the aspects up to the wells, to leakage and things of that nature. And for the scope of tritium issues in the Region II plants, we're seeing that for those plants that do see it, that we do have a good understanding of where it is, how we're monitoring it and continue to push towards eliminating any kind of leakage or determining where the sources may be coming from.

As far as hand-off is concerned, I'd have to look at the discussions we have with headquarters personnel and the overall integration of that. And that's really occurring at the headquarters level through some individuals. I'd have to get more information for you on that.

MR. McCREE: If I could just follow up, Dr. Ryan. Victor McCree, regional administrator.

We have several sites in Region II that have identified on-site tritium contamination: Oconee, Vogtle, Hatch, Brunswick, Harris. There may be one or two others, but those certainly come to mind.

The levels have in some cases triggered the voluntary NEI guidance for reporting, but in all

cases they are below limits for, again, any off-site contamination licensees have -- and Watts Bar is another -- have in another -- many cases -- all cases established a plan for identification of plume progression and identified mediation methods that we have inspected in cases -- in many cases. In fact, in all cases where the licensee has needed to make notification of state representatives, they've -- our oversight organizations, they have done so.

What is most noteworthy, though, at least in Region II by comparison to our colleagues up in Region 1 and perhaps even in Region 3, there has been markedly less public interest, public outcry, if you would, when these notifications are made. I think one of those reasons is the manner in which the licensees or several licensees have engaged the public proactively, bringing them into the site, talking to them about what -- first, what tritium is, what the hazards are associated with it and what they're doing to mitigate the -- again, the spread of the plume and so forth.

So while there has been -- have been examples again, they have not gotten the notoriety, if you would, from some other sites outside Region II.

DR. RYAN: Thank you. That's very

helpful. Just to be clear and to make sure everybody understands tritium right, as I understand it, it is the only radionuclide you've identified. You haven't seen any contamination with any extent beyond the tritium. Is that correct?

MR. McCREE: Again, Victor McCree. To my knowledge, that is correct. And if my answer is anything different than that, I'll get you an answer before you leave today. But I'm --

DR. RYAN: Other than in-plant contamination --

MR. McCREE: Right.

DR. RYAN: -- which is another -- other radionuclides. But I think my understanding is --

MR. McCREE: Right.

DR. RYAN: -- that what you said is true.

MR. McCREE: And I would mention, again, we have responsibility for fuel cycle facilities. So I know that there's another -- other areas where there are -- is contamination that perhaps Tony could speak to when he comes up.

DR. RYAN: Okay. Great. Thanks.

MR. McCREE: All right.

DR. RYAN: Thank you both.

MR. JONES: There is temporary instruction

173 that's going to provide additional inspection guidance for inspectors.

CHAIRMAN SIEBER: Do members have any additional questions?

(No response.)

CHAIRMAN SIEBER: If not, thank you very much, Bill --

MR. JONES: Thank you.

CHAIRMAN SIEBER: -- for your excellent presentation.

I would like to now move to Tony Gody, who is director, Division of Fuel Cycle Inspection, for his presentation on fuel cycle inspection program overview.

Tony?

MR. GODY: Good morning, ladies and gentlemen. As you indicated, my name is Tony Gody. I'm the director of the Fuel Facility Inspection Program for the NRC. This morning I'm going to be discussing the Fuel Facility Inspection Program. And in that discussion one of my goals is to -- sorry, got ahead of myself.

One of my goals today is to outline the Fuel Facility Inspection Program to you all and identify areas where we think efficiency and

effectiveness improvements can be made. We are -- overall, we believe the program is effective as it is now. But there are things that we can do to improve it.

I know you have some interest in some current activities that the NRC is engaging the industry on with respect to things like implementing a Corrective Action Program and perhaps even adopting a revised and improved Fuel Cycle Oversight Process which may include things like cornerstone and significance determination processes and the definition of performance deficiency. So through my presentation today I'll attempt to address those areas and we'll have an opportunity to have a dialogue.

An overview of the inspection program. The current Fuel Facility Inspection Program essentially has all the elements, with the exception of some small aspects of the current reactor oversight process. We have core inspections. We have plant-specific reactive inspections, initiative inspections, generic safety issue inspections and licensee performance reviews. The devil, of course, is in the details of each one of those things.

For example, our Core Inspection Program, like the Reactor Program, is a definition of what a

minimum inspection program in each facility looks like. And that program is tailored to the facility and fuel cycle. As you know, these facilities are -- have a wide degree of variability and a wide degree of regulatory commitments. It's a very mature industry and some of these facilities have been around a really long time. And in those cases those regulations and those requirements are very different than some of the new ones.

One of the areas in our core inspection program that can be improved through a revised oversight process is that we believe that some efficiency and effectiveness could be gained by modifying that core inspection program and aligning it to cornerstones, going through a very rigorous review to identify where we have some redundant inspection requirements and perhaps assessing the frequency at which we do those inspections based on the significance and importance and maybe even licensee performance in those areas.

And the area of your reactive inspections, you know, we currently have a process that allows us to implement special inspections, augmented inspections and even incident investigation teams. And that process is an agency process. And we

implement that process. We do that very consistently. We believe we currently have the right threshold.

But one of the aspect of having a revised oversight process would allow us to develop and give us an opportunity to have a more structured decision-making process. And that would improve our predictability and consistency in implementing those programs.

Our Supplemental Inspection Program currently is really driven by licensee performance assessments. We believe that if we were able to develop an agency action matrix for fuel facilities, establish a significance determination process for fuel facilities and develop a clearly -- a clear and supplemental inspection program which may or may not look like the Reactor Program we would also improve our predictability and consistency.

MR. ABDEL-KHALIK: Do you see any fundamental reason why an oversight process for fuel cycle facilities could not mirror what we do on the reactor side?

MR. GODY: Yes, sir. That's a very good question. I'm not sure your mike is on.

But the question was, Is there any reason why the -- a fuel -- a revised fuel cycle oversight

process or program could not actually mirror the reactor program. It's a very complicated answer to that question. And I suspect we could spend hours discussing that.

But I think -- at a high level I think it's important to recognize that the current fuel cycle industry -- there's 11 facilities. The profit margins of those facilities are -- range from zero to a small amount. They're not significantly profitable organizations. So developing an infrastructure like a reactor infrastructure would require a significant dialogue between the NRC and the industry and all the stakeholders involved in this to develop something that's going to be beneficial to everybody and cost-effective to everybody.

So I think the primary -- the key aspect of whether or not we can move forward with a mirror of a reactor process is this aspect. So it's very important to understand and communicate to the industry and other stakeholders for every option we consider what the cost is and what the benefit is. And I'll address some more of that in my presentation.

MR. ABDEL-KHALIK: That's fine.

MR. McCREE: If I might. Victor McCree, regional administrator. The most important reason is

that the Commission has told us to go more slowly, a bit more methodically. We are not new into the thinking -- the importance of revising the oversight process for fuel cycle facilities. And made a proposal, if you would, to the Commission in the fall of 2009 which the Commission considered. And as Tony will talk about in a minute, gave us specific direction in a couple of areas as part of a -- perhaps a more methodical approach to developing an oversight process.

The industry, while very involved with us in developing the framework for a process in mostly the calendar 2009 I think was a bit concerned about the potential cost, as Tony alluded to. And there's a multi-layered cost in there, as people process procedures, et cetera, et cetera.

But where we'll get to and I believe Tony will speak to in just a minute, I believe will be a process that they would find more acceptable. And it's one that we've been very involved with our colleagues at NMSS in developing. And I'm cautiously optimistic that the Commission will find more acceptable as we brief them this fall -- I believe it's in November that we'll have an opportunity to brief the Commission on where we are in the process.

CHAIRMAN SIEBER: Thank you, Victor.

MR. GODY: Some of the enhancements that we're actually considering to the program -- and I think it's very important to say before I even start talking about that -- we currently believe that the existing inspection program and processes we have in place are effective to assure safety and security at the fuel cycle facilities.

We do believe that we can improve the risk information in our process and develop a risk-informed methodology for implementing consistent programs. We do believe that we can improve our processes to ensure that we can implement predictable and consistent performance-based regulation. And we believe that we can do this whole process in a very predictable and transparent manner.

What Victor indicated earlier that the staff has received a number of staff requirements memorandums from the Commission -- and I'll talk a little bit about each one of those.

The first one that I'm going to talk about involves a direction to provide encouragement to the industry to implement effective corrective action programs and then allow -- modify the enforcement policy to allow licensees credit for identifying and

placing issues in their corrective action program at the Severity Level 4 or perhaps green level in the future. And that would be a non-cited violation.

The other aspect has to -- or staff requirements memorandum has to do with the Commission's direction to consider the development of cornerstones, so I'll talk about those as we go through here.

The Corrective Action Program. As indicated, the Commission did provide us direction to go ahead and try to come up with a way to encourage the implementation of a corrective action program in the industry. What's important to note here is that every fuel facility in this country currently has a regulatory requirement and a commitment in their license to implement some form of corrective action program.

Some of these facilities were licensed in the '50s and some are licensed recently, so the commitment is in the form of a very varying program. It ranges from, It broke therefore we shall fix it to, We have a full-blown program that models a 10 CFR Part 50 Appendix B program or an NQA-1 program. So there's considerable variability in the industry on those types of programs that they're committed to.

And with that said, we do inspections of those programs. And we've concluded that those programs as they've been committed to and as they're required to implement are effective at each one of those facilities in accordance with those commitments and those requirements.

The question is should they adopt a common standard. So it's important to understand what are the incentives. Our current enforcement policy for fuel cycle differs from the reactor enforcement policy in that if inspectors -- if the NRC identifies a Severity Level 4 violation for a fuel cycle facility it has to be a cited violation.

So our inspection reports, if the inspector identifies the issue, will document at least a Severity Level 4 NLB if it's more than minor. And if it's greater than Severity Level 4 we go through the enforcement process to determine what the actual Severity Level is.

The Commission's direction was to try to encourage the industry to develop and implement an effective Corrective Action Program. So the staff -- and implementation of this is all about the strategy of how to get the industry to do this, how to get the industry to recognize the need to do a corrective

action program and implement this revised corrective action program. And it's all about what the benefits they could reap from this program.

Because I can tell you that some of these facilities get one or two Severity Level 4 violations a year. And us telling the industry that we'll give them an un-cited violation as a benefit means very little to them. Other facilities will get -- have multiple violations every year and it means a little bit more to them. So the facilities that might have very small but effective corrective action programs and only get a couple of violations a year, there's got to be some more to motivate them to buy into a broader, more effective, more consistent corrective action program. So this is really all about what strategy the NRC and the industry can employ to make the adoption of a corrective action program palatable for both the regulator and the industry.

So the staff has gone through and developed what we think is an effective corrective action program for fuel cycles. And we are in the process of discussing that with NEI. We believe that we can convince the industry that it is beneficial to them to adopt the program. And we're in the process of doing that.

How it's actually going to be implemented is to be determined. This slide here talks about what the benefits of a strong corrective action program are. I don't think I need to go into a lot of detail here. I think it's -- everybody understands. You know, it's a benefit to both the industry and to the NRC.

We would like to say that the nuclear industry, both fuel cycle and reactors, are very good at identifying their own problems, that they classify those problems with the right importance, that they correct those problems on their own, that the corrective actions they implement are effective both from the perspective of fixing the immediate problem and -- wow -- fixing the immediate problem and fixing the root causes and the contributors to that problem so that it doesn't occur again.

So I think the benefits are obvious from a regulatory perspective. I think if you look at from the perspective of the industry they believe what they currently have is fine. So we've got to be able to work from a common process and move forward.

Boy, that's a really kind of disturbing vibration. Anyway, so once we get agreement on what an effective corrective action program is with the

industry we've got to figure out the best way to implement that. Is the best way to have the industry bring forward what they think is an effective corrective action program and then we review it and endorse it? Is it something that we actually just put in a standard and ask the industry to adopt? Is it one -- is it going to be a voluntary program? All that still has to be worked out with the industry and all our stakeholders. And believe me, everybody has a different opinion. So we're still working through that.

It is important to recognize that a mature industry has all the attributes of a strong and effective corrective action program and that that is the foundation for the reactor oversight process. If you recall, the foundation for the reactor oversight process was that we have -- were confident that the industry would mature, that they could identify their own problems and fix their own problems and that they had demonstrated improved performance and decreased events.

We are not in exactly the same place for fuel cycle. So our path forward for implementing the Commission direction on providing incentives for corrective action program is to one, develop the

corrective action program, what we think is the right thing. Get industry buy in. Establish a process that would allow us to assess the implementation of that corrective action program. And then once the NRC has decided -- or determined that it's an effective corrective action program we would be able to apply the future enforcement policy to it.

This slide has to do with talking about the Core Inspection Program. As I indicated earlier I -- we believe the current inspection program for fuel cycle is effective and efficient and it does result in the -- in a good outcome. We do believe we can improve the efficiency and we do believe we can reduce redundancy. And it is important to recognize that the current program is working.

In order to improve effectiveness and efficiency there's a number of pieces to the Core Inspection Program that are currently being implemented, will have to be improved and others will have to be developed and implemented.

A healthy inspection program has a strong feedback system and has a continuous improvement process that has us go through each procedure and provide feedback opportunities for our inspectors. That is currently being done. It can be improved. It

can become more efficient.

A good core inspection program that is aligned with a revised oversight process would align the program to certain adopted cornerstones and would provide us an opportunity to align our inspection procedures and program to those cornerstones. And it would give us the opportunity to go through a rigorous review of our inspection procedures and develop a program from the ground up like the reactors did.

In addition to that, a significance determination process, if implemented, would give us feedback on areas of inspection that might need more focus or more frequency or even less focus and less frequency. So I think the implementation and going through the process of developing a significance determination process could inform our inspection program.

And finally, with respect to the Core Inspection Program the development of a clear action matrix and a clear licensee performance assessment process would provide us the opportunity to make adjustments to that inspection program for licensees that are either doing very well or not so well.

The other piece of the program that I didn't talk about is revised fuel cycle oversight

process. And I attempted to cover most of those in discussing the Core Inspection Program. The one piece that I actually did not talk about was the performance deficiency. And the industry does have considerable angst with the adoption of a reactor definition for performance deficiency.

We talked with NEI yesterday to indicate that -- in our public meeting on August 18, I believe it is, we'll want to have a dialogue about that. We clearly would want to adopt a definition similar to the one that the reactor program has. And I think what's important in that dialogue is having a clear understanding of what the minor threshold is and what benefits the industry could get and what benefits the NRC could get by having a clearer definition of performance deficiency and the proper threshold for minor issues.

So I think I've covered most aspects of what we would consider a good fuel cycle oversight program based on what we currently do. So any questions?

MR. STETKAR: Yes, I have one. Tony, are there any coordination or collaboration issues with the agreement states? I know many of the fuel cycle facilities are in a agreement states. And does this

program in any way interact with the agreement state program folks?

MR. GODY: I don't think it will have a significant interact -- need for interaction, nor will it have a significant impact on them. With that said, you know, the agreement states have been going to our public meetings, some of them. And there's some involvement. But I don't think it's that significant.

MR. STETKAR: I'm sure from their perspective it's the same kind of handoff issue. At some point they pick it up in their state program regulations.

MR. GODY: Well, for material licensees that's the case.

MR. STETKAR: Yes.

MR. GODY: For fuel cycle --

MR. STETKAR: Not so much. Yes.

MR. GODY: -- it's not so much.

MR. STETKAR: Okay. All right. Thanks.

CHAIRMAN SIEBER: Do members have any additional questions?

(No response.)

CHAIRMAN SIEBER: If there are no additional questions I'd like to thank you, Tony, for your presentation.

MR. GODY: Thank you.

CHAIRMAN SIEBER: And we are now scheduled to take a break. And so we'll do that next. Then we will resume at 10:25 a.m. according to our schedule.

(Whereupon, a short recess was taken.)

DR. SHACK: The meeting will now resume. And I may announce as part of our opening statement that we can appreciate statements from members of the public. We have received no written requests for members of the public to speak at the meeting. However, at the conclusion of the presentations we will permit public statements from members of the public. And in that case we need to know for the transcript the person's name, their affiliation and request that they use one of the microphones located throughout the room.

At this point I would like to reintroduce the regional administrator.

MR. BLAMEY: Thank you, Dr. Shack.

And in my opening I failed to introduce Len Wert. Leonard Wert is the deputy regional administrator for operations in Region II. Another area where, by the way, Region II is unique in comparison to the other three regions is that the Commission has allowed us to have two deputy regional

administrators, one for operations -- that's Len Wert -- and one for construction. And acting in that role is Fred Brown, as I mentioned earlier.

Dr. Ryan asked a question about are there other isotopes. There are none, other than tritium that have been identified. However, I've been reminded that our licensees routinely sample any tritium effluence or any other discharges for other isotopes, strontium, nickel, cesium and so forth, and have not identified any. So tritium is the only effluent.

DR. RYAN: Thank you.

MR. BLAMEY: You'll also note joining us at the table and on the agenda is Mr. Bill Webster. Bill is the senior vice-president for industry evaluations at the Institute of Nuclear Power Operations. NPO, as we know, is right up the street about 15 minutes up Interstate 75. So we wanted to take the opportunity to have him join us, as well.

Dr. Bley asked a question regarding Robinson, I believe, in terms of what we've done there. Bill alluded to several of the lessons learned or insights that actually were articulated very well in the performance deficiencies that we wrote after the augmented inspection at Robinson. And one of

them -- well, at any rate, we are following up on those.

One of the areas it points out is -- for us is the adequacy of our requal, operator licensing requalification inspections, which we're looking at currently to see if we need to do more there. But Bill is going to talk pretty extensively about what the industry is doing in that area. Thank you.

CHAIRMAN SIEBER: Thank you very much.

The next item on the agenda relates to the Center for Construction Inspection. We have several speakers, starting with Alan Blamey, chief of the Construction Projects Branch 2, Division of Construction Projects.

Alan?

MR. BLAMEY: Good morning. And thank you. My name is Alan Blamey and I'm the chief of Construction Projects Branch 2, which deals with the infrastructure development for new reactors. And today I'd like to provide a brief overview of the Center for Construction Inspection. And as we go forward I'll refer to it as CCI. And CCI is an NRC Center for Excellence. It was a created to inspect the construction of new fuel facilities, as well as new reactors.

The mission for the CCI is to provide assurance in the safety of future operations at new nuclear facilities by ensuring that licensees and applicants construct the facility in accordance with the approved design criteria using appropriate practices and quality materials.

To accomplish this task we have two divisions. The first division is Division of Construction Projects. And there's four branches in this division. And this division manages the resident inspectors, as well as the inspection program for the facilities. You can see that there's a branch for the fuel facility construction, the Watts Bar Unit 2 construction and the oversight of Vogtle and VC Summer, which is Part 52, as well as the infrastructure development branch.

And then a Division of Construction Inspection. They provide the technical expertise to the center. And there's three branches there. Electrical and I&C, civil and then mechanical.

To begin with, I'd like to talk about new reactor construction inspection program, and this would be for facilities constructed in accordance with 10 CFR Part 52.

DR. BLEY: Can I interrupt you just as

you're beginning?

MR. BLAMEY: Yes.

DR. BLEY: In hopes that you'll get to this somewhere along the line, there's a new -- I think it's almost complete or is complete -- inspection package for DAC, for new plants. It was going to be piloted with South Texas and that died along with the delays there. I'm wondering if there's plans for the pilot to occur somewhere that you can talk about. And anything else you can say about that along the way here I'd appreciate.

MR. BLAMEY: And what I'd like to do with that, if I could -- I know Mark Lesser has been involved with the DAC pilot. So as we move through the program he may be able to provide some additional insight specifically in that area.

That works with you, Mark? Okay. Thank you.

To begin with, with the New Reactor Construction Inspection Program there's really two components of it. The first main component that the Center will be inspecting will be the inspection of ITAAC, which are Inspection Test Analysis and Acceptance Criteria. And this will be done under Manual Chapter 2503.

The second major component of the inspections that we'll be carrying out will be the inspection of construction and operational programs. The construction programs, CCI will be doing the bulk of those inspections. And those inspections will include such things as quality assurance, reporting of construction deficiencies, ITAAC maintenance, commercial grade dedication, as well as some others.

The operational programs will be inspected typically using the host region. These are inspections such as fire protection, maintenance rule. And these will occur later on in the construction life cycle. To do the inspections these inspections, specifically the ITAAC inspections are a little bit more complex than what we would normal do under the reactor -- under the operating reactors.

To do the inspection of the ITAAC the individual has to understand the structures, systems and components, as well as the construction processes that are used in constructing the ITAAC. Once the individual has an understanding of these particular items he can then use these to develop inspection plans that would inspect the particular ITAAC, the structures, systems and components and the processes that are involved with constructing that ITAAC.

The inspection plans that we develop we then use to go through and develop an inspection schedule which has activities that are supported by the construction plans, the inspection plans that we put together. These -- the construction inspection program that the NRC has -- the NRC inspection schedule is then loaded in to primavera and we then use the construction primavera schedules that we get from the licensee periodically and we make ties from our inspection schedule to the licensee's construction schedule. And in doing this, this will take in sequence the NRC inspection schedules over the life cycle of the construction facility.

In addition to the ITAAC inspections that we do, we also do the inspections of the construction programs, as I talked about. And typically, these inspections are based mainly on the procedures that we have that I spoke of before, the quality assurance procedures, as well as some of the other procedures, the ITAAC maintenance procedures. And these do not necessarily depend as heavily on the construction schedule.

So the -- developing the inspection schedules for these and laying this program out is much more in tune with similarities in the reactor

oversight process where they can be laid out on a periocity and then executed with team inspections. And these are all laid out in the construction inspection schedule.

Developing the schedules for the ITAAC inspections can be time consuming. And because of this the Center for Construction Inspection started several years ago to go back through and develop the process and the schedule for the ITAAC inspections. And at this point in time we used the design certification document for the AP-1000. And at that time it was Revision 17. So we've completed approximately 80 percent of the inspection plans using the DCD Revision 17. We've just recently started to go back and look at Rev 19 and do the reconciliation between the two documents to ensure that our inspection plans and our inspection schedules will be updated to the most recent revision.

In addition to that, looking once again at the program schedules, they are typically much easier to develop, not as detailed. And we've developed those inspection program schedules out approximately two years now. We have one in draft that we're reviewing. And that will essentially be the backbone of the program inspection schedule that we have

throughout the construction life cycle.

CCI continues to work with the Office of New Reactors on a development of CIPIMS 2.0. CIPIMS is the acronym we use, which is the Construction Inspection Program Information Management System. This particular program that we have is used in the planning process. It facilitates bringing together -- as I talked before with ITAAC -- the structure, systems and components, as well as the processes that are used to go through and construct those particular SSCs that are associated with an ITAAC.

In addition to that, once the inspection plan -- the high-level inspection plan is developed in that program that is then used to facilitate the particular scheduling of those ITAAC inspections and also, it will facilitate the documentation of the inspection results.

CIPIMS 2.0 is a new revision that is targeted to come out in early calendar year 2012. And that should be available for the inspectors to use. It is a significant upgrade over the current program that we have.

And as we move forward one of the opportunities that we have is to transition to the CIP implementation. Up to this point in time a CCI,

specifically the Part 52 groups, have been involved in going through and heavily developing the program. We're in the process right now of transitioning over to executing the program. Currently we're receiving regular upgrades -- updates to the applicant's construction schedule which we're now using to then move our inspection schedule based upon the availability of the activities to inspect at the construction sites.

At Plant Vogtle we have two resident inspectors that are on site right now. And VC Summer within the next several weeks will have the first resident inspector at that site.

The resident, as well as the regional staff have been conducting inspections at Vogtle. We've -- in the process of conducting ITAAC inspections, as well as the program inspections, the quality assurance program and security fitness for duty program. And we've completed the first semi-annual performance review of Vogtle Unit 3 and 4 in February of this year. And the performance review at that point in time concluded that Vogtle was in the baseline column on the construction action matrix.

Are there any questions?

MR. ABDEL-KHALIK: The ITAAC inspections

are obviously ITAAC specific. And, in fact, they are DCD revision specific. You indicated that, you know, these ITAAC inspections were developed based on Rev 17 of the DCD. What's involved in making sure that they are still applicable for Rev 19.

MR. BLAMEY: Uh-huh. What we're currently doing, we have a reconciliation process that we void out. And we've started executing that this week. The reviews that we're conducting right now are taking a look at the specific ITAAC and going through and doing a line-by-line comparison of the ITAAC between the DCD revisions, including going through and looking at the structures, systems and components table, looking to make sure that the data base that we have is correct, that the inspection plans that we've developed are correct, as well.

We've gone through the first 87 -- of the targeted ITAAC that we're going to look at, approximately 235 ITAAC that we're going to look at, we've gone through the first 87 this past week. And in going through and looking at those first 87, which we believe are going to be the first ITAAC that will be available to inspect, we found several small changes through that process.

So we'll then take those changes,

essentially go back through the planning process with those changes, make any changes that are necessary with the experts that are involved with the DCI people. And then once we do that that will constitute the new inspection plan for those ITAACs. And that will then be translated into the construction inspection schedule that the NRC has.

MR. STETKAR: Alan, you mentioned -- I think you said 237. I don't care about the specific number. But I'm assuming there was some criteria that you used to select those specific ITAAC for inclusion in your inspection program. Are you looking at any changes from Rev 17 to Rev 19 of the DCD that might alter the decision criteria that you made about which specific ITAAC you might focus on? You know, you did sort of the accounting process for the ones you had selected before. But have you thought about any changes that you might make, in terms of that inventory?

MR. BLAMEY: Based upon the reviews that we've done so far the inventory, I believe, is going to stay similar. The process that I talked about earlier, the time-consuming process, it's really a two-step process. Once the ITAAC are developed typically in the Office of New Reactors there's an

expert panel that's developed.

And that expert panel will go through and look at the ITAAC and then they will characterize the ITAAC into families, which would be ITAAC that have similar characteristics and similar processes. And then once they're in families they will also go through and rank the ITAAC using some criteria that really comes down to inspectability.

Some of the criteria they use is risk significance, is it the first-of-a-kind process that's going to be used to construct this ITAAC, how inspectable is it. For example, rebar you may only be able to see fire to pouring of the concrete. So once they go through and look at that process there's a ranking that comes out of that.

And then once that ranking is done they go through -- the expert panel goes through and they try to take that ranking and determine 30 to 40 percent of the ITAAC. With the sampling process we use that's the sample we're trying to achieve. So the ones that are scored highest through that ranking process, the top 30 to 40 percent, are the ones that we characterize as being targeted. And then those are the ones that the region takes. And in this case it's approximately 235.

And then we will take those and then we will go through the inspection planning process. And once they're planned we'll go through and work on scheduling those particular inspections.

So where we stand today with that particular issue -- the discussions we've had with the Office of New Reactors -- I do not believe that they plan at this point to go back and do a wholesale expert panel re-ranking of all of the ITAAC. And if you go back and look at the way this was originally put together I believe it was Rev 15 of the DCD that was actually initially ranked through that process. Rev 17 was chosen because the licensee at the time was using Rev 17 for long lead time components and some of the pre-construction activities and developing a construction schedule.

Rev 19 is what may finally be licensed. And that's why we're going through. You can see the involved process to understand the ITAAC and to develop the plans. And if we waited until Rev 19 came out at that point in time there may not be sufficient time to go through and do an adequate, complete plan of the overall inspection plan through the construction life cycle.

So we've taken what's been done in Rev 15

with the ranking process and we've moved that through. And Rev 17, looking at which ones were ranked -- and a lot of them were similar in those from Rev 15 to Rev 17. And where we are today, if we go through and look at the particular ITAAC and we believe that it should still be ranked at that level we will then include that in the inspection program.

We haven't removed any of the ones that have been targeted. They are still targeted. The only thing that we will do is we may add -- if we believe it's significant enough we may add that into the population.

MR. STETKAR: Okay. I guess I understand. But you said that the folks up at NRO have not formally gone back through their ranking process. Is that --

MR. BLAMEY: That's correct.

MR. STETKAR: That's correct? And you're -- okay. Thanks.

CHAIRMAN SIEBER: Okay. Do members have any additional questions?

MS. REMPE: Thank you.

How much growth has your staff had in the last say, three years?

MR. BLAMEY: I believe we are now around

60 people, if I'm not mistaken. And if I'm not mistaken, CCI started in late 2006 with, I believe, six people. So --

MS. REMPE: So are they coming in with what type of level of expertise and what are you doing to ensure they have the necessary expertise for the -- what you're doing?

MR. BLAMEY: Thank you. And you can see the growth in the numbers that we have. And DCI, specifically the experts, have done a tremendous amount of work preparing the inspectors. And I see Chuck Ogle back there who I think would like to make a comment. Chuck is a director of Division of Construction Projects.

MR. OGLE: Thank you, Alan.

I am the director for the Division of Construction Inspection. And I've been with CCI since 2007. And Alan did give good numbers on the growth. We have brought folks in from a wide variety of sources. We've brought folks in from the operating side, folks that were already qualified as construction -- or as inspectors in the operating arena. We've brought in folks that were technical experts. For example, we've got a very experienced welding individual.

We've brought a couple of senior inspectors in from -- for -- all of our inspectors go through a qualification process, a construction inspector qualification program which parallels the qualification process we use on the operating side. And we've also been doing construction inspection for the last three years at the facilities that have construction ongoing right now.

CHAIRMAN SIEBER: Any additional questions from members?

(No response.)

CHAIRMAN SIEBER: If not, thank you very much.

And to introduce the next topic, I think I'll give a little bit of an explanation. I'm sure the members know all about this, but new reactors that are being built today, starting from initial design from the ground up, are being licensed under Part 52 of Title 10. And it has certain requirements that basically say that the design of each type of reactor will undergo a design certification.

And for the elements of the design that are covered by the design certification, each facility that utilizes that design will be identical but with the exception of certain areas or components which may

be unique and which must also be licensed separately for each facility.

However, there are -- most of the -- all of the existing licensees -- there's 104 operating reactors in the United States -- they were all licensed under 10 CFR 50 and not 10 CFR 52. Very few of those reactors were partially constructed and then construction -- continued construction, for one reason or another -- it might be a lesser need for power or financial reasons or what have you -- construction was stopped, and the facility was not completed but the desire has now occurred that these -- some of these facilities should be completed, but they are not amenable to licensing under Part 52. We have to go back to the old licensing method of Part 50 to finish the construction and license these plants to operate.

One of those plants is Watts Bar Unit 2. It, with the exception of advancements in technology since Watts Bar Unit 1 was constructed, is basically identical to -- Watts Bar Unit 2 is basically identical to Watts Bar Unit 1 except for these enhancements.

And now that this plant is under continued construction anew, it requires a special effort by the NRC, and particularly Region II, in order to properly

inspect, complete the licensing of Watts Bar number 2 and bring it to status of commercial operation.

And so for our next speaker we will address the activities that are going on with regard to the continued instruction of Watts Bar Unit 2 in an overview fashion. And Mark Lesser, deputy director of the Division of Construction Projects, will present this portion of our meeting.

MR. LESSER: And thank you very much, Mr. Sieber, for laying the groundwork for my slides.

I am Mark Lesser, the acting deputy director for the Division of Construction Projects. And it's my pleasure to talk about Watts Bar 2 oversight. But first let me go back to new reactors and address the question we did have on DAC, or Design Acceptance Criteria, and the pilot that had started with the South Texas project and give you what I can tell you about that.

The Office of New Reactors has the lead on that pilot. And basically what the goals of that pilot were to resolve Design Acceptance Criteria for new reactors was really in response to a request from South Texas to get their digital INC software DAC resolved early.

And we had actually -- so there was a

pilot set up to look at that and come up with a resolutions process, which is an inspection-like process to look at the main three areas, digital INC, piping and human factors DAC. And we actually had done -- have some draft inspection procedures to do that and actually had implemented one inspection on South Texas on their digital INC. And --

However, the Fukushima accident -- basically the response -- South Texas has -- is putting that on standby right now. So that -- the timeline for the pilot has really changed. And NRO still has the lead, so there's not too much going on in that area right now. There -- we'll have to finish it up. But we can -- we do know that for -- you know, that South Texas was using the ABWR technology. For the AP 1000 and DAC, as it pertains to AP 1000 we do know that a lot of the DAC will be resolved in the latest revision. Okay? Particularly in digital INC. There may be some DAC left over. Piping is expected to be resolved and there will be some --

CHAIRMAN SIEBER: In Rev 19.

MR. LESSER: Yes, in the -- yes, sir.

So that will leave probably some DAC resolution to be done but not as much as we initially thought. And obviously, we're going to have to redo

the timeline for how to complete the pilot.

DR. BLEY: I just want to mention that I know South Texas drove this pilot. But we had also been talking with staff and with the Commission. And part of the pilot was to let ACRS see how these new inspection procedures would clear the areas of DAC that we were concerned about that included design features that we had thought needed a deep look.

And I think we do have a meeting scheduled, I think, for November or December to hear about the procedures. But are the DAC inspections that remain, whatever they are -- I haven't seen the details yet -- for AP 1000 marching ahead? Or what's happening? Because I think we have some concern about seeing how that's going to happen before the first time it really gets worked out.

MR. LESSER: Yes. I -- they're not marching ahead. There's really no plans right now to do any DAC inspections or work on that pilot until we get a better handle on what exactly needs to be done. Like I said, my impression for the AP 1000 is the number of DAC is going to be reduced with the final revision to the design certification. It will probably leave a lot left over, the human factors which we need to address.

DR. BLEY: Okay. I'm pleased to hear it's much --

MR. LESSER: Yes.

DR. BLEY: -- reduced. But looking forward to hearing more.

MR. LESSER: Okay.

So back to Watts Bar 2. And what I'd like to do is talk about the inspection program that we're currently involved in, what we see for the next year to year-and-a-half or so and a status report on where we are.

You know, basically given the history of Watts Bar 2, which was partially completed and suspended in the '80s, when the Tennessee Valley Authority notified us they wanted to complete construction we had to make a decision as to how we were going to complete our inspection -- our construction inspection program on Watts Bar Unit 2. So we really had to define that.

And that was defined in Manual Chapter 2517, which was issued in February of 2008. And we had to consider several considerations as to completing the old construction inspection program defined in Manual Chapter 2512 and its subsequent manual chapters that took the plant from construction

to pre-operational testing to start up, along with any insights that we had been developing for new reactors and define really what is it we're going to do to declare that we have completed -- you know, to verify the plant has been constructed properly and what type of regulatory tools we need to use regarding enforcement, assessment, inspection documentation.

So that was defined in Manual Chapter 2517, which is a customized construction inspection program that tried to, you know, deal with the uniqueness of Watts Bar 2. So the strategy for defining that was really done in three phases.

Several -- when we first got started in 2006 or 2007 the staff did a reconstitution effort which was basically to go back to the record and look at all of our inspection reports that had been documented on inspecting Unit 2 and basically compare what we did with what the inspection procedures require and try to identify what the difference is or what the delta is and compile that information and capture that.

The second phase was to take that information and scope it into a -- and build an inspection program which took the results of phase one and identified other areas that needed to be

inspected.

For example, TVA's corrective action programs, generic issues which had not been resolved on Unit 2, special programs like environmental qualification, construction deficiency reports and, of course, any components, systems, SSCs that needed to be reworked or completely rebuilt. And also take any licensing issues -- any issues that come out of the licensing process that NRR would like us to inspect and build an inspection program from that. And we've done that. And I'll talk a little bit about that.

And then phase three is actually to perform the inspections and complete closure -- or complete all of the inspection procedures and document them in inspection reports.

The results of that really are compiled in what we're calling 500 line items of inspection activities that varied from completion of an inspection procedure which, you know, may be something like inspecting cable installation or inspecting piping support installation to closure of one unresolved item or one generic letter. So the 500 line items are tabulated. They don't all equal each other. But that's what we've defined as the inspection program. And I'll talk a little bit about

our status in that program.

But first, let me tell you -- so we're in the middle of the 2512 construction program now. And we are preparing for shifting into the pre-operational testing and operational preparedness phase which is defined in Manual Chapter 2513. Now, 2513 really becomes -- is anticipated to become effective approximately 24 months prior to licensing. So we're in that phase right now.

And what we'll see is a completion of the construction inspection program and a shifting into pre-operational testing inspections, which basically involves reviewing the applicant's testing program, their testing procedures and observing -- witnessing tests for acceptance criteria.

And also, we are currently assessing the scope and schedule for inspection of other operational programs. So this is going to involve the Center for Construction Inspection bringing in the inspection expertise of Division of Reactor Projects and the Division of Reactor Safety to start reviewing the applicant's processes and programs for radiation protection, emergency planning, security. And those are some of them --

Which obviously, they are -- there's an

operating unit that has -- these programs have already been established. So certainly, we would expect them -- be able -- expect ourselves to take credit for the performance of those programs and then look at the new parts of it and the differences as Unit 2 is brought in.

The other part would be the tests generally that we're going to observe are defined in the Manual Chapter. They consist of observing several representative pre-operational tests of system readiness and also some integrated tests such as a reactor protection system integrated test, a containment integrated leak rate test, a loss of off-site power test, which are all defined for us to look at.

Other programs were not defined by Manual Chapter 2513; for example, cyber security, which is a new program, and the fire protection program as defined in 2513 is obviously not as detailed as what we have now. So those will also have to be done, and the Division of Reactor Safety is already working closely with headquarters to plan those. Those will primarily be driven by the Office of Nuclear Reactor -- or nuclear regulation safety evaluation reports which are evaluating the applicant's -- the

application for those programs. And we'll write safety evaluations, and then the Division of Reactor Safety will inspect those compliance and adequacy.

And that leads really to fuel load now and the start-up testing phase, which is defined in Manual Chapter 2514, which typically in the past has been set to start six months prior to fuel load. You start the 2514 process, which is going to be initial criticality inspections, power ascension inspections, reactor physics-type inspections and then other operational-type testing as they go up to commercial operation.

And then obviously there will be the transition to the reactor oversight process which is a -- again, another that we are currently planning on how we are going to do that.

Okay. So the -- again, a little bit more where we're at. We're currently in -- finishing -- we're currently in the middle, I would say, of 2512, involved in the construction inspection program. We completed the end-of-cycle review for 2010 in February. And the results of that review -- there were 14 violations identified by our inspectors in 2010, all at the Severity Level 4 category.

There's -- one cross-cutting theme was identified in human performance with four more

examples where violations involved -- this particular one involved communication of inspection procedure adherence expectations. And currently, through this year, through May of 2011, the staff -- the inspectors have identified non-cited violations.

Region II expended close to 15,000 staff hours in inspection and project management of Watts Bar 2 which is slightly over our budget at FTE allowance. And -- but it has been ramping up every year since the project started a few years ago. And we expect it to continue to ramp up and are projecting it even 50 percent higher in 2011 as we get closer to completion of construction and bring in Division of Reactor Safety and projects into the operational readiness reviews.

Of the 500 inspection items that I did mention we claim credit for completing about 94 of them right now. But I think that number's misleading because we believe we're significantly over 20 percent complete. Many of those line items have had significant inspection activity devoted to it to understand the applicant's program process. And we're waiting to get more samples of components actually being installed in the field in many cases to get finished with those. And in most of those cases we're

really waiting on Watts Bar's completion of work to finish up our inspection in there.

We do have the -- our mid-cycle assessment is scheduled for August 11. And one of the -- we're meeting with TVA periodically at -- trying to get updated and accurate information on their construction completion and testing schedule, which is obviously important for us to be able to schedule our resources.

And that's about all I have for Watts Bar. Could I entertain any questions?

(No response.)

CHAIRMAN SIEBER: Since there are no questions, thank you very much, Mark, for your presentation.

I'd like next to introduce Bill Gloersen, who is going to discuss the Mixed Oxide Fuel Fabrication Facility which the subcommittee visited earlier this week.

MR. GLOERSEN: Okay. Thank you for the introduction. And like I say, I'm glad to hear the committee members and staff had an informative tour at the Mixed Oxide Fuel plant and also, some of the facilities at the Savannah River site.

My name is Bill Gloersen. I am the senior project inspection for the MOX construction project

here in the Center for Construction Inspection in the Division of Construction Projects.

The staff was asked two questions by the committee. The first one was pertaining -- well, both of them actually pertained to the Integrated Safety Analysis Summary. But the first question dealt with to what extent has the information in the Integrated Safety Analysis Summary been used in preparing for construction inspections at the Mixed Oxide Fuel Fabrication Facility.

And I'd like to address a little background first. In 10 CFR 70 23(a)(8) it requires that the NRC verify that the construction of the principal system structures and components has been completed in accordance with the application. And this particular regulation is specific just for fuel -- or for plutonium processing facilities, which, of course, the Mixed Oxide facility is one of those.

These principal systems, structures and components -- and I'll just call those PSSCs -- are defined in the construction authorization request submitted by MOX services -- there were 53 PSSCs that were identified in that document. The verification process is and -- or it will be and is a joint NRC inspection activity and NMSS technical review activity

and administrative review activity.

There was a joint NMSS Region II expert panel that was formed to not only implement the verification activities for the PSSCs, but also to develop the -- you know, the program for verification.

For the Mixed Oxide Fuel Fabrication Facility a construction-related concern would be that the facility is constructed with an undetected construction error in one of the principal systems, structures or components that would adversely affect the public health and safety or environment.

To minimize the concern the NRC performs -- or -- and will perform inspections to verify that this facility is constructed in accordance with the design commitments, the construction authorization and the quality assurance plan. And we'd like to point out the inspections do add value by reducing the likelihood of undetected PSSC construction errors.

Getting back to the first question, how we use the Integrated Safety Analysis Summary to prepare for our inspections. And I'd like to point out that the Integrated Safety Analysis Summary that was submitted by the applicant had identified approximately 250 items relied on for safety. And

that equated to approximately -- and it depends how they're counted -- 12,000 individual IROF components.

To put that in perspective, you can have an ISA level IROF described as a fire damper. That could equate to several hundred fire dampers or components, so that's how that number gets to be so large. The applicant, as I mentioned before, had identified the 53 PSSCs, and they also associated these PSSCs back to the IROFs that were identified in the Integrated Safety Analysis Summary.

The technical staff and NMSS -- and it was an expert panel -- went through and prioritized the 250 IROFs that were described in the ISA summary, as well as the components. And, of course, when you go through that prioritization process it was -- information was relied heavily on what was contained in the Integrated Safety Analysis Summary. So the staff looked at accident analyses, radiological hazards, facility hazards, chemical hazards, and external events and used that information to provide a prioritization.

The staff, technical reviewers, also went through and prioritized the component types based on information as mentioned in both the license application and the Integrated Safety Analysis

Summary. From that step we're taking that information and developing independent verification plans which will document which IROFs should be examined through either an inspection process or a technical review process that will be performed in NMSS.

The verification of --

DR. BLEY: May I interrupt you?

MR. GLOERSEN: Yes.

DR. BLEY: Yes. You just raised something that leaves me a bit baffled. I tried to read the Integrated Safety Analysis Summary myself. I have real trouble seeing how you go from the information contained in that document in an organized way to selecting the IROFs you want to look at in an inspection program. Can you tell us anything about that?

MR. GLOERSEN: The -- I may want to divert to Dave Tiktinsky, who's the project manager for that project. But the expert panel -- you know, they look at -- it's more of a ranking. And they, with their knowledge of the processes that are associated with that facility and the information in the safety analysis -- and they had safety reviewers, they had fire protection reviewers, they had chemical safety reviewers, they had plant system reviewers were able

to go through and basically rank which ISA summary IROFs that we were going to focus on, if you would, prioritize IROFs or targeted IROFs. And they went through and documented their ranking process. But I --

DR. BLEY: Okay. So I -- just to paraphrase that memo here -- the other thing --

MR. GLOERSEN: Okay.

DR. BLEY: -- we've got the large document that lays all of these IROFs out and evaluates them. But the real way to -- that you sort through them is really some -- your reviewers sitting around and applying their best judgment to which things are most important to look at?

MR. GLOERSEN: Well, a lot of it was best judgment. I don't know.

Dave, did you want to go ahead and --

MR. TIKTINSKY: Yes. I'm sorry. Dave Tiktinsky for the NRC NMSS. Really, the ISA summary, the 250 IROFs come from the events. The ISA summary lays out, you know, numerous types of events that can happen, things like explosion events, loss of confinement events.

When a technical reviewer goes through and say, Okay, they're responsible for like, you know,

something like chemical safety, they go through all the different events that the applicant outlined that relate to different events that could relate to a chemical release.

And what they've done is they pick certain ones. When you go through the review it becomes -- with any review we take vertical and horizontal slices of review and look for the particular events that would cause the greatest degree of concern. So you would have some explosion events that would have off-site effects, would say -- would have something that would be more important than something that would maybe just have, you know, a local worker effect.

So the reviewers go through and figure out basically which events are most important, in terms of review when they do a detailed review on that. The IROFs that are associated with those events are the ones that we cut the first screen down from -- based on the events.

So we'll take those -- the IROFs that are identified for those particular events that we think are most important and we'll look at those particular IROFs, say, Okay, which ones of those IROFs are more important to preventing it. There could be things like administrative controls, you know. Is the

administration control the most important part? Is a valve, a sensor or some type of piece of equipment, a tank -- and looking at those general things and then trying to make a decision of, Okay, which particular things are most important, and then from an inspection standpoint, starting looking at, Well, okay, if we have particular things -- the items that Bill had mentioned, chances of construction errors: Is it something that's more complicated? Is it something that required, you know, more testing; it's more unusual? Does it require more instrumentation control, software control? And we pick those particular IROFs as a priority and say, Okay, we're going to focus on those, the same ones that we did for the technical review.

So our inspection process really is paralleling the inspector's -- or the reviewer's thought process for how they would take a very complex facility, very large amounts of information, figure out which is important and we take the next step of saying, Okay, now we have some idea of what we think is most important, we're going to look at the important aspects for construction inspection.

DR. BLEY: Having been through this process, this complex facility and this very complex

ISA, could you put together -- not on the fly here -- some lessons learned that might guide authors of future IRAs to give you a way to help sort out these priorities from their in-depth analysis as they're going through all this the first time that might have helped you rather than trying to put this overlay on at the end of the process?

MR. TIKTINSKY: Well, one of the things we're doing -- as Bill mentioned, we're writing independent verification plans for each PSSC. We're also putting together a guidance document that kind of explains how we did all the stuff, how we prioritized things, how we got from basically the ISA summary and all the details to what we're planning on inspecting. So that is something we're preparing as part of our backup for our IVP process.

DR. RYAN: In your answer it sounds like you talk a lot about the consequences and the ranking thereof --

CHAIRMAN SIEBER: Would you speak into the mike?

DR. RYAN: You've talked a lot about the consequences part and the ranking that you've done. What about the likelihood that you could have a high consequence of variable likelihood, let's say, versus

an intermediate consequence of a much higher likelihood? And seeing you could end up with spending a lot of time on low-probability events that might have high-incidence potential and not so much on intermediate consequences that have much higher probability.

MR. TIKTINSKY: The ISA summary, that particular applicant assumed when they did all their events that their events could happen. I mean, that's how they -- their first assumption. We would -- in part of our ranking, in terms of how we prioritize things, we also looked at things that actually happened in the history of fuel cycle industry.

So, you know, there's -- we went back and looked at the events that happened here and internationally, the experience that were developed from the French or the reference facilities and were the kinds of things how they developed the thing. So we tried to look for all of those kinds of experiences around the world of what's happened to help guide us in which events we selected as being more important.

DR. RYAN: Okay. So you took into account the probability of events, as well as the consequences.

MR. TIKTINSKY: Yes. I mean, not

formally, in terms of, you know, looking at numbers. But, you know, looking at, you know, historical things of what actually occurred.

DR. RYAN: Fair enough. Thank you.

MR. GLOERSEN: If I can address your question. We looked at the 53 PSSCs, where the staff is mandated by the regulation that we had to look at all three of those. We realized that we couldn't put the same level of either review effort or inspection effort for each one of those 53 PSSCs. So we did employ methods that are used like you mentioned, likelihood. We looked at each PSSC. Then the expert panel went through and looked -- and we didn't make it too terribly complicated.

But we looked at unlikely, likely and highly likely and gave them numerical values. And it would -- and plus with the consequence data we were able to address on how much effort we should focus on these particular PSSCs, which, you know, translate, like the slide shows, into the IROFs. So it did give the staff, you know, some guidance.

DR. BLEY: That's helpful. You know, I'm not looking for a numerical value so much as you did have some consideration of likelihood. And it's a three-step breaking system or five or whatever you

want to do. That's -- you did consider that.

MR. GLOERSEN: Right. And we defined the likelihood as, you know, that you have the -- and, of course, we looked at things like aerial propensity; we looked at fabricator performance. We looked at licensee performance and quality assurance program. And, of course, the likelihood numbers, as we get through our inspections, could change, depending on their performance.

And in answer to your other question, you know, this information -- we're in the process of revising our Manual Chapter 2630, which a lot of this will be contained in there in one of the appendixes.

The second question which I think we sort of already addressed, can this ISA process be improved for the construction inspection planning and preparation? Like I say, we -- the staff -- inspection staff, we always look for ways to improve our process. And if we be -- like I say, if we can become more efficient and effective with the limited resources we're provided to perform the inspections then that's what we look for.

But given that, the -- you know, this -- the MOX Integrated Safety Analysis Summary, as we pointed out, was a very comprehensive safety analysis.

And it did allow our NRC technical reviewers -- it gave them enough information to prioritize the ISA summary-level IROFs, as well as the component-level IROFs for key -- for the key summary IROFs or the targeted IROFs, if you will. And these prioritized IROFs are providing the inspection staff the means to focus appropriate level of inspection effort on the 53 PSSCs.

And are there some questions?

MR. ABDEL-KHALIK: My question pertains to field changes. Based on discussions with the MOX facility staff, my understanding is that there have been several thousand field changes implemented during the construction process. And I assume that the licensee goes through an evaluation to assure that these field changes do not impact the design basis. But how do you assure yourself that these -- the field changes do not impact the design basis?

MR. GLOERSEN: Well, that's a good question. Well, first of all, we do rely on the licensee to do their, you know, adequate analysis and provide justifications for field changes. But we also take a sampling of those field changes, either through specialist inspections out of the region and most of our field trainers have been -- dealt with the

structure. And so our civil engineering staff will go out there and sample and look at field changes and determine adequacy of their evaluations. And then our resident inspectors also are out there reviewing field changes. But again, it's a sampling process.

MR. ABDEL-KHALIK: Well, how do you go about selecting that sample?

MR. GLOERSEN: We rely heavily -- we have very knowledgeable resident inspectors. And when they look at a particular issue, say, with structure, that they want to have further review on, we have discussions, either -- we deal, with residents on almost a daily basis, but we also have opportunities to discuss these at the management level and then make determinations as to, you know, which -- you know, which particular changes we need to focus on.

But the ones that are particular technical challenges we relied on either resources from the Center for -- CNWRA for technical staff and headquarters. But the actual selection process for the sampling, you know, that's -- a lot -- I mean, a lot of it's based on engineering judgment.

MR. ABDEL-KHALIK: Thank you.

CHAIRMAN SIEBER: Any additional questions from members?

MR. GLOERSEN: Dave, you want to add something on that?

MR. TIKTINSKY: Yes, I just want to -- this is Dave Tiktinsky, MSS NRC. I just wanted to add one more point that, yes, there are thousands of engineering change requests mostly related to the structure. And one of the things we talked to the applicant about is we wanted to make sure at the end -- because they were -- each one of these things they analyze individually and make sure it's okay. So we've had discussions with them at the end when they're basically looking at an as-built configuration to make sure that overall all the changes are made that affect the overall design basis for the facility.

MR. GLOERSEN: And we look at inspection plan before looking at the final inspection of that facility.

MR. STETKAR: Okay. Thank you very much.

We are running about a half-an-hour behind schedule. And -- but we will cover the agenda for the meeting. And what we -- our next presentation relates to safety culture, both the regional safety culture and the Plant Safety Culture Assessment Process by the Leonard Wert.

MR. WERT: Okay. Thanks for the

introduction.

And good morning. I am Leonard Wert. I'm the deputy regional administrator for Operators. As Vic talked about earlier, that's a unique position among the regional offices. And just as an important side note, I might add that the briefing, with the exception of the Watts Unit, some of the Watts Bar Unit 2 activities that CCI just presented to you, was, in fact, very informative to me, because detailed discussions of DACs and ITAACs and some of that stuff -- I am not conversant in those terms. And hopefully, you'll find that to be a good thing.

I spend -- as you heard earlier, we have a lot of things going on on the operating side. Between the fuel facilities and the operating reactors there's a lot of stuff to look at. And I spend my time dedicated to the operating side. So I just wanted to point that out. Just like we don't want the licensees that have an operating facility to be distracted by construction activities, we're concerned about that, also in the Region II office.

We're here today to talk to you about safety culture. And first -- I just have two slides, one on Region II internal safety culture, which we refer to commonly as our Open Collaborative Work

Environment and then another slide on external safety culture.

First of all, on internal safety culture my foremost comment would be we know we can never declare victory in this area. And Region II management team has been dedicated to ensuring that we're continuing to enhance these efforts. And basically we have two major areas of activities.

First one is assessing or monitoring our safety culture. And then the other one is the activities that we undertake virtually on a continuous basis to enhance and support that safety culture. Under the area of assessing safety culture -- you can see the bullets up there -- the safety culture viewpoint surveys.

I might add we don't just take the results of those. We take the results of those but we perform pretty detailed analysis and we not only look at the areas in which we did not do well or as good as we would like to, but we also look at even the areas that we did do well to make sure we're picking out what thing, what insights we can get from those areas that we need to keep on doing. Which is something that is not as easy from our cultural background sometimes to do. In other words, we're trying to learn from our

successes as much as we're learning from our failures or areas that we could do better in.

Also, the third bullet up there refers to a system called the Ask Region II Management System. That's a computer-driven system that's web accessed that any employee at any time can raise any question anonymously through that process. And we do get questions on that process, anywhere from -- they range from, When you going to fix the light switch in my office, to, What are you doing to retain employees in the current environment with the federal government. So we do think that's a successful system. And we actively utilize that.

Another important facet under communications of safety culture and internal safety culture is we do have in Region II, like all the regional offices, a champion for Open Collaborative Work Environment, and our OCWE or OCWE champion here in Region II is Buffy Allen.

Buffy, could you raise your hand?

And we do utilize Buffy -- we're actually leveraging the role of that champion. And we utilize her frequently as a conduit to communications to the staff and things like that.

Under the area of cross-organizational

learning that's mainly referring to -- we do a lot of things across divisions and across branches. In fact, even between the construction side and the operator side at the inspector level there's a lot of activities that are done back and forth. A great example is at the Oconee facility there's some significant modifications going on and we utilize civil engineering expertise out of the construction side to help us inspect those activities. And I think both organizations gain a lot of value out of that.

Under employee engagement, just to touch in upon some of those areas. We do senior leadership management meetings with all new employees. We do those right after we have our monthly what we call Current Events Meetings. Those range -- we'll address topics from what are the NRC values and what do they mean to you as an employee to what are your concerns.

A great example, I think, of employee engagement is we have recently established an administrative assistants working group. And this was largely a result of an OMB review that we had done on administrative assistants' work loads and processes here in Region II. And this working group is completely run by the administrative assistants themselves. They run the meetings. They pick the

topics. They pick the agendas. They make decisions. And they bring recommendations to management. It's just an example of employee engagement that we're utilizing to enhance our performance.

Under the area of external safety culture you had asked some questions about the new policy, the new safety culture policy statement. We do regard that policy statement as the traits are clearly defined. We think the next step now, of course, will be to incorporate those traits into the ROP and the other inspection processes.

The policy statement we found particular useful -- we think it's going to be particularly useful to explain the competing goals issue. In other words, the policy statement as written recognizes that, in fact, in addition to safety and security there are other goals that facilities have and they're competing with safety and security. And we think that will be useful in some of our response to intervenor groups and also, concerned individuals.

You also asked a question about safety culture policy statement and how you think it will influence non-reactor licensees. I can tell you that safety culture is a very active topic in our discussions with fuel facilities. And NFS, of course,

would be a great example. We issued confirmatory order that dealt largely with safety culture issues. And just earlier this week I had a very good conversation with the vice president of Global Nuclear Fuels, and he was talking in terms of safety culture. I found that to be refreshing. I'm not really sure how safety culture will manifest itself in the fuel cycle oversight project when it gets done, but it certainly is being considered.

And just to comment on the external groups, I think one of your questions was, Is there external group interest in this area. I'm on the NRC Safety Culture Steering Committee. And the phone calls that we've had have been very active participation by external groups, including some international folks.

Under the Plant Safety Culture Assessment Process the Region II pilot plant was North Anna, and Region II did actively monitor the implementation. I, myself went to several of the meetings. The residents were fully involved -- the resident inspectors in observing those activities. And we basically concluded that as an agency that the pilot program showed that the process is viable.

One of the things that we like about that

program is safety culture is clearly the responsibility of the licensee. And that's definitely reinforced in the policy statement. And we think this program reinforces that perspective. Also, the potential data base for inputs into the program is significantly larger than the data base through the reactor oversight process.

And basically that captures the points I had on safety culture. If you have any questions?

CHAIRMAN SIEBER: Any questions from members?

(No response.)

CHAIRMAN SIEBER: If not, I think I would like to add something to your remarks. I worked a lot of places over -- fortunately, over 50 years. A lot of organizations. And there's always interesting technical questions and accomplishments. But the most important thing that each and every one of us does is to foster good safety culture. And it comes from the head of the organization, perhaps the chairman of the board or the president, all the way down to the laborer. And it has to be a part of every person involved in the organization. So anything and everything that we can do to foster within our -- among ourselves and within the industry an excellence

in safety culture I think isa an important achievement.

So thank you very much, Leonard.

MR. WERT: Thank you.

CHAIRMAN SIEBER: And I'd like to introduce our next speaker who will discuss Excellence in Operations and Emergency Response. And it will be presented by Bill Webster of the Institute of Nuclear Power Operations.

Bill?

MR. WEBSTER: Yes. Mr. Sieber, thank you very much. And very much appreciate the invitation to be here today and to give you an overview of the nuclear industry as we see it from INPO.

I had the opportunity just a couple of weeks ago with several of us to meet with the committee and assess Fukushima. I'm going to touch a little bit on that. But really, the purpose here today is to give a more broad view of the industry today.

I'd like to really focus on two things. Is if we were going to have this discussion a year ago it would have been all about excellence in operations. That's really where our focus was. You know, four months ago with the events in Japan it has caused us

to maybe rethink excellence in emergency response and emergency response capability and to kind of go back and revisit some of the things that we talked about years ago.

You know, when we look at excellence in operations, it was at the end of last year in 2010 we finished a five-year increment of industry goals. And every five years we set goals for the industry or really, the industry sets goals. We administer that program. And we did well, not perfectly but well at the end of 2010. We met the goals for things such as unit capability factor for automatic scrams for PWR collective radiation and for industrial safety. We did fall short in goals for BWR collective radiation exposure. And we fell slightly short for the goal on forced loss rate.

And so kind of the sense was the industry is moving forward. But we really -- the numbers don't tell all. And we began to do some deep looks last year. The first look we did I'll talk a little bit about is reactor scrams. I mean, at the end of the day -- but we met the goal for automatic scrams. And that's a median value, because we looked at what the real total scram rate manual plus automatic, is -- it wasn't really telling a compellingly positive story.

The second was emergency AC. We set performance goals for the various safety systems. And emergency AC had been incrementally -- the unavailability for that system creeping up. And so we began to dig into that a little bit more and discovered a few things.

And then the last is operational events. And really, in late 2009 and in 2010 we saw a number of operational events and I know if -- you've talked a little bit about HB Robinson. That certainly was one of them. But we were seeing kind of a series of events that we found troubling.

When we look at automatic scrams -- and as you can see here, the ten-year trend -- you know, 2003 -- I think we can all attribute that to the 11 scrams we had associated with the Northeast blackout. So if you kind of look at that you -- what you really see here is -- I will just describe it as not an improvement. And really, since 2005 a steadily, incrementally increasing total scram rate. And this is both again, automatic and manual. And they flip back and forth as to which one is the more prominent of the two.

So we did a deep dive into why are we seeing the scrams. And so the quick answer is well,

the plants must be getting older, that's probably what the answer is. And as we delved into it that really was not the case, because when we delved into it about 25 percent of those scrams are direct human performance. So the operators, the INC folks, somebody does something and the reactor trips.

But probably more telling is -- so 80 percent must be equipment problems. Well, that turned out not to really be the case. It's because though it was equipment initiator when we dug into it what we really were seeing was maintenance-induced problems. So that piece of equipment had been calibrated, had been worked, PM had been deferred, something had happened associated with that piece of equipment, either in the last outage or in the last operating cycle.

So when it really came down to it about 20 -- or excuse me -- about 80 percent of the total scrams were in -- somehow either direct human performance, management decisions or maintenance-induced failures. So we really can't attribute what we're seeing here directly to the plants getting older. And what it really told us is there's more that can be done here to continue to see the performance that we had seen in the 1990s in reducing

the total scram rate.

The next was diesels. And as I mention to you, is the diesel -- we saw the unavailability slowly creeping up. To some degree that unavailability was planned unavailability associated with people doing online maintenance to improve reliability.

But again, as we dug into that what we're really seeing here is again, if you can kind of see the trend graph there, is a slowly increasing number of MSPI, the Mitigating System Performance Indicator failures that we really hadn't moved the needle there in improving the reliability or the failure rate associated with emergency diesel generators.

Again, digging into that we saw many of the similar trends that we saw in the scram rate. The quality of maintenance that was being done, the effectiveness and the rigor of the implementation of the preventive maintenance program, particularly in some of the sub-components, the solenoid operator valves, air operator valves, things of that nature that are required to operate in order for the diesel to perform its function.

MR. STETKAR: Do you keep track of diesel failures where there is a common cause, where both units have -- both diesels of a given unit would be

from the same cause?

MR. WEBSTER: Yes, we look at that very closely, you know, in terms of a common cause, particularly at the same site or a common cause associated with the same vendor or type of diesel.

MR. STETKAR: And could you tell us how much of the total diesel failures is related to common cause failures?

MR. WEBSTER: I really can't do that right off the top of my head. I could get back to you on that specific number. But we've looked at that. And I will tell you that that was a concern that we had. And it didn't kind of pop its head up as a driving concern. But I'll get back --

MR. STETKAR: Yes. Well --

MR. WEBSTER: -- to the committee specifically. Yes, that's a very good question.

MR. STETKAR: Yes. My concern is the loss of all AC, station blackout issues which I consider to be very serious. So I'm interested in that statistic.

MR. WEBSTER: Yes. My guess is my diesel engineer knows that answer. We talked about it last year. And I don't have an up-to-date answer for you on that.

MR. STETKAR: Okay. Thank you.

MR. WEBSTER: Yes. The next is the operational events that we referred to. And we have in parentheses the SOER, Significant Operating Experience Report, 10-2. And this is the engaged thinking organization SOER. And we saw a series of events last year. Robinson again being one. But also, dual-unit scram up at Calvert Cliffs, a couple of outage events, a couple of reactivity management events, one that resulted in a reactor trip on both over pressure and over power that really caused us to step back and say, Boy, I thought we kind of had this nailed down years ago.

We put together a team of plant managers, site vice-presidents, ops managers and six chief nuclear officers to really do a comprehensive kind of common-cause review of all these operational events and what were we learning. And they came down with these six kind of common causes.

And I think to some degree they'll probably sound pretty obvious to different people. But they became quite meaningful to us because there were some areas here, at least at INPO that maybe we weren't seeing as sharply as we needed to.

You know, the first is long-standing issues tolerated, you know. And this could be

anything from a leaky roof to a light bulb that people somehow early on disposition as an acceptable condition. But low level equipment problems over time being tolerated. And it just had kind of a tendency to lower the standards for what might be acceptable in equipment.

The second is a subtle decline in standards. And this is more related to human performance. At the one event that we talked about where they had a reactivity event it's people over the years that would go into that control had kind of noted that, Boy, the standards aren't quite as sharp, the communication, the use of procedures, the teamwork on that crew. But that wasn't very visible to the people on site as over time it had become somewhat normal and a little bit invisible to the people on site.

The third was use of operating experience. And that just -- so -- many of us have been in this business thirty-plus years and so there's nothing new. Well, that's not really the case here. What this is really about is key operating experience of the industry. Things that were highlighted in an SOER were not well implemented. So infrequently performed test and evolution. Several of these things. Those

requirements were invoked by they weren't really invoked, in terms of how they were implemented.

Supervisory oversight appeared to be a weakness. And this really is in many cases the supervisors almost became more the performer than the overseer in the reinforcement of standards.

Worker understanding. And this is really to make sure that people really don't -- people really understand not just what they're doing but the implications of what they're doing, that this component I'm working on, you know, though it may be a level transmitter on a heater drain pump, if not done correctly could result in a reactor scram.

And the last is really rethinking the concepts of operational risk. We've embedded what I'll call safety risk, the PRA risk, very well in our activities. But there are other end states that are of a concern to us that maybe aren't always considered. So it's not always the worst thing that can happen to you, but sometimes it's what the more likely thing that can happen to you that really would disrupt the plant. So these were the six common causes that were identified that then resulted in the SOER 10-2.

I could talk about many things with --

related to that. I'm going to get to two in a minute. But I wanted to kind of jump ahead a minute to the emergency response and just to maybe kind of point out as -- kind of describe what we were seeing operationally. This event in Japan has completely caused us to rethink what we're doing at INPO and the industry with respect to emergency response.

So our response -- and, you know, going forward -- is multi-fold. And could really spend the rest of the afternoon telling you many of the different things that we're doing. I want to focus on two. One is operational fundamentals. And then the second is a re-look at what operational risk management is all about.

We've put together a program as part of our regular planned evaluations is that we look at two operating crews in the simulator under various casualty and emergency conditions. And we've really done that since the mid-80s. And they run various scenarios and we evaluate both their performance and the quality of the training. And so we've kind of re-looked at what that process is going to be. And then the second is that we're putting together a guideline on operational risk management. And I'll get to that in a moment.

As part of the Initiative on Operational Fundamentals is we want to do a couple of things. Is number one, as an industry we want to look at more crews as part of the evaluation program. We want to look at more complex scenarios. One of the things that both Robinson and the Calvert Cliffs event told us is that there's some very complex transients that can occur on the plant. And so to run some of the general EOP, AOP scenarios that we were seeing may not be testing the operators under conditions that they're likely to experience.

And then we wanted to take the events longer. And so as opposed to getting the plant to some point of stabilization what we wanted to do is be able to take the plant maybe to what recovery might look at. And at the end of the day that's really what complicated the event over at Robinson, was once they kind of moved back to restoring, moving out of the EOPs into the GOPs is how you make that transition under a plant that may not have the initial conditions that you think it does.

So we began the process by number one, is writing an INPO event report, a Level 1, which is a -- we've changed the program so you can substitute SOER in terms of our old vernacular. But IER 11-3 is

the -- really set what the standard is. You know, very often we talked about operations fundamental.

So what is that? It's monitoring the plant. It's precise control. It's teamwork. It's conservative bias. It's understanding the basis and the fundamentals to integrated plant operation. So we kind of talked about that. But we hadn't really embedded what behaviors and what that looks like.

So IER 11-3 really helps us get from kind of concept to behavior. And we've asked each utility to go do a self-assessment against those behaviors and the behaviors for your system operators, your non-licensed operators, your reactor operators, your control room supervisors, your shift managers and your shift technical advisors. And to do it against all five of those, you know, basic dimensions of operator fundamentals. We've also asked them to go self-assess their training programs. It's how well do your training programs touch these programs.

What we're going to do now -- and we issued that back in June. People have three months to implement it. Starting in September we're going to look at more crews. We'll be looking at three crews instead of two. Starting at the first of the year because it takes some time to develop the scenarios,

we're going to develop additional, more complex scenarios. So we're developing the criteria by which the scenarios the -- which we're going to evaluate the crews will be tested. Is -- we'll develop those scenarios.

The second is the scenarios are going to both be more complex and we're going to take them further into the transient. And then we're going to -- a thing that we haven't done historically is spend some time interviewing the operators.

So now that we've seen the crew performance, as understanding their understanding of the whys, the bases, the decision-making process, that very often what we discovered is a lot of our reviews and a lot of reviews that the utilities were doing were more, you know, Did we do the self check correctly, Did we do the circle slash on the procedure correctly, Did we do a transient brief at the right time in this scenario.

And maybe it didn't get into, you know, What was the basis for where you initiated this particular system or took this particular action. And a little bit of -- actually, it's kind of out of -- not too far akin, as some people may recall, you know, as to the way the Navy would do it in terms of

interviews with people and understand kind of their thinking and their basis and their integrated plan operation.

In order to implement this program one of the things that we are doing is that we're augmenting our teams with what I call -- we've asked each utility to kind of identify who's your best operator and to really build a cadre of 65 best operators.

And that would really be kind of the peer group that will participate on these teams with the INPO staff, you know, so that we really kind of come in and we're asking, in my view, in a very credible fashion, in terms of what the basis is and the understanding. And so it won't be just anybody out doing this. It will be as qualified a group of people as we can produce in the industry.

The next is operational risk. And I'm going to touch on this quite lightly. But, you know, fundamentally is many of the events we saw could have been prevented had people had a better appreciation for risk in the plant.

And risk -- not just -- I think to some degree that when we looked at the PRA or the sentinel or the ROS or the various risk models is it gave us a degree of comfort that we really weren't going to do

any serious damage, that allowed us maybe to not implement things as rigorously as we could and then maybe induce the transient or ended up with a safety system out of service or things that necessarily impact the PRA risk as much as impacted the operation of the plant.

And so we've really worked at trying to -- identifying risk. What does that look like. And doing it at every level. And doing it against end states other than just what does it do to nuclear safety. So what's the operational risk? What's the personal safety risk? What's the radiation safety risk that could be viewed by that.

A rigorous assessment of that risk. And then the mitigation. And I think this is an area where, as in industry, we can grow quite a bit. As to what's the mitigation strategy, as we've now assessed the risk. So, you know, there are a lot of mitigation strategies. One is don't do the activity. I mean, that's the biggest mitigation. You know, don't go to a mid-loop condition. I mean, so you mitigate a lot of risk by not doing that. You're -- there's a cost to not doing that, too. But -- so -- but what things do we put in place to mitigate the risk.

And then I think the last is how we manage

risk, because we are not going to eliminate risk from this industry. And so what it really is, is recognizing that many of the things that we've put in place over the years are management strategies. You know, we do circle/slash and procedural compliance, not just to make everybody's life hard. But that's really a risk management strategy to make sure that we go implement the guidance and the procedures that we've set out to go use.

We also look at risk on multi-planes. And I would say that, you know, we look at the life of the plant. The risk that's being assessed there really is at the executive level. You know, are we going to, you know, address this material condition issue in a certain fashion, are we going to replace steam generators, are we going to manage the steam generators that we have.

You know, the senior managers are kind of laying out what the operating cycle of risk is going to look like. What goes in the outage, what doesn't go in the outage. The managers and supervisors are now kind of at the implementation level. They're really developing now the mitigation strategies. And then the individuals are really now on the manage end of that risk as implementing those mitigation

strategies that the managers --

So we're doing a lot of training and a lot of guidance to maybe shift our thinking in terms of how overall plant risk is managed.

What I'd like to do now is shift. And we talked about this briefly in Washington a few weeks ago. And I think it may have a little bit more -- and why I brought this up is now that the NRC 90-day Task Force Report is out -- it was not out when we met in Washington. So we kind of talked about these issues conceptually. I think they're beginning to have a little bit more granularity today than maybe they did just a few short weeks ago.

But what these really are are the strategic goals that the industry developed back in April/May time frame as to -- you know, based -- as the world looks back at us five years from now what do we want to be able to say that's been done.

And I think the first is that we want to stay focused on safety and operational excellence. You know, at the end of the day we can't let Fukushima derail what we see as an industry that's healthy today. It certainly has some -- you know, some issues that we've talked about. But we've got to make sure that we keep the focus on the high levels of

operational excellence that we've achieved.

The second really, is developing response times, particularly the extended loss of AC so that it -- the response time or the mitigation strategy for the extended loss of AC that you can go long enough so that you've synchronized that with off-site or other external response that you may need.

I think, you know, at the end of the day this is very similar to an issue that was identified in the 90-day report. But we've got to be able to cope long enough to get the external help. And that's really the problem that needs to be solved. And so that's the industry's second goal that we have in place.

And we're getting ready to issue another IER 11-4 that really talks to the industry about defining what your strategy to operate with a loss of all AC, what does that look like, how far can you go. Proceduralize that activity and then figure out what it is that stops you there. Is it a licensing requirement? Is it a material equipment issue? And then try to collect that and understand as an industry as to where we would want to go next.

We need to improve our industry capability to respond to event. One of the things we looked at

and as we talked before in helping Japan, it was very hard to scale that internationally.

We've created a number of activities, whether it be the SAMGs, the Bravo.5.Bravo, external event plans. Is that we really need to integrate them and we really need to consider as how they would apply to a single event that affects multiple units at the same site. Is it -- at the end of the day we just can't assume it's at one plant and we can't -- and we need to find a way that we can either integrate or decide not to integrate the various things that we've put in place over the years.

We need to go back and we needed to look at the margins that we've had for flood, for seismic just to make sure that, in fact, you know, we have some degree of confidence that we're well bounded by what we've done before. But we do need a process that goes back and looks at that and verifies that the design features we have in place is reflective of the latest hazard analysis and the historical performance.

We've all, I think, been watching the flood out at OPPD at Fort Calhoun, you know, with great care. You know, that certainly -- I think we can take a little bit of confidence in that is that the design basis flood unit's been significantly

higher than the flood that they've experienced, even though they -- when you go out there you look at what's going on out there it gives you some pause. But in terms of safety is it's been very, very well maintained.

The last is a tension -- or the last two, a tension unspent fuel pool cooling and then primary containment is really looking at our strategies in both those areas.

You know, the current accident response that we talk about and again, very similar to what Chairman Jaczko has shown, is we stay in the protection and prevention mode. And that's where we want to live. If we get out of there due to something beyond our design then we're in mitigation strategy. If that isn't successful it's really where core damage can occur. And then we're in emergency response.

On the right the stabilization restoration. Again, we kind of have that there. That's what we're doing every day in Fukushima over in Japan right now.

Our goal here is to expand mitigation as we want to stay away from core damage. So the focus you'll see -- the -- many of the things the industry is doing right now is to expand that mitigation

column. That is the repurposing and integrating the strategies that we talked about, enhancing the loss of AC response, developing an off-site response capability that's synchronized with that enhanced response capability and developing a spent fuel pool strategy to both maintain inventory and cooling and to recover it if, in fact, it is lost

I've overlayed on that just what we're doing as an industry right now. I think probably the same overlay could be done for the NRC's 90-day report. I do want to point out that we're still working in the prevention protection area. You know, we need to go back and look at the design against the latest hazard analysis.

It was very encouraging, the discussion Mr. Wert talked about on safety culture, because we've got an active initiative right there to -- you know, as to bring both the industry and the NRC's language and approach to safety culture together and to keep after the operational fundamentals that we talked about. But many of the goals are related now to building a more robust mitigating area and to continue to build a more robust emergency response.

I think I've kind of spoken quickly as I sometimes get accused of doing. But what questions do

you have?

DR. BLEY: Yes, I have a couple. One has to do with have we really had a decline in standards or could there be some of that apparent decline in standards that's due to, albeit a good inspection program on all sides, one that's anticipated and plants are responding to how they're going to be graded rather than thinking more broadly. That's the first one.

And the second one was just a detailed one on the drills you were talking about. Now, when you talked about getting this cadre of best operators it acknowledges that we do have best operators. And that means we have some who aren't best. They're all qualified. They all meet the basic goals. But they may respond differently.

When you go in for drills do you or might you in the future, rather than taking a crew that's ready to be drilled, actually break up crews and see what happens when the thing that happens day-by-day, people from different crews get mixed together because of things occurring, actually happens?

MR. WEBSTER: Yes. I think -- let me answer your first one -- or your second one first. Is part of the new simulator review process to do just

what you described. So who's your Christmas Eve crew? You know, it's unlikely it's, you know, your most senior crew on site. And so -- but to try to get, you know, the -- a realism associated with what we look at what we don't want is to see the quote INPO crew. We want to see a representative crew of who might be on shift Christmas Eve. So we're working with the plants to get a realistic set of crews.

I wouldn't want to infer that because we're asking for the best operators that we're in some fashion saying that there's not best operators. You know, I have the advantage of working for a former TOPGUN pilot. And so this idea actually comes out of the TOPGUN school out at -- it used to be at Miramar. I think it's up at Fallon right now.

And that is the Navy takes, you know, kind of their -- who they feel is the best of the best. They bring them through the TOPGUN school then they send them back out to the fleet squadrons and from there they train the others.

And so we really kind of hope they'll be able to kind of model that as kind of poll who the quote the top guns are, bring them together through training and make them part of this initiative with the idea they go back to their plant and not only

would they help us with these reviews, but they also would be very representative of what we're seeing back at their plants. And so that's actually -- you know, if I had to kind of point to what's the seed material from that I would attribute it to that line of thinking.

You know, in terms of -- so the standards changed. Are they slipping or are we getting -- you know, are we raising the standard. I don't know the answer to that, to be very direct with you. I will tell you, though that some of the things that we saw would be a slippage of standards any time. And so I don't think it's just that we continue to raise the bar or that we have a false or an inappropriate set of standards. I think that some of the communication standards, some of the casualness by which equipment was operated would have been bothersome to us 20 years ago.

CHAIRMAN SIEBER: Okay. Do members have any additional questions?

(No response.)

MR. WEBSTER: Thank you very much.

CHAIRMAN SIEBER: If not, Bill, thank you very much for your presentation.

And for our last presentation we would --

I would like to return to Victor McCree, the regional administrator, who will discuss the Region II focus areas and opportunities.

MR. McCREE: Thank you, Dr. Sieber.

When I pulled these slides together I did it based on what we know corporately within Region II are our focus areas and challenges. And not surprisingly, as each division shared with you the areas that are of interest to them and that they're focused on, by and large they touched upon practically all of the items I was going to mention.

So in the interest of time and certainly, I'd be happy to go into any further detail on any of the points that I have highlighted, at least on my first three slides, I'd just like to leave you and summarize with a couple of thoughts.

One is Region II remains focused, dedicated and committed to fulfilling what I'd characterize as our trifold safety mission reactor -- on operating reactors, focus on operating fuel cycle facility, as well as on new construction, both for reactors and fuel cycle facilities.

We are -- have built and are building and nurturing an organization that is built on processes and procedures. We have a very clear mission. And

again, that is supported by our vision, which is being a leader in all we do. We apply the NRC values very purposefully, both in our internal interactions, as well as in our interactions with external stakeholders.

And we also apply the NRC principles of good regulation, clarity, reliability, independence, openness and so forth to our interactions, as well.

We also recognize -- and this is my second point -- that people are the heart and soul of what we do. The extraordinary people we have here in Region II, both the leadership team but more importantly, the staff, are the reason that we've been effective. And as Len talked about when he talked about safety culture and having an open and collaborative working environment, those are the key ingredients, I believe, to the success that we've had and will be keys going forward, as well.

The last point I'd want you to walk away with has to do with the importance of leading change. It's inherent in all that we do, whether we initiate it or it comes externally.

There's been a significant leadership change in Region II over the last six months to a year. And it's important that we're sensitive to that

and recognize the impact that it has on our people and that we remain focused on our safety mission. I know the leadership team recognizes that.

We've also spoken several times about Fukushima and the implications of that event. And we have played a very key role, I would say, in advancing the agency's success in both understanding what's going on, as well as assisting the Japanese and, of course, the U.S. Ambassador there.

I mentioned several times that Fred Brown is the acting deputy regional administrator for construction. And he's in that role because the normal person in that role, Chuck Casto, has been in Japan for the most part since the 14th of March leading the NRC and in some cases the U.S. government's activities and roles within Japan. So there are a number of opportunities that we look forward to and seize to lead change.

The second I'd mention is developing future leaders and staff. That's a very important part of our success as leaders within Region II. And we have a very systematic process for identifying and developing leaders and staff. That's a significant area and an opportunity for us.

We haven't spoken about this. Of course,

it's a corporate management issue. But within the agency, the agency's budget starting in Fiscal '12 and in the out years calls for a flat budget. And there are constraints on our ability to hire new staff in the agency that impacts our ability in Region II to staff up, even though our budget shows that we're growing incrementally at least over the next two fiscal years.

So we're working as a leadership team with the Office of Human Resources to first, try and identify staff colleagues from other offices, to some degree other regions, to facilitate the staff up that we'll be targeting next fiscal year and in Fiscal '13.

I mentioned at the beginning the fact that we're in this room is because we don't have a main conference facility. I'm cautiously optimistic that within the next couple of months I'll get a -- we'll get an affirmative reply from OMB and begin to work with GSA so that the next time you're here we're here in an indigenous space next door.

And with that, let me pause and continue to open up myself and others here for questions. We appreciate the opportunity to be here.

CHAIRMAN SIEBER: Okay. Thank you very much.

I announced at the beginning of this meeting that if there were any members of the public who would like to make a statement before the committee, that they're invited to do so now.

And if you choose to do that please go to a microphone, state your name and your affiliation so that maybe -- your remarks may be duly recorded by the court transcriber.

(No response.)

CHAIRMAN SIEBER: I see no indication that the public remarks are being offered at this time. The committee typically conducts a round table discussion at this point of the meeting.

Is there people to --

I understand there are perhaps people on telephone conference that may want to make a statement at this time. If that is the case the telephone conferees may speak up and state their name and their -- provide their statement to us.

(No response.)

CHAIRMAN SIEBER: Well, hearing none, we typically will have some kind of round table discussion. I suspect that the member questioning throughout this conference has pretty much satisfied the members' desire to conduct a further round table

discussion. But in the event that my perception is incorrect, I again invite members to make any statements or ask any questions that they so desire at this time.

DR. RYAN: I'd just add my thanks to --

CHAIRMAN SIEBER: Sir, I can't hear you. Pardon? Oh, okay.

DR. RYAN: Sorry. I just want to add my thanks for a very informative set of briefings today and appreciate all the preparation you made, both for the NRC staff and for INPO to come and brief us today. Thank you very much.

CHAIRMAN SIEBER: I second those comments.

And we certainly do appreciate -- this is one of the highlights of our plant operations and ACRS meetings of the year, because it's here where we face the facts of reality as we travel to licensees and to the regional folks. And that really helps us gain perspective on what should be done from a policy standpoint and an implementation standpoint. So again, I thank all of you for your work and for helping us do our jobs correctly.

So if there are no other comments, again, with my thanks the meeting is adjourned.

(Whereupon, at 12:15 p.m., the meeting was

1 adjourned.)

U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

Region II
Focus Areas and Opportunities

ACRS Meeting of the Subcommittee
on Plant Operations and Fire Protection
Information Briefing for Region II Activities and Items of Interest

July 28, 2011

Victor M. McCree
Regional Administrator, Region II

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Region II
Focus Areas and Opportunities

OPERATING REACTORS

- ❑ Implement high quality oversight program
- ❑ Execute 95003 Supplemental Inspection for Browns Ferry
- ❑ Engage issues at Oconee, and Crystal River
- ❑ Prepare for Watts Bar 2 Preop & Start-up inspections
- ❑ Oversee NFPA 805 transition for Oconee and Harris

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Region II
Focus Areas and Opportunities

OPERATING FUEL CYCLE FACILITIES

- Implement a high quality oversight program
- Engage performance issues at Nuclear Fuel Services
- Fuel cycle facility oversight program improvements
- Common industry areas needing improvement
  - Chemical and criticality safety
  - ISA methodology
  - Corrective action program
  - Information security

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Region II
Focus Areas and Opportunities

NEW CONSTRUCTION

- ❑ Implement a high quality construction oversight program

- ❑ Execute construction inspections
  - Watts Bar 2
  - MOX & LES
  - Vogtle LWA & V.C. Summer

- ❑ Building Scalable Infrastructure
  - Planning and Scheduling (Primavera)
  - Tracking of Inspection Completion (CIPIMS)
  - Process Development

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Region II
Focus Areas and Opportunities

OTHER

- Leading Change
- Develop future leaders and staff
- Adapt hiring strategy to current budget environment
- Coordinate with CFO and OMB to obtain conference space

- Support implementation of Fukushima lessons learned

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

QUESTIONS

United States Nuclear Regulatory Commission

Protecting People and the Environment

RII Plant Performance Overview

ACRS Meeting of the Subcommittee
on Plant Operations and Fire Protection
Information Briefing for Region II Activities and Items of Interest

July 28, 2011

William B. Jones
Deputy Director, Division Reactor Projects

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Plant Regulatory Performance

Licensee Response Column

- Browns Ferry Units 2 and 3
- Brunswick Units 1 and 2
- Catawba Units 1and 2
- Crystal River 3
- Farley Units 1 and 2
- Harris Unit 1
- Hatch Units 1 and 2
- McGuire Units 1 and 2
- North Anna Units 1 and 2
- Oconee Units 1, 2 and 3
- Saint Lucie Units 1 and 2
- Sequoyah Units 1 and 2
- Summer
- Surry Units 1 and 2
- Turkey Point Unit 3
- Vogtle Units 1 and 2
- Watts Bar Unit 1

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Plant Regulatory Performance

Regulatory Response Column

- Robinson 2
- Turkey Point Unit 4

Multiple /Repetitive Degraded Cornerstone Column

- Browns Ferry Unit 1

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Browns Ferry (BFN) Reactor Oversight Process Implementation

- BFN Unit 1entered Action Matrix Column 4
  - Failure of a low pressure safety injection valve and fire mitigation strategy (Red Finding)
  - Licensee challenged performance deficiency
    - NRC independent review panel assessed the outcome
    - NRC utilizing ROP process (Significance Evaluation Review Panel) to assess panel results
  - Supplemental 95003 inspection planning

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

BFN Supplemental Inspection Activities

- Multiple Inspection Activities
- Diagnose Scope of Site Issues
- Graded Assessment of Licensee Safety Culture

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

RII Perspectives on Reactor Oversight Evolution

- Regional ROP Improvement Initiative
- Continuing Learning from Industry Events and Conditions
  - Fukushima Dai-Ichi near term task force
  - Ground water initiative

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

RII Perspectives on Reactor Oversight Evolution

- Inspection Procedure Review
- Safety Significance Evaluations
  - External event screening
  - Integration of issues within a performance deficiency
  - Development of SAPHIRE 8

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Plant Performance Trending

- Safe Operation Across Region II Licensees
- Addressing Performance Deficiencies
- Fire Protection Aspects
- Reactive Inspections

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

QUESTIONS

U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

Fuel Cycle Inspection Program Overview

ACRS Meeting of the Subcommittee
on Plant Operations and Fire Protection
Information Briefing for Region II Activities and Items of Interest

July 28, 2011

Tony Gody, Director
Division of Fuel Facility Inspection

Overview

- Inspection program applies to operating fuel cycle facilities

- Program elements include:
  - Core inspections
  - Plant specific reactive inspections
  - Plant specific initiative inspections
  - Generic safety issue inspections
  - Licensee performance reviews

Enhancements

- Objective is to make the process more:
  - Risk-informed
  - Performance-based
  - Predictable
  - Transparent
- Respond to Commission direction
  - SRM M100429
  - SRM-SECY-10-0031

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Commission Direction - CAP

- Consider how to best reflect the fuel facility licensees' Corrective Action Programs (CAP) in the NRC Enforcement Policy
  - Provide incentives for licensees to maintain strong CAPs
  - Implement revisions to the baseline inspection program to credit licensees' effective problem identification and resolution programs

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Staff Approach for CAP Incentive

- Revise Enforcement Policy to non-cite NRC identified Severity Level (SL) IV violations if,
  - the licensee has established and implemented an effective CAP, and
  - the licensee enters the SL IV violation in its CAP for evaluation and correction
- Draft policy revision will be issued for comment this summer with final revision issued in March 2012

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Benefits of a Strong CAP

- More than NCV or baseline inspection program credit
- Identify and correct safety and security issues before they result in significant consequences
- Fuel facility safety is adequate with current corrective action efforts
- Opportunity to support continuous improvement of safety performance

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Effective CAP Determination

- Staff developed CAP criteria and elements that are indicative of an effective CAP
- Staff is developing a process to apply the revised NCV policy to those licensee's who have voluntarily agreed to implement the defined CAP
- Challenge is determining if effectiveness determination should be based on
  - Licensing basis documents
  - NRC inspection
  - Combination of both
  - Some other alternative

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Effective CAP Determination

- Path forward
  - Publish standard CAP criteria document
  - Establish process to conclude licensee CAP is effective and to apply revised NCV policy
  - Establish inspection program to continue to assess licensee CAP effectiveness

Core Inspection Program

- The revision of the fuel facility core inspection program to credit licensees' effective problem identification and resolution programs (CAP) will be addressed as the inspection program is revised as part of the cornerstone approach to enhancing the fuel cycle oversight process.

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Questions

United States Nuclear Regulatory Commission

Protecting People and the Environment

Center for Construction Inspection (CCI)

ACRS Meeting of the Subcommittee
on Plant Operations and Fire Protection
Information Briefing for Region II Activities and Items of Interest

July 28, 2011

Alan Blamey, Chief, Construction Projects Branch 2
Division of Construction Projects

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

The Center for Construction Inspection Mission

To provide assurance in the safety of future operations at new nuclear facilities by ensuring that licensees and applicants construct the facilities according to approved design criteria, using appropriate practices and quality materials.

Division of Construction Projects Branches

- Branch 1, Fuel Facility Construction (Part 70)
- Branch 2, Infrastructure Development (Part 52)
- Branch 3, Watts Bar Unit 2 (Part 50)
- Branch 4, Oversight of Vogtle and VC Summer (Part 52)

Division of Construction Inspection Branches

- Branch 1, Electrical and I&C
- Branch 2, Civil
- Branch 3, Mechanical

United States Nuclear Regulatory Commission

Protecting People and the Environment

New Reactor Construction Inspection Program Overview

ACRS Meeting of the Subcommittee on Plant Operations and Fire Protection Information Briefing for Region II Activities and Items of Interest

July 28, 2011

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

New Reactor (Part 52) Inspection Overview

Inspection Planning

- ITAAC Inspection (IMC 2503)
- Inspection of Construction and Operational Programs (IMC 2504)

Inspection Scheduling

- Link the planned inspection activities to the licensee's construction schedule.

Documenting Inspection Results (CIPIMS)

- Inspection plans and results will be documented in CIPIMS.

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Transition to CIP implementation

- CCI receives regular updates to applicants' construction schedules and plans inspections accordingly
- Resident inspectors are stationed at Vogtle
- Formal Vogtle Construction Inspection Assessment Process began July 1, 2010
- Residents and regional staff have inspected ITAAC (waterproof membrane) and construction programs (QA, Fitness-For-Duty)
- Completed the first semi-annual performance review of Vogtle Unit 3 & 4 on February 8, 2011.
- The performance review concluded Vogtle was in the Baseline column on the construction action matrix.

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

QUESTIONS

U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

Watts Bar Unit 2 Overview

ACRS Meeting of the Subcommittee
on Plant Operations and Fire Protection
Information Briefing for Region II Activities and Items of Interest

July 28, 2011

Mark Lesser, Deputy Director (Acting),
Division of Construction Projects

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Inspection Program

- IMC 2517, "Watts Bar Unit 2 Construction Inspection Program," issued February 15, 2008
- Strategy for completing IMC 2512 Inspection Procedures
  - Phase 1: Reconstitution - Staff reviewed old reports to compare completed inspections to requirements; delta identified
  - Phase 2: Inspection Scoping - Phase 1 results and additional considerations used for scoping future inspections. Corrective Action Programs, Special Programs, Generic Issues, Construction Deficiency Reports, open items, allegations, new/re-work, licensing issues, etc.
  - Phase 3: Perform inspections - Closure of the IPs and the bases for closure documented in inspections reports.

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Inspection Program (Cont'd)

- IMC 2513, "Preoperational Testing and Operational Preparedness Phase"
  - Review of testing program, test procedures, tests
  - Assessing the scope and schedule for our inspection of operational programs – RP, EP, Security, etc.
  - Other programs such as Fire Protection and Cyber Security
  - Training NRC staff for pre-operational testing inspection
- IMC 2514, "Startup Testing Phase"
- Transition to Reactor Oversight Process

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Inspection Progress

- Completed 2010 End-of-Cycle review in February 2010
  - 14 Violations identified in 2010
  - Cross-cutting theme in Human Performance
  - 6 NCVs identified through May 2011
- RII expended 14,700 staff hours in 2010; slightly over budgeted FTE; projecting 50% higher in 2011
- Completed 94 of approx. 500 inspection items
- Mid-Cycle assessment review scheduled for August 11
- Evaluating/Coordinating inspection activities with updated construction schedule from TVA

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

QUESTIONS

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Mixed Oxide Fuel Fabrication Facility (MFFF)

ACRS Meeting of the Subcommittee
on Plant Operations and Fire Protection
Information Briefing for Region II Activities and Items of Interest

July 28, 2011

William B. Gloersen, Senior Construction Project Inspector,
Division of Construction Projects

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

To what extent has the information in the Integrated Safety Analysis Summary (ISAS) been used in preparing for construction inspections at the Mixed Oxide Fuel Fabrication Facility (MFFF)?

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Background

- 10 CFR 70.23 (a)(8) – requires that NRC verify that the construction of principal structures systems and components (PSSC's) (design basis) has been completed in accordance with the application (for plutonium processing facilities)
  - PSSCs were defined in the Construction Authorization Request
  - Verification is a joint NRC inspection, technical review and administrative review activity
  - Joint NMSS/Region II expert panel was formed to implement PSSC verification activities

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

MFFF Inspection Prioritization

- For MFFF, the construction related concerns are:
  - The MFFF is constructed with an undetected PSSC construction error that adversely affects the public's health and safety
  - To minimize this concern, NRC will perform inspections to verify that the facility is constructed in accordance with the approved design commitments, construction authorization, and the quality assurance plan
  - Inspections add value by reducing the likelihood* of an undetected PSSC construction error
    - *The term "likelihood" is often used when qualitatively describing frequency

Integrated Safety Analysis Summary

- Approximately 250 IROFS were identified in the ISA Summary (ISAS) (the 250 ISA IROFS equates to about 12,000 individual IROFS components)
  - Applicant associated the IROFS back to the 53 PSSCs
- IROFS were prioritized for inspection purposes using external events, hazards, and accident analysis information in the ISA Summary
  - Staff technical reviewers prioritized ISAS IROFS and IROFS component types based on the technical review of the LA and ISAS
  - Staff is developing Independent Verification Plans to document what IROFS should be examined through inspection and technical review
  - Verification of the construction of prioritized IROFS and associated safety functions will be performed through inspection and review of procedures

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Can the ISA process be improved for (construction) inspection planning and preparation?

- MOX FFF ISAS is a very comprehensive safety analysis
  - Allowed NRC technical reviewers to prioritize:
    - ISA Summary level IROFS
    - Component level IROFS for key ISA Summary IROFS
- Prioritized IROFS provided the inspection staff the means to focus the appropriate level of inspection effort on the 53 PSSCs

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

QUESTIONS

United States Nuclear Regulatory Commission

Protecting People and the Environment

Regional Safety Culture/Plant Safety Culture Assessment Process

ACRS Meeting of the Subcommittee
on Plant Operations and Fire Protection
Information Briefing for Region II Activities and Items of Interest

Leonard Wert,
Deputy Regional Administrator for Operations
July 28, 2011

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Region II Internal Safety Culture

Assessing Internal Safety Culture

- OIG /Federal Employees Viewpoint surveys
- 360 Management Assessments
- Ask Region II Management inquiries
- Leadership accessibility

Activities Enhancing Positive Safety Culture

- Communications
- Cross organizational learning
- Leadership behaviors
- Employee engagement

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

External Safety Culture

New Policy Statement

- Clear and Concise traits
- Wording parallel with industry
- Security incorporated
- Non-reactor licensees

Plant Safety Culture Assessment Process

- Pilot demonstrated process is viable
- Larger data base than NRC's ROP
- Still need for NRC independent assessment

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

QUESTIONS

INPO

Institute of Nuclear Power Operations

NRC Region 2
ACRS Operations Committee

William Webster
INPO Senior Vice President
July 2011

© 2011 Institute of Nuclear Power Operations

- Excellence in Operations
- Excellence in Emergency Response

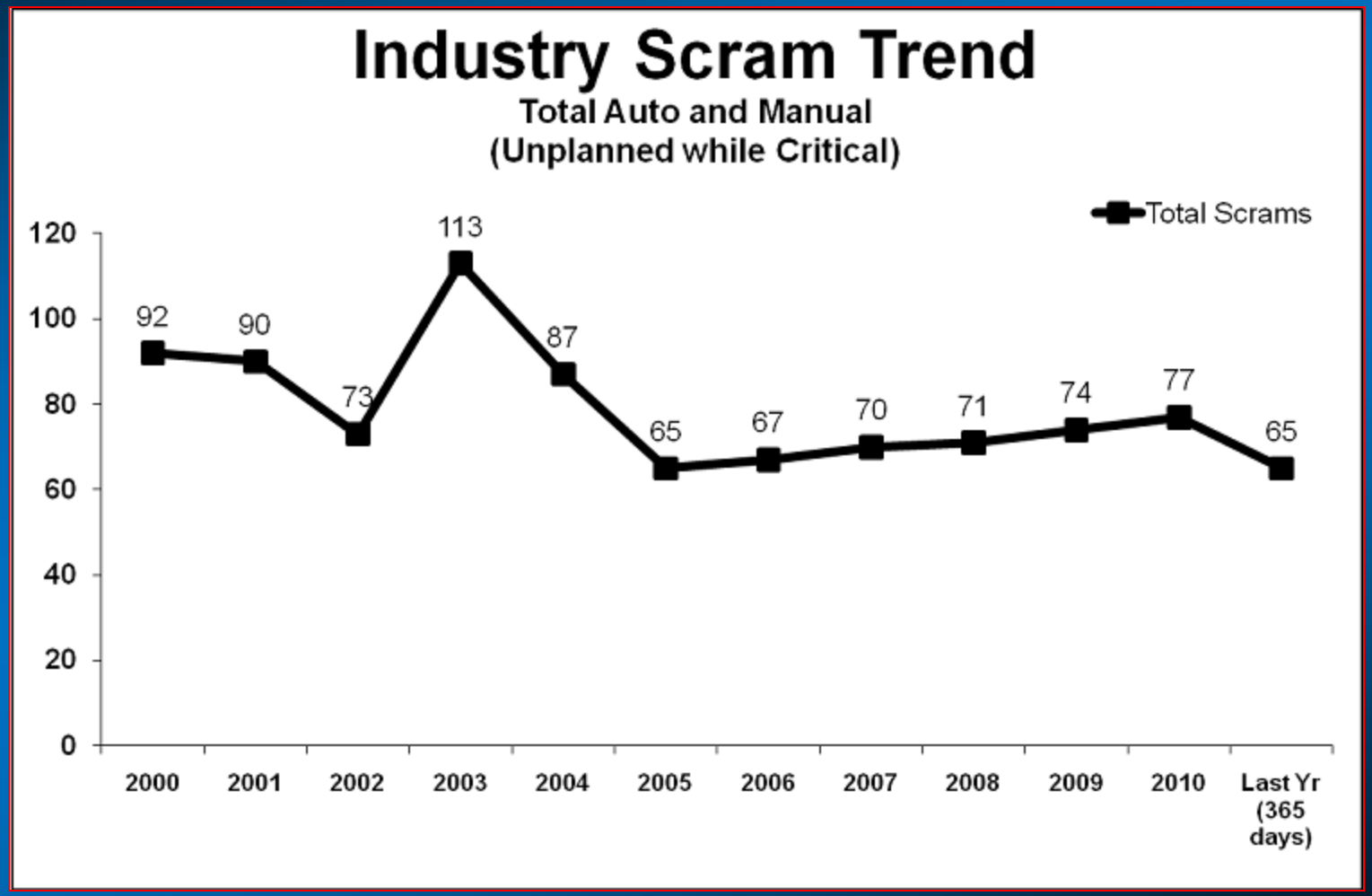
© 2011 Institute of Nuclear Power Operations

Industry Performance

- Reactor Scrams
- Emergency AC Power
- Operational Events

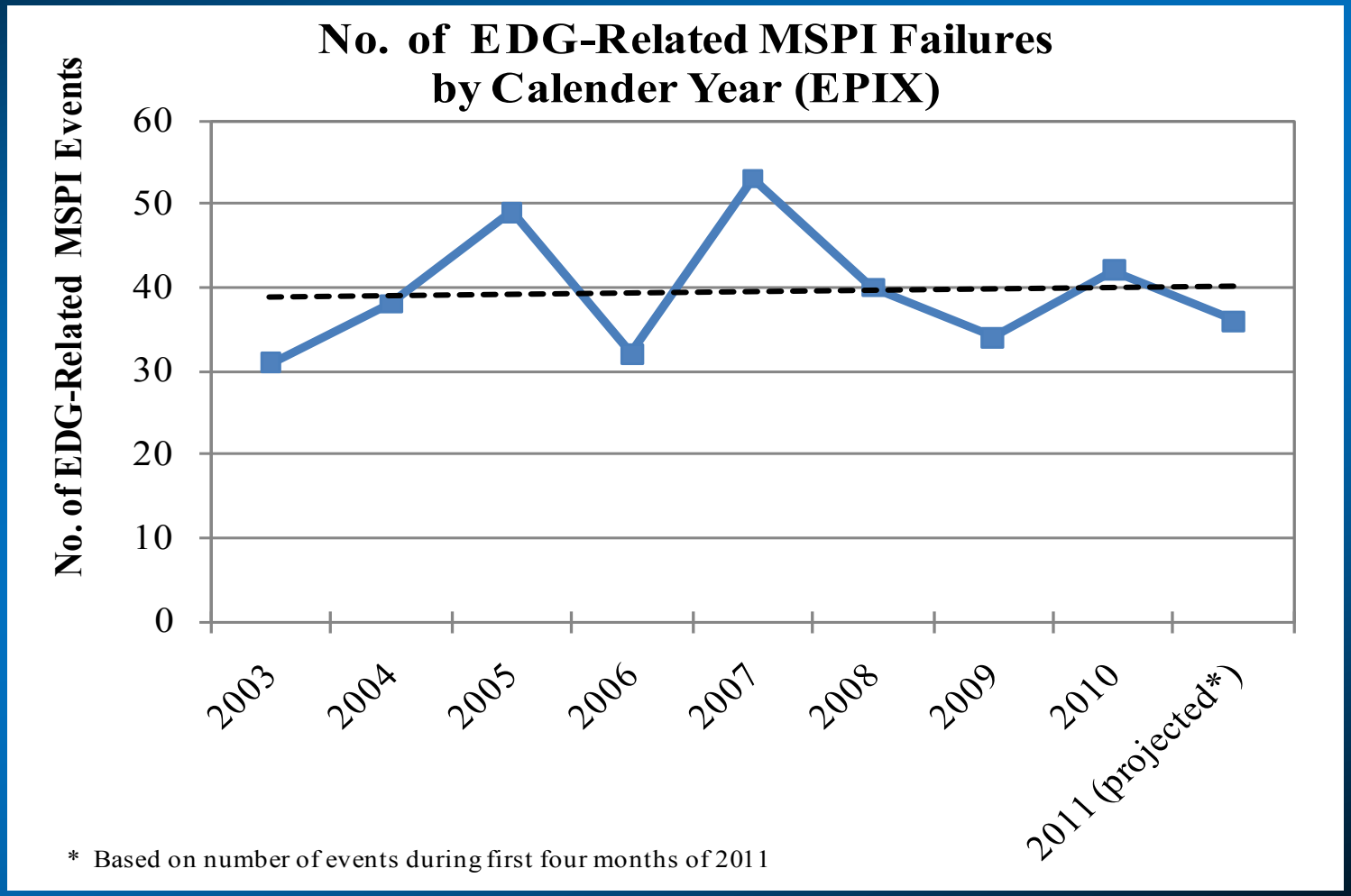
© 2011 Institute of Nuclear Power Operations

Reactor Scrams



© 2011 Institute of Nuclear Power Operations

Diesel Generator Failures



© 2011 Institute of Nuclear Power Operations

Operational Events (ref SOER 10-2)

- Long-standing issues tolerated
- Subtle decline in standards
- Use of operating experience
- Supervisor oversight role
- Worker understanding
- Operational risk

© 2011 Institute of Nuclear Power Operations

Emergency Response Challenge

© 2011 Institute of Nuclear Power Operations

Excellence in Operations

- Operator Fundamentals
- Operational Risk Management

© 2011 Institute of Nuclear Power Operations

Operator Fundamentals

- INPO Level 1 IER 11-3
- "Weaknesses in Operator Fundamentals"
- Issued June 2011

© 2011 Institute of Nuclear Power Operations

Operational Risk

- Identify
- Assess
- Mitigate
- Manage
- Learn

© 2011 Institute of Nuclear Power Operations

Life of Plant _____ Year _____ Month_____Week_____Day

Corporate Executives

Senior Managers

Managers and Supervisors

Individuals

Operational Risk Management

Identify

Assess

Prevent/Mitigate

Implement Strategy

Learn and Adapt

INPO

© 2011 Institute of Nuclear Power Operations

Emergency Response Strategic Goals

ref. Industry document "The Way Forward"

1. Nuclear workforce focused on safety, operational excellence
2. Response times synchronized to preclude fuel damage after SBO
3. US industry capable to respond; scalable to international events
4. SAMGs, security strategies (B.5.b), and external event plans integrated for symptom-based event response at multiple reactors
5. Protection margins for external events sufficient, based on latest hazards analyses and historical data
6. Spent fuel pool cooling and makeup fully protective during periods of high heat load and extended station blackout
7. Primary containment strategies effective to manage and mitigate post-accident conditions, including elevated pressure and H2

© 2011 Institute of Nuclear Power Operations

Current Nuclear Accident Response

Prevention/ Protection

- Design Bases
  - Configuration/ Plant Status Control
- Safety Culture
- Training
- Operations: EOPs, AOPs, Fundamentals

Mitigation

- SBO Coping Strategy
- External Event Response

Core Damage

Emergency Response

- SAMGs
- Off-Site Protective Measures

Stabilization/ Restoration

- Long-term Core Cooling – Closed Loop
- Long-term SFP Cooling / Inventory Control
- Containment Closure
- Water Management
- Radioactive Material Control
- Redundancy Built-In
- Environmental Monitoring

B.5.b. Strategies

© 2011 Institute of Nuclear Power Operations

Future Nuclear Accident Response

Prevention/ Protection

- Design Bases
  - Configuration/ Plant Status Control
- Safety Culture
- Training
- Operations: EOPs, AOPs, Fundamentals

Mitigation

- SBO Coping Strategy
- B.5.b. External Event Strategies Repurposed and Integrated
- Enhanced Loss of AC Response
- Off-Site Resource Support
- SFP Cooling Initiative

Core Damage

Emergency Response

- SAMGs with SFP Cooling
- B.5.b. Strategies Integration
- Off-Site Protective Measures
- Hydrogen Control and Venting

Stabilization/ Restoration

- Long-term Core Cooling – Closed Loop
- Long-term SFP Cooling / Inventory Control
- Containment Closure
- Water Management
- Radioactive Material Control
- Redundancy Built-In
- Environmental Monitoring

© 2011 Institute of Nuclear Power Operations

Future Nuclear Accident Response (Industry Response)

Prevention/ Protection

- Design Bases
  - Configuration/ Plant Status Control **(Strategic Goal 5)**
- Safety Culture **(Strategic Goal 1)**
- Training **(Strategic Goal 1)**
- Operations: EOPs, AOPs, Fundamentals **(Strategic Goal 1)**

Mitigation

- SBO Coping Strategy
- B.5.b. External Event Strategies Repurposed and Integrated **(Strategic Goal 4)**
- Enhanced Loss of AC Response **(Strategic Goal 2)**
- Off-Site Resource Support **(Strategic Goal 3)**
- SFP Cooling Initiative **(Strategic Goal 6)**

Core Damage

Emergency Response

- SAMGs with SFP Cooling **(Strategic Goal 6)**
- B.5.b. Strategies Integration **(Strategic Goal 4)**
- Off-Site Protective Measures **(Strategic Goal 3)**
- Hydrogen Control and Venting **(Strategic Goal 7)**

Stabilization/ Restoration

- Long-term Core Cooling – Closed Loop
- Long-term SFP Cooling / Inventory Control
- Containment Closure
- Water Management
- Radioactive Material Control
- Redundancy Built-In
- Environmental Monitoring

© 2011 Institute of Nuclear Power Operations

Questions?

© 2011 Institute of Nuclear Power Operations