

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BRIEFING ON PLANT AGING AND MATERIALS DEGRADATION ISSUES - PART I

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Nuclear Regulatory Commission

One White Flint North

Rockville, Maryland

Monday

November 8, 2004

The Commission met in open session, pursuant to notice. Chairman Nils J. Diaz, presiding.

COMMISSIONERS PRESENT:

NILS J. DIAZ, Chairman of the Commission

JEFFREY MERRIFIELD, Member of the Commission

(The following transcript was produced from electronic caption media and audio and video media provided by the Nuclear Regulatory Commission.)

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

Secretary

General Counsel

CHRIS CRANE, Exelon Nuclear

ALEX MARION, NEI

BRYCE SHRIVER, PPL Generation

ROBIN DYLE, Southern Nuclear Operating Co.

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

CHAIRMAN DIAZ: Good morning. I especially want to thank our briefers today from the industry on presenting industry initiatives to address what I think is a very important topic. I think you probably know that last week, I said this is not a new issue to the industry and I'm sure you knew that much better than I did.

But I think it's taking a different spin. It is an issue that needs to be well managed, an issue we need to get at every angle.

If you look at combined operating experience and license renewals and all the good things that we do, brings into focus the fact that really, materials issues, materials degradation, materials management becomes rather the forefront. So we are looking forward to the presentation and I wonder if Commissioner Merrifield has any additional comment?

COMMISSIONER MERRIFIELD: Mr. Chairman, I do have one additional comment. I guess two.

I want to thank our panelists for agreeing to participate today in what I think will be a very thorough meeting that we're all trying to keep close track to. The other comment I would make and this goes with the Chairman, notice we are very proud about trying to be predictable around here. As far as my own personal predictability, as our Secretary well knows, I have had a tradition in my six years here in the Commission of lecturing our panelists when they have materials that overlies on undefined acronyms and consistent with approach, I want to direct to Mr. Marion, I do realize you have an index in the back which outlines these acronyms, but in the future, I hope we can make sure we define them internal to the document during their first use as these documents do go over

our web video streaming. And it makes it difficult for other participants to know necessarily what stress corrosion cracking is in its acronym.

MADAM SECRETARY: We did raise this a couple of times to make sure we try to define these acronyms as we go.

COMMISSIONER MERRIFIELD: Well, I'm sure she warned you would get a lecture and I wanted to be predictable in my follow through. Thank you, Mr. Chairman.

CHAIRMAN DIAZ: Commissioner McGaffigan might join us later but we are going to go ahead and proceed and again, Mr. Shriver, Mr. Crane, Mr. Marion, thank you. Mr. Crane, you have the microphone, sir.

MR. CRANE: Thank you. Chairman Diaz, Commissioner Merrifield, we appreciate your time this morning to give you a summary brief and we will work through the acronyms on what the industry has been doing in the materials initiative.

It is an important task and undertaking. I think that you will see that it is one time that the industry out of many others but this is one case where we believe we are being pro-active in getting out in front of the issues.

Next slide. There are three main messages that I want to emphasize as we go through the presentation. The first is this initiative is coordinating to spend almost \$60 million annually in research and development around materials issues.

It provides a prioritization to resolve current issues and it also provides a methodology to be forward looking for the new issues. We have built into this initiative, an accountability that will talk a little bit about how we police ourselves through our own peer interactions and all these issues, programs, but also with the use of INPO.

Next slide. The presentations will review these general topics. A little bit of background: The initiative, our strategic plan which is a significant part of the initiative, the deliverables that we are deriving from it and what you should be able to expect.

We'll touch a little bit at the end on the regulatory process.

Next slide.

From the background, the NEI Executive Committee delivered a resolution or adopted a resolution in November 2002. It was based off of many industry events, tube ruptures, VC Summer, hot leg, cold leg, AOA, the axial opposite anomaly at Callaway Plant. The list goes on. And it led up with the Davis-Besse event.

And so, from that point, the NEI Executive Committee wanted to make sure that we started to pull together and understand our accountabilities as an industry instead of separate operators within the industry and charted a self-assessment overall of what was going on in all these different buckets throughout the industry for metallurgical issues.

On the next slide, the self-assessment.

The basic purpose of the self-assessment was to determine what was working well, what was not working well. Were there areas of duplication of overlap or what was missing. You can see the areas on this slide where it covered the steam generators management program, BWR materials reliability program, went into the boiling water, went into the fuels area, the corrosion control in all of the owners' groups that could potentially have an effect on the metallurgical areas.

The conclusions drawn from the self-assessment on the next slide identifies several areas for improvement to better integrate and coordinate the activities on an

industry-wide basis. What we found is we had limited coordination of industry events or industry efforts on materials issues, limited ability to enforce the guidelines.

We had no forum -- there was an exception, the steam generator, SGMP program, was being monitored and the oversight was being provided by INPO. But a lot of the other programs did not have that same clout or same oversight being provided.

We wanted to limit -- excuse me, we had no verification of implementation. It was word of mouth. And in some places there was no follow-up for implementation verification at all.

Inadequate participation support of the IP programs. Some of the utilities were very involved. But you would see the same names in the different issues group and some were not involved at all.

And so what the self-assessment concluded is that NSIAC strategic advisory committee for NEI answers to the executive committee of NEI. An initiative was warranted.

The recommendations that came out, on the next slide you can see from the self-assessment, was to create an executive level and a technical level of oversight for all the issues programs or owners groups programs also.

Establish a policy on materials management issues, use the NEI initiative process, expand INPO's role, enhance communications and define the interfaces and the accountability on the interfaces.

The initiative process was first reviewed by the NSIAC, the Nuclear Strategic Issues Advisory Committee, which is made up of the CNOs throughout the industry, the chief nuclear officers and their equivalents at each one of the OEMs or the original equipment manufacturers.

On the next slide, the initiative was developed and the objective, as stated here, was to assure the safe, reliable and efficient operation of the plants.

We were able to, within this, have each licensee endorse this initiative that provided the guidelines for all the material actions throughout the industry.

An initiative is -- there is a methodology within the NEI charter to have industry-wide initiatives. If 80 percent of the CNOs vote to endorse the initiative, it is a mandate by the industry which all need to comply with.

For this initiative, when we put it out in front of the CNOs, we had 100 percent approval. So we had full backing and we still have full backing of the initiative.

The basic purpose of the initiative, as I stated previously, is to provide consistent management process, to provide a prioritization of the materials issues, be proactive, integrated and coordinated, which is a mouthful, but we have the framework within the initiative to be able to provide that.

And then an oversight of the implementation, self policing, being able to have a structure that starts with the issues groups, the steam generator groups, the vessel internal groups, the corrosion groups, whichever EPRI owners groups there is that has the mandates and the accountability on an annual basis to report back on the implementation of the initiatives at each site.

So we can bring that back into the NSIAC and police ourselves. And then also have a further follow-up with the INPO evaluation process.

On the next slide, the actions required from each chief nuclear officer. This was a major portion of the initiative, is to make sure each nuclear officer understood their individual accountabilities and commitments. It required from them on their signature and

their endorsement of the initiative, the commitment of the executive leadership and technical personnel.

Commitment of the funds for the materials issues within their scope and commitment to implement the guidelines. There's two buckets of resources.

One is the financial resources and the commitment during outages to perform inspections, to perform repairs.

The other, which is also a very tight resource right now is the technical expertise. And as utilities were refining their staffing numbers for the future operations, this is one area that we needed to increase and we are all working on that right now.

On the next slide. As I said, we approved with 100 percent of the CNOs voting in favor of it in May of 2003, each licensee will meet the intent of the guideline for the materials initiative.

The initiative effective date is January 2nd of '02 -- excuse me, January 2nd of '04.

It includes \$12 million that we collected on a separate rider on our EPRI fees to be able to support some of the research and development of tooling. Each one of these issues programs has their own budget. The majority of them are under the EPRI process but there are some within the owners group also which I will show you in a minute.

The bottom line, some of them will only be able to fund and support reactive measures.

What we needed to be able to do is give the resources to these issues groups after we had given the right project management tools and the right prioritization tools to fund some forward-looking and get out in front of them.

In that \$12 million is on top of the \$47 million already being spent in the budget of each one of these areas in '05.

Next slide. The guideline that was put together for the management of the programs was issued, approved and issued in '03.

As I said earlier, it established two standing committees. One is the Executive Oversight Committee and everything has to have an acronym so we call that the MEOG. The next level was the Technical Advisory Committee, MTAG. Hopefully we added those in the back for you.

The Executive Oversight Committee made up of Bryce, Shriver, myself, other CNO's across the industry, to give the right prioritization, the right support and be able to provide a force and function if required to drive resources either to technical or financial to be able to work under our work plan.

The Technical Advisory Committee is truly the leaders of the industry issue groups. Its head of -- each one of the EPRI program groups which are utility members or the owners' groups, folks like Robin Dyle, behind us here today.

They understand the degradation mechanisms, they understand the susceptibilities. They understand how to really fix what we are talking about. We provide the money, they go out and do the work. The guideline also established the policy. It's a clear policy statement that I will cover in a second, it defines the roles and responsibilities and it provide an integrated approach.

The next slide, you can see the policy statement. I won't read through the whole thing but it captures the overall objective. What we want to be is forward looking and coordinated. We want to be able to continue to rapidly and effectively respond to emerging

issues and we wanted to make sure we have our programs and our priorities prioritized based off of safety and operational risk significance. That was a missing statement previously. To be forward looking and coordinated, we believed we wanted to but our work plans and programs weren't in place.

We were effectively responding to issues but I think we needed to have even further coordination on that. We wanted to make sure that our initiatives that address the materials degradation also were prioritized based off of safety significance and risk.

On the next slide, we spell out what areas are covered; first one is the boiling water reactor vessel improvement program.

Then, the materials reliability program for the PWRs, the steam generator management program, the fuel reliability program, corrosion control, chemistry control and the non-destructive examination program.

Each one of these were assessed in this earlier assessment that we talked about. Some had very positive points. Some had areas that they needed for improvement. So the program initiative, the guideline took the best out of each one and also was able to refocus some others.

One specifically is the Fuel Reliability Program. That was previously called the Robust Fuel Program and it did not have full industry participation or support.

We had gone through reprioritization, especially with the trend we have seen in the industry on the fuel failures and we are refocusing and prioritizing our efforts in that -- to that issue.

On the next slide, the other areas it covered were the NSSS owners groups. These are primarily Westinghouse and the B&W which is currently FRAMATONE/AREVA.

The GE metallurgical issues are covered and had been previously covered under the EPRI programs.

On the next slide, one of the major parts of this initiative is the strategic plan. It is comprehensive and provides a comprehensive and integrated view of the materials issues. It has frame work for planning, coordination, and directing the efforts.

It contains the elements for an effective management program. It basically sets in place the accountability, what each one of the issue programs or owner groups are accountable for; which part of the primary systems if it's the chemistry or actual, the hardware; how they are to go through and identify their susceptibility to each one of those.

So if you imagine taking a PNID, highlight which one you own. Do I own this piping system? Do I own these components? Do I own the chemistry internal to it? To that level of detail was laid out.

From there, it was providing the guidance and the direction on how to develop project plans, how to develop budgeting tools, how to develop the prioritization mechanisms for multiple year plan, versus just the next year itself. And then, also, the elements of an effective program which was the accountability tools.

On an annual basis, each one of the issues programs will now have to perform a self assessment on the work that they had gotten done in the last year. That's down to not only the research and development activities but that's also the implementation of actions that each one of the sites, not just utilities, but each one of the sites has to perform.

I believe the strategic plan had been provided to the senior management, the NRC senior management at a meeting this past March and will continue as we update, keep briefing the senior management and the staff on these activities.

On the next slide, it covers some of the issues I just spoke about but it provides -- the strategic plan provides an integrated alignment of the issue programs. These are the nickel-based alloy stress corrosion, cracking, nondestructive examination technology, the high fluence in the PWRs and the BWRs, steam generator tubing, water chemistry and reactor fuel integrity.

As you can see, the revision was issued in March and revision one is planned to be issued in early 2005. Now, that will contain the degradation matrix in the issues management table.

The degradation matrix that I just spoke of is a tool to effectively address programs that are in place, will be working with the new process to be able to develop the tools for more effectively managing. But the significant part of the degradation matrix is where we identify the potential vulnerabilities that we need to focus on with safety significance or safety priority for the near term and what could be researched in the latter part.

It lists all the materials within the scope of the materials initiative. It identifies the potential degradation mechanism for each applicable material. And it will be able to -- the information obtained will be used to continue to broaden the operating experience.

Robin Dyle is here with us today, standing behind, I think can better illustrate that and I think they are going to bring it up on the slide here to show you what a degradation matrix actually looks like.

MR. DYLE: Thank you, Chris. This is Robin Dyle. I believe this is in your package also.

This is just a sample page from our degradation matrix.

MR. CRANE: I think it is slide 37 in your package.

MR. DYLE: There is a link, should be in the back, I believe. As you can see on this sample slide, there are three levels that we have identified in the process.

The first level is simply the PWR and BWR reactor types; that is the first division we made.

Next division was each of the major subcomponents or systems within the reactor type. So you got the reactor vessel, pressurizer, et cetera for the PWRs and in the BWRs area we have the vessel and internal of piping.

One of the things we want to do is identify all the potential vulnerabilities that may affect the plants in the future. So we pulled together a group of experts, did an expert elicitation, to try to better understand what we might be facing.

In the second level of the table which is identified in the middle, the example there is the PWR pressurizer table. You can see that in the left-hand column, we identified the pressurizer and there is a definition there of what is included with it. The next column in to the right lists the materials. So we list all the materials there that are in the pressurizer where it's carbon, or low alloy steel, carbon or low alloy steel weld metals and on and so forth. So that made sure we had all the materials identified. Then we asked the experts

what potential degradation could occur, not limited to what the field experience offers. What do we know from laboratory data, what do we know from other industries where environments might be the same or similar. And so that was part of the process we went through.

Across the top of the table on Level 2, you see the potential degradation mechanisms that we came up with and just below that, you can see a breakdown.

For example, under stress corrosion cracking there are five different areas. There's inner granular irradiated assisted and so on and so forth.

Out to the far end, we have a reduction in toughness. And we captured there both thermal aging and also those things associated with irradiation.

So, for this component, we have those mechanisms, those materials and then, we started trying to understand where they may or may not occur.

Through the process, we identified those things that were clearly problems and we put a "yes" there. Areas where we saw there was no applicability, for example, the radiation effects on a pressurizer, those were NA, they were just not real.

We had areas that we didn't believe based on these 20 plus experts would be an issue. Those are "Nos." Then, we have some that people postulated there may be problems, either from laboratory data and other things. We captured that with a question mark.

And at this point in the process, there was not utility involvement other than to make sure we had captured all the materials.

We didn't try to pre-judge the significance of these issues. Once this was done, we did go back and look at and say, now, let's look at the programs that exist right now and try to assess what we understand about the significance of that.

The items for example at the bottom of the table under stress corrosion cracking that are orange, those are the ones considered the most significant, where if we look at programs in place and research underway, we're not confident it will produce the solution we need. So that is highlighted for us to understand. We need to move forward and look more deeply at that.

The areas -- the one area for example in the first column that is green that, says, yes, we have a mechanism, a program in place and we understand all we think we need to know about that. So for this table, you see, we have one green item.

Those that are yellows, we have identified as real problems and we believe the research of the programs that are under development, in the end, will produce the solution we need.

So we think we're on the right track there. The blue is reserved for the question marks and that says we need to do more work and try to understand better what this issue is and that we would prioritize it based on that.

Last item I'll mention shows level three. There's what we called the end notes.

That one there is just an example, but if you look inside the blocks in level two, there are notes there. In this document that is hyper-linked, you can go in and click on those blocks and it will take to you the end note that gives a brief discussion of what would be there.

Could you go to the next slide, please? Okay. Are there any questions on that?

MR. CRANE: So you can see, this was a sample of the level of detail we are going to bring you down to the material type within the larger component type.

And it's setting our work plans. This is an overall gap analysis that's been done from this at a highly technical level but that feedback goes back into the project plans and the prioritization of the efforts for the next couple of years.

Now, going from the degradation matrix, those the -- outcome from that goes into the issues tables.

On the next -- I believe that's the slide we are on now, the issues table. That addresses the significance of what we found in the degradation matrix, where it could fail.

And it defines where the materials are used in the consequence of failure. That's where the metallurgical folks work with the system analysis folks between the material programs, to systems mostly in the owners group to look at the risk significance.

It identifies existing programs and guidance that's available for effective management. That breaks down into multiple areas, the assessment inspection/evaluation, mitigation or repair, and replacement. That was a sound program when -- we found in self assessment it was a sound part of the boiling water reactor vessel improvement program so we bucketize all the issues. How do we assess them?

Do we have the technology to inspect and evaluate? Is it possible to mitigate like through chemical controls? Or do we need to focus on repair or replacement with the better material?

The issues table is as I said, fed from the degradation matrix. And the information there will go directly into the work plans.

I think we have another hyper-link here. Robin wants to cover that on slide 38 to talk about the sample of an issues management table.

MR. DYLE: Here you see an example of a -- we just made this example up to summarize some things from how you would use the degradation matrix and move into an issue management matrix.

The first three columns on the left is the information that would come from the DM.

You have the components listed, materials of construction that are used, whether stainless steel, or inconel. And then the failure mechanisms that would have been identified.

The first three rows in this example table is really a roll up or a summary of where BWR fleet is today.

We've done a lot of work in these areas and we can summarize what the issues are for piping, vessels and internals. But how you would use this, there is a last line, the fourth line that shows up under the course route and use that as an example and show you would use the process. The course route is made of stainless steel. It's subject to inner granular stress corrosion cracking or radiated assisted stress corrosion cracking there's also issues related to reduction and toughness.

And then the consequences of failure, its goes through and identifies it by a weld by weld location, what the consequences of the failure might be.

That is looked at in concert with what kind of accident is under consideration, whether it is a seismic event, a main steam line break, a LOCA. You look at all that and look at the forces that come to bear. And then we looked at things like what the operator actions might be, what the emergency procedure guidelines would call for, and things of that nature to understand truly how this component would act in the face of an accident should you have degradation at different levels.

Then, the mitigation effort, you probably are well aware we have used hydrogen water chemistry followed by chemical applications to try to minimize the effect of stress corrosion cracking and delay the onset or initiation. It also fixed crack growth rates. If you're looking at piping, it would be other things considered like stress improvement where you drive the stresses on the idea of the pipe from tensile to compressive. So that you turn off the force that would create the cracking.

So these things would be captured under the mitigation column for individual components as you work through the plan.

Repair and replacement options, what do we know about the repairs? What can we do to replace things for example? We can use preemptive weld overlays. That's a mitigative and a repair technology.

We also have situations where we've done the evaluation for example in a BWR at the core plate. We have difficulty looking at the core plate bolting but it's main function is to provide support during a seismic event. Or one of the repair or replacement options we considered was the installation of seismic wedges placed around the core plate so even if the bolts were not there, the core plate would do the job that was needed. So that was a modification one could make to eliminate the problem.

Investigation evaluation guidance, the BWR program has written 13 of those, provides detailed inspections, location by location. For the shroud, the jet pump, all those components and provide the flaw evaluation technologies including crack growth rate, treatment of fracture toughness, margins on failure, which would include the ASME margins that we use in the code.

So all that's been rolled into that. In the end, you work yourself across this table if you're trying to use this and say what gaps remain? What do I know and what do I not know? That's the column that is important.

At this point in this example I have here, the gaps are issues related with high fluence for stainless steel. We know crack growth rate goes up, fracture toughness goes down. That can be a life limiting issue. Same way the PWR people are working right now, developing issue management tables for their items.

One of the things this lets you do as you go through this process, you understand the consequences of failure and all the things that roll into play and then identify the gaps, you can then prioritize the work.

The real issue is we have limited resources both in money and people as does the agency. If we were to pool all our money, we could not solve all of them at the same time. So what do we do to prioritize and determine what needs to be worked first, second, third, fourth?

So this process and this tool will help us do that. It will give us a tool that we can identify to the executives what the issues are, what the priorities are, what the gaps are, and then help them set the policy and direction we need to go with that.

The last column simply identifies the groups that will be working on that. Any questions?

MR. CRANE: So you can see that those two previous tools, the degradation matrix and the issues management table provides the backbone for the overall programs.

On the next slide, we will focus on the implementation, slide 20. Let's focus on the implementation protocol.

Having a lot of the information identified, having some risk significance identified, being able to prioritize, we've developed the guidance for the issues program work products.

So they have to have guidance -- this provides general guidance for the implementation. We classify issues as mandatory, needed or good practices.

When something comes out as mandatory, this is a self policed prioritization mechanism, each organization is required, it's mandatory that they implement the practice.

It could be replacing, it could be assessing, it could be any of the others. Needed is highly prioritized or highly recommended in the prioritization.

If some facilities are coming to end of life and they can do a safety analysis to say it's not required if I have one or two years left to run, to go in and change out all of these components to alleviate the susceptibility. It is needed, should be done but due to specifics within that facility, not just because they don't want to do it but technical and economic specifics, they can justify technically from a safety significance and the economics would say it's not worthy of doing. Then, a utility could go away from needed.

A good practice is where we're sharing good inspection techniques or other practices that may help improve the situation, but it is up to the utilities to decide if they want to do that. We see more mandatory and needed items coming out of these programs. We will see good practices but they will not be the major or significant issues.

As I said, deviations from the mandatory needed actions will be tracked in each -- based off of the implementation protocol -- in each utility or each site's corrective action program.

It requires executive concurrence from each one of the companies to waive the performance from mandatory or needed and those will also be evaluated by the issues programs sent up to the Technical Oversight Committee of all the programs. And if we see an outlier, we will be able to address that through the executive oversight and through the INPO assessments.

We believe what we put in with the implementation protocol provides the right rigor, the common definition, the right structure to be able to enforce the implementation across the industry.

And also on that, a significant part is the use of INPO in the evaluation of the level or quality of the implementation.

On the next slide, 21, another deliverable was the emergent issue protocol. What this provides is consistent protocol for oversight and coordination.

When something happens like the BMIs, the bottom mounted instrumentation nozzles at South Texas, this organization which is the lead technical individuals from all the issues programs of EPRI and the owners group, they get on a call when an emergent

issue happens. They clearly understand who has the leading role and who has the supporting role. So we are not stepping on each other.

From the previous predefined charters that are already in place, it should make it clear and easy but at times, it becomes gray on who's got the lead or is it the lead for the root cause, or is it the lead for the mitigating and repair actions? So that's what they will work through.

The issue programs will always take the lead for the technical resolution and they will be the ones keeping the NRC up to speed through the interface.

So the NEI technical group only provides an oversight function. Accountability still lies within the BWR Vessel Improvement Program if it's something in the vessel or the MRP, Material Reliability Program if its in a PWR. We want to make sure we do not cloud those lines.

As always, NEI through Alex Marion's organization is a key contact for any questions or confusion or need for clarification. That stays in place regardless if it is an interface with the IP, or it's an interface with the MTAG.

The MTAG in this issues protocol, emergent issue protocol, will be informed of the status and they continue to monitor even the quality of the NRC interactions.

At times, an individual site will be working on a technical issue. The issues program will be rallied but we have not always had good quality or consistent information coming in to the staff and we will be able to police that and monitor that through this activity.

And the other thing that it will do is be able to provide additional support if needed. We do have the financial resources put aside in an account, that if more

development, more assets, individuals or technology has to be applied to a program, we have the authority through the executive group to redirect those funds on to it so that each individual site is not dependent on trying to come up with that technique or resource to provide it.

We do intend to continue to use this protocol and we've done it multiple times so far. We do intend to use this for all future unforeseeable issues as they come up.

Continuing on to deliverables: We have besides the sound technical products that we reviewed with you, there have been other deliverables that have come through this process or were folded into this process as it was going on.

I think the biggest is the bare metal visual inspections for the PWR primary system butt welds at their susceptible locations. These are locations greater than 350 degrees Fahrenheit. We gave the inspection in the evaluation guidance, that's under development, but the requirements have gone out to each PWR site on what they are expected to do within the next couple of cycles.

What we would -- this is an example. What we would like to be able to do is identify the risk or identify the issue, prioritize the risk, understand that we need to get full compliance and try to be out in front of any regulatory product that you may have to deliver.

We would rather become the forcing function within the industry and the agency or the staff be able to provide the oversight on our pro-active implementation versus the potential utilization of resources just to ensure we are doing what we should be doing, polite way of saying do our job so you don't have to.

But -- and I think in this case, there's going to have to continue to be quite a lot of open dialogue between the staff in the technical organizations to ensure we get the right product.

On the next slide 23, continuing on with the deliverables, one focus area that we continue to have that we appreciate at Exelon, the support of the industry helping us to solve, the BWR steam dryer issues. This is an issue that BWR VIP group has taken on, guidance for each refueling outage inspection is coming out, the guidance for all the inspection requirements. The continued evaluation of repair techniques, up to and including a scale model that's being -- has been developed and hopefully within the next couple of weeks we will have some results so we can understand the failure mechanisms and the initiating configuration at Quad City Station.

So that's not just Exelon and GE working on it. The industry is working on it and all boiling water operators and owners are participating to understand what they need to do to potentially mitigate or understand the failure mechanism.

The fuel reliability, we are able to fold in the axial offset anomaly guidelines that came out in Revision One.

Commissioner Merrifield has made multiple comments in the past month or so, different forums about fuel reliability. It is on our radar screen. It is more than our radar screen, it's a top priority.

We are seeing a negative trend that's starting to show up in fuel failures. It's bucketed a little bit differently, depending on what manufacturer or what the field issue is. But there is a detailed plan that is in place working with manufacturers with EPRI Fuel

Reliability Program and within some of the national labs to try and figure out what's going on here.

Performance metrics is one thing we are still working on and we should have that finalized early next year. Another issue or deliverable that we expect is overall coordination with the industry and ASME on issues.

There's been from some of our technical experts within the industry, some questions about timeliness and support for emerging issues and also keeping speed with changing technology and being able to be flexible enough to help. We will continue to work with the staff and ASME and each one of our owner utilities.

Alex, I don't know if you want to cover anything more on that ASME?

The proposed metrics on the next slides that I refer to, we're grappling, I think we're coming to conclusion on that. With all the effort, all the dollars, all the focus and the management time, we want to make sure that we are getting something out of this.

We have a very clear deliverable and accountability metrics down at the lower levels within the issue groups. But we need to hold ourselves at the NSIAC and at the CNO level across the industry accountable for what we are doing.

So part of the metrics we are looking at is the unexpected material related issues that the NRC is having to send out generic communications on. Again, if we are doing what we should be doing and can be doing, we should be out in front of this generic communications.

New material degradation operating experience, how well are we finding it? How well are we dealing with it? How well are we distributing it?

Lost capacity or unplanned extended outages due to material issues, this goes directly to, had we anticipated, had we come up with mitigation or repair replacement technique.

Those should be on the shelf so when we find an issue, first, we would have known we were susceptible. A contingency plan could have been put in place, and whichever resources is going to be used to repair, replace, or mitigate, that that there's ready to go. So that's a very meaningful indicator. INPO material program, related AFIs, the key to there is related AFIs.

We want INPO to go out, identify and address and further clarify the implementation requirements and that INPO does very well at that through AFIs. Where we will be getting into trouble is if we have repeated AFIs.

That means one site didn't get the message the first time and the oversight of the implementation that we are supposed to be providing is not effective on getting it fixed. So that would be key on the repeat AFIs.

Corrective action program effectiveness, how many times do you have to repair it until you get it repaired right?

It is another level of looking at repeat or unclear implementation. And then the issue program products related to the strategic plan and the technical gap analysis, this will come from the annual self assessments that will be done after that year's work plan has been completed.

Did we address what we were supposed to at the beginning of the year and are we working to close the gap?

Each one of these metrics as we finalize or further refine them, will be reviewed on a routine basis by not only the materials executive oversight group, but we share them with the industry chief nuclear officers. So we keep this up at all the NSIAC meetings and in front of everybody and providing the right amount of peer pressure to keep everybody focused and working on it.

On the next slide, talk a little bit about funding. I mentioned previously, that we had collected \$12 million from each one of the member utilities of EPRI which is all nuclear operators in the States right now.

Twenty projects have been approved to use \$9.2 million. You can see that the first one, the biggest consumption is in the nondestructive examination.

This is coming up with new probes, new techniques or advancing the techniques to further get at the flaws or detect the degradation.

Five of the projects were going toward the PWRs. The boiling water reactors, what we found in the self assessment were able to be much more pro-active over the years in a much more disciplined fashion.

The PWRs unfortunately, were buried in a very reactive mode and so we are working to drive that. We have a few projects for the BWRs, corrosion research projects are funded. The Fuel Reliability Project is being funded, that's fees for hot cell work and for scrapings and further understanding of some of the degradation in that. So you can see this goes across the board.

If the distribution of the funds breaks down -- 37% goes to PWRs, 24 goes to the B and 29 are shared. What we've been able to do is you take one utility that is a PWR owner, they are not watching to make sure that every penny is spent on a PWR.

This is a cooperative effort. We are sharing it across which is the first time we combined the resources of both and we think that the way we are handling the funding, the way we are prioritizing the research and development, all will benefit from it. Page 26. Just to restate where we've come from and what we've gotten done. We took the problem statements of the multiple issues over the past 3 or 4 years, we prioritized and performed the self assessment. We were able to get 100% participation and approval in the initiative. We think we have a very solid, strategic plan. We set protocols for implementation and we have set a funding mechanism in place to do that.

So we believe we're moving the train down the track. We still have a lot of work to do based off what you saw in that degradation matrix and what is coming up on the issues metrics. This is not a done deal.

The other point to make is we would expect based off of the increased level of inspections, over the next couple of years, that more issues will come up than less. We are looking, finding -- we should be finding and we should be identifying and prioritizing those for repair.

Some of future activities on Slide 27: Completing the issues management tables Revision One of the strategic plan. We talked about that coming out, I believe in March of '05. Continuing to develop the industry performance metrics and the self assessment guidelines. We would imagine that's going to be evolving, we will self correct based off of issues that come up.

We will continue to maintain monthly calls between all the technical experts across the industry. That is a large step to integrating the resources.

When you have the head of the BWR Materials Reliability Program on the phone each month going through issues with the head of the, excuse me I did that backwards, the PWR talking to the BWR and sharing experiences, sharing resources, even sharing some of the technology that has previously been funded by the two, that will be significant in itself.

We want to continue quarterly meetings with the staff, with the technical experts coordinated through NEI and complete the self assessment and report out on the results.

So annually, the first of each year, we will continue on with the self assessment that will be based off the implementation protocol and required priority items that had to be completed for that year.

So on page or slide 28, the bottom line, the expectations for the industry, as I said earlier, the expectations have been communicated to the industry and will continue to be reinforced at each one of the NSIAC meetings. We have to be forward looking and coordinated.

We have to have fewer unanticipated issues. We have to be able to rapidly identify and react to and look for effective response to emerging issues and we require the full participation and support of the materials initiative.

We will continue to keep that pressure on it. And at the end, what will tell us that is our success in our metrics and what comes out of our self assessment of these areas.

On 29, changes to expect. The industry guidance from the IPs will have the mandatory needed actions in them. You will be able to evaluate that. You should be able

to see the improved communications on issues not only communicated within the industry but also with the NRC. Improve the integration and coordination among the IPs. Improved industry performance related to materials degradation activities, and the successful transition to the pro-active approach on the materials activities.

As far as on page or slide 29, the regulatory process, we believe the implementation of the mandatory and needed actions will fall within the scope of 10 CFR 50.

As for the primary system components, we believe it is subject to NRC inspection. We believe we will have -- we support a performance based approach and we will continue to be able to work with the staff on how we can further get there. We have some areas of concern.

Now, I think this is being and has in the past been more stated by the executives like myself and I believe that some of the issues among the technical folks potentially is not as much of an issue as I may have stated it in the past.

We worry about duplicate, unnecessary duplicate activity. We understand regulatory footprint, we respect that and fully support. The research is working on a methodology to either validate or I think it's been described to me as work coming from the top down looking at the types of material within the components and the staff is looking at the components and coming up. And when we get done, we should have a product that has been assessed or validated as it is being developed.

What we want to make sure from the executive level and the CNO level is that anything that we can do in sharing resources, if it's been independently verified or

whatever it takes to put the regulatory footprint on it, we would see that as a much more efficient use of resources.

It does cause, in different forums, some anxiety when we get into this conversation. And like I said, we understand regulatory footprint but there are finite resources within the industry and within the national labs to be able to be focused on the repair, replacement, the mitigation, the assessment type activity.

So we want to make sure that we don't unnecessarily duplicate or dilute the effectiveness of the finite resources.

So in conclusion, I think the actions that we've taken show that we are, since the events that have happened through the industry, we are taking a much more pro-active and integrated coordinated approach.

We truly want to focus all of our assets on ensuring we have plant safety and reliability as our highest focus. And we have got the protocol, the initiative and the focus of all the executives into a continuous improvement mode with multiple feedback mechanisms to ensure that we get this right.

After that many words, that is the conclusion of our presentation. And we would like to answer any questions if you have them.

CHAIRMAN DIAZ: Thank you, Mr. Crane. I thought that was very, very good. That you are trying to get ahead of the curve. We appreciate the effort.

Commissioner Merrifield is first to bat today.

COMMISSIONER MERRIFIELD: Okay. Thank you, Mr. Chairman. Again, I would share the Chairman's comments about I think a very thorough presentation and

appreciated the depth to which NEI and its members are trying to get to the bottom of some of these issues and resolve them before they become real problems.

I think the first question I have goes to slide 20 talking about some of the definition between mandatory, needed and good practice.

A couple of things that strike me. I think within the slide, quite clearly you articulated the strong need to coordinate this with the effective corrective action program at the individual utilities and individual plants.

It does raise an issue and I think you did talk a little bit about the role that INPO would play in that process in terms of taking a look at the corrective action programs as part of the overall INPO assessment in seeing whether these activities were indeed being tracked in the mandatory, needed, or good practice areas.

But I'm wondering what are you envisioning for, in a little bit more detailed role of INPO in tracking that in making sure that they are tracked in a way that is going to assure that they are implemented in a timely way?

MR. CRANE: The one thing I didn't mention is at the executive level we have participation from INPO on the MEOG and at the technical level, we have participation from INPO on the technical level. So they match up with what the rest of the industry and NEI is doing.

INPO has formed a section within their technical branch that is focusing also on material issues in the inspection of the programs working closely with -- and I'll use this example --

They have been out working with the BWR vessel improvement program to be able to fully understand all the guidelines and the requirements of the implementation of the guidelines.

Individual assessments or special assessments went out not during the ENA but they went out to each one of the -- or I think, I don't know if they are done yet -- gone out to each one of the boiling water reactors and validated the implementation of all the guidelines out of the VIP.

Any one that was not adequately implemented, they were able to identify that through findings in negative issues on the report that was reported back to the BWR VIP organization, the executive committee. So there is a focused assessment that's being done within each one of those areas.

Steam generators have also been done that way. What we will be doing is working with the material reliability project and the other programs, issue programs, to ensure we get the same level of focus and assessment that's out there.

We are still clarifying or working through the details with INPO on how we would do that. We don't think at this point it would be -- we would desire, put it that way, that we continue to keep these as focused assessments and not wait until the next E&A, evaluation and assessment, which in some places goes up to two years in span.

We want to move them through much quicker. For that to happen, the industry has got to provide more technical expertise, more bodies at INPO in this area. And we will be working through that.

But our primary is focused area assessments based off of the issues programs, requirements or guidelines that come out. Industry provides resources to go out

and self-assess with INPO and then we follow up through not only INPO's tools that they have to require response and corrective action to be adequately put in place, but reporting it back over to the issues programs so they are implemented properly.

COMMISSIONER MERRIFIELD: I appreciate that. I guess part of what I still don't quite understand, though, is when INPO goes out and does their assessment, they are going to be taking a look at the corrective action program and sort of checking up, okay, you have these mandatory items you have done, you have these that are recommended -- is there going to be a separate -- will INPO be keeping a separate tracking list?

Here are the plants and the mandatory items and that they have or have not corrected them, or is that merely going to be focused on the individual plant assessments?

MR. CRANE: The issues that those -- if somebody has inadequately or inadequately dispositioned a mandatory item, INPO, through the assessment evaluation, would require them to fix it or address it.

It will be reported back to the issues program. So if it is a PWR issue on a vessel internal, it was mandatory, it was an inappropriate waiver, INPO has the approach to drive it through the disposition and closure of the finding. And it will also be reported back to the MRP, the materials reliability project, a program to ensure that the executive oversight is given to that utility responsible -- on the annual self assessment.

So it has two forcing functions. Brings it back to the industry group and when INPO finds something that's not adequately done, we are required to close it or we get related findings the next time up.

But again, one of our issues that we have had in the industry is providing enough resources that are qualified to be able to make these judgment calls in metallurgical area of the chemical control area.

MR. MARION: Alex Marion, Commissioner.

I would like to just add one point. Chris talked about the two areas where INPO has focused review visits, specifically citing steam generator management and boiling water reactor vessel and internals.

There is a third area that INPO is also focusing attention on and that is maintaining reactor coolant system pressure boundary. We are looking at all the programs and processes necessary to effectively manage the primary system boundary.

COMMISSIONER MERRIFIELD: The second issue I want to discuss, Mr. Crane, you mentioned my interest earlier in fuel performance, I have talked about fuel reliability on a couple of occasions in the past and your having open the door --

MR. CRANE: We do listen.

COMMISSIONER MERRIFIELD: I appreciate that. And I would not ignore that opening.

One of the things that -- I guess, first, I would want to credit NEI and its members for putting in the money as part of this program to assess and look at this issue in greater detail.

In discussions, even internally within the agency, I know that there are folks here who would say, well, when we look at the issue of fuel performance from a risk perspective, there aren't significant risks to plant performance or operations from that level of fuel performance where we are today.

That's true. I mean, we don't see a huge risk issue for safe operations.

Nonetheless, as you point out, about a third of plants right now are, in fact, operating with fuel. It does have reliability concern. And where that does, it would seem to me, raise itself as an issue is, number one, in terms of ALARA, which is obviously something we have a concern about in terms of the dose of the workers who were there; and secondly, in terms of the associated issue of having an ability to get into some of those highly elevated dose areas of the plants whether it's your folks who are working on equipment or our folks who are inspecting it, no one wants to be in a position where necessary repairs or inspections are on a stop watch.

That clearly is something of greater concern. Maybe you can fashion for me a little bit more of what brought NEI to the conclusion you needed to put this additional money on the table and where you hopefully see things going down the road?

MR. CRANE: Specifically, in fuel reliability?

COMMISSIONER MERRIFIELD: Yes.

MR. CRANE: As we did the self-assessment of all the issues programs, it was a great debate, does fuel reliability, it was the robust fuel program at the time, come under this or is it something that should be left on its own?

It is a barrier, first barrier. It was overruled or decided by a majority, not a hundred percent, that fuel reliability had to be put into this program. And we provide the oversight for the portion of the fuel reliability program that is integrity.

That there had been, because of its previous focus being more robust fuel trying to design the next new age fuel that could have higher burn ups, that type of thing, it didn't have full funding participation from all member utilities of EPRI. It had some

negative thoughts by some that were not participating. They didn't care about getting the higher burn ups. They were sufficiently satisfied with what they had.

So we sat down and we had to work through it. It was quite a contentious issue. As we phrased it, we did a makeover of the fuel reliability program. We refocused them from robust fuel into the fuel reliability issues. And they had to do some catch-up because the fuel failures have gone across all vendors. There has not been a lot of sharing of that history, databases put together, failure mechanisms fully understood.

If you were working in a boiling water fuel failures of General Electric, the folks that were using that fuel generally got the information. But between General Electric and Westinghouse, or whatever the supplier was, we were not crossing it over.

We decided we needed to fund money to get the databases together and to get the research together to help them catch up and understand what is this negative trend that's been going on.

Now, if you focus on the trend itself, a large number of the failures for a couple of manufacturers were manufacturing defects, where somewhere along the line there has been -- manufacturers have dropped their guard under some of the critical inspections or training or whatever the route causes.

INPO has provided each one of those fuel manufacturers with an assessment to look at their training, to look at their FME, their foreign material exclusion programs, that type of thing. And we will continue on with that.

There is some more unique ones that may be chemical induced or corrosion type induced that much more research has to be performed on. Even though that is a smaller sector of the failures, the funds were approved by all to use on that smaller group.

MR. MERRIFIELD: Third question I've got. On Slide 22 you have deliverables. One of the items, the second bullet is materials reliability program inspection and evaluation guidelines.

One of the recommendations was inspections for primary water stress corrosion cracking in a variety of areas, including and you noted here, the primary system butt welds. I think that is the right way to go.

I'm interested, though, I think that this particular recommendation is not categorized as mandatory but is, in fact, only a temporary inspection. I'm wondering, given the importance of this component, what the thinking is as to whether that categorization is where it ought to be?

MR. MARION: The basic thrust behind that recommendation was to ensure that the industry understood the magnitude of the problem. And in order to effectively deal with the configuration of these welds to support inspections, you need to prepare and plan for it.

So we put in place a process to give utilities two cycles of advance notice. So we put this recommendation out to conduct bare minimal visual examinations, make sure that you understand the configuration. If the configuration lies outside of the normal understanding of what's been qualified using non-destructive examination, we're requesting utilities to get in touch with the EPRI non-destructive examinations center in Charlotte and develop the necessary tooling, et cetera.

The idea was to put these actions in place for this two-cycle period with the objective of having the more detailed inspection evaluation guidelines available before that

second cycle. So we will have a comprehensive program of inspection and evaluating inspection results piggybacking, if you will, on that second cycle.

And that's the strategy that we laid out.

One of the comments we received from the NRC, which was very insightful, was when we lay out that kind of interim longer term strategy, to make sure that we package that and communicate it appropriately to the NRC so they understand what we are doing in the near term as well as over the longer term.

MR. CRANE: Specifically, do we have a date when we would have the mandatory and the needed guidance given?

MR. MARION: The inspection guidance is due out the first quarter of next year. So it will be well before the second cycle is completed.

COMMISSIONER MERRIFIELD: On slide 30, you talk a little bit about -- in terms of areas of conserving in the regulatory process unnecessary duplication and diversion of resources; in terms of unnecessary duplication, I think this is something that the Commission generally is mindful of.

What you have outlined today is about \$60 million of research monies that you are putting on the table. That fairly closely approximates the total amount of research monies that we have available, most of which comes from fees that we pass on to all of you.

So I think there is a fairly high degree of sensitivity in making sure that we coordinate in such a way as to not duplicate our efforts. And I think having appropriately integrated discussions between our staff and the utilities and members of NEI is vital to make sure we can avoid that if we can.

I'm wondering what you meant, though in terms of diversion of resources? If you can go into a little my detail what we need to be accomplishing in that regard.

MR. CRANE: I'll let Alex or Robin get into more of the specifics of the details. We brought this, I think up in multiple meetings, at least with the senior management. I think at times, we may have commented to the Commission. There is finite resources. There is not a lot of qualified individuals in the metallurgical area, at EPRI or the labs.

What we want to make sure is that the resources were there to continue to work on our degradation matrix and our issues matrix versus starting over from scratch. Now, we may be more sensitive to that than the leaders, the technical programs, but I'll let these guys talk about that.

MR. MARION: That's basically one aspect. The second aspect is where we have the industry's attention to pursue a particular course of action. And then the NRC submits a request for information that essentially takes the same resources that we were trying to use to implement something in the near term and then causes those resources to be applied to respond to something that the NRC is asking for. It's a very difficult issue to address without getting into specifics.

But there are going to be situations where we believe the industry should give priority to what we are asking them to implement.

The challenge is going to come up when the NRC comes up with a similar request in the near term and then the utilities are trying to find the balance of which one do they respond to first. And that's what we are trying to drive at.

And as we go through these quarterly discussions with NRC, we've been very successful in articulating what it is we are asking for and when from the utilities. And they

understand that. At some point in time, they have to make a decision on appropriate regulatory action they need to take.

That of course is the NRC's staff responsibility. We are not challenging that. We're just asking that careful consideration be given to the resources that are being consumed with that kind of a process.

MR. MERRIFIELD: Like any organization, the Commission and the Commissioners are subject to this. You have ideas of what you would like to do without necessarily understanding all the ramifications and the trade offs. And it may well be that that level of information needs to -- and I know you're sharing that with our staff. There may be circumstances where that's going to be shared up to the Commission.

Ultimately, we are final arbitrator of the budget authority in the agency and our regulatory requirements. So, there may be a need for some feedback there to better understand some of the tradeoffs that our regulatory requirements may be placing on you where from your perspective, you may have good reason for greater risk reduction to be gained with targeting in a different prioritized regime. I guess that would be the only comment I would make.

MR. CRANE: Do you have anything else to add? You're the one that's close to the technical resources.

MR. DYLE: Well, I guess a couple of items. The first is we've met with Dr. Paperiello and the folks from Research and made available our work. So the real simple request is, here's what we have, review what we've done, provide comments as opposed to starting from a clean piece of paper. I think that was acknowledged by both sides that we can do that.

An example of where I think we can manage the process better going forward, once this issue of management table process is worked through, the industry will have said, here are the priority items and sequence in which we will work them. And we will align our resources to deal with that.

Then, if we have something that comes at us at a different angle and asks us to deal with a different question whether from an agency or whatever, that small group of resources that we have strategically aligned might be diverted and slows down everything.

So the best thing we can when we get through that is convey what we have decided is the strategic view of things, the plan which we plan to work through it and get the staff's comments at that point. And then, we all are working from the same piece of paper. We've all agreed on a strategy and know where we are headed. That will help us. There is only so many fracture mechanic specialists or correct growth specialists available for us to do this work. So that would be one thing that would help.

MR. CRANE: I think communication is going to be the key. We need to make sure we continue to openly communicate. If there are concerns, we resolve the concerns, work through. It's going to be a lot on communication.

COMMISSIONER MERRIFIELD: MR. Chairman, I'm going to pass to you. I may have depending on whether you ask it or not, I may have one further question. I don't want to take too much time.

CHAIRMAN DIAZ: You want to ahead?

COMMISSIONER MERRIFIELD: Well, I guess it is as much a comment as a question. You've gone into great detail about what NEI and its members are doing, which I think is terrific. Some of the activities do involve the owner's groups, whether it's

BWR owner's group or whether its Westinghouse owner's group or B&W. And I guess that has the possibility of bringing in further involvement from our counterparts abroad.

I'm just wondering to the extent to which you are capturing some of those levels of information from abroad and also, the extent to which when you are developing information, that that's passed off to some of our foreign counterparts so they too can take advantage of this greater information.

MR. CRANE: We have multiple sources of international experience coming in through the owner's group and through EPRI. There is an international participation in EPRI.

We are working to further develop a structure, a rigor to do it. Robin through the BWR VIP has got fairly good ties and growing ties with the Asian community and the Japanese plants, specifically, to try to get some of that information that previously was not that easy to get. And we are continuing to focus on that.

Having Westinghouse, BNFL experience, having FRAMATONE/AREVA experience, helps to bring that in.

But we still have got to get a better tool or mechanism to consistently bring it in. INPO is trying to help with that.

There is some drive by the WANO governing board to try to have some symposium in the first quarter of next year to try to figure out how do we get this pulled together. There is a desire. There is information flowing but it is not as structurally ingrained in the world nuclear -- at the WANO level as it is in the international level. Robin?

MR. DYLE: I guess to add to that, within the BWR community, at least once a year, we visit all the international members. As part of that, we provide them the new products that we develop, status of new research activities and also we deal with the European labs and some others in that venue to find out what they are doing. We also ask international members for operating experience. By participating every six months, they provide to us an update of inspections done during the previous outage season.

So we are getting that kind of input from them. And they are review and vote on our documents. It is not that we do it in the United States and then say, here is the product. They are part of the process so they review and participate from that perspective. With WANO, we have something set up in the next week or so where a lead from each one of the groups will go through and we are going to establish a basis where on a regular time frame, we can go through the WANO database looking at international operating experience and make sure we are appropriately factoring that in as well.

CHAIRMAN DIAZ: Thank you Commissioner Merrifield and thank you again. I think that you probably know that this is something that I see as a very, very important and far ranging program. I think you have already probably known or maybe not knowing, you have addressed many of my concerns.

Some of my concerns go to the fact that when something happens, we'll jump on it. But if nothing happens, we tend to think that nothing is going to -- this is a continuing program that should never stop.

And that you know, deserves both your attention and ours. And I hope that at this time, we are at that point in which we realize that there are issues in here that need complete care, follow up, technical expertise and you know, real management of these

issues so that they won't be getting to the point where we have to intervene and that's one of the issues.

And I was talking about pre-event and post-event the other day. Anything we can do pre-event is everybody is more level-headed. We can talk about it. We can share things and it is really a lot easier, a lot more productive for the American people when we can actually sit and analyze and provide programs then after the fact when we become -- let me invent a new term in here, regulatory paranoia sets in and I am to blame.

We start looking at things with a microscope. So there is a tremendous opportunity in here to do something that not only ends with the materials program because the expertise that you gain from every one of those things actually propagates to your system and used to having people that start looking at management tools.

So I am sure that you are looking at all of those aspects and we of course will be taking a look at our things. Having said that, let me start with a couple of things.

You use the word "accountability" and that is a word I kind of like lately. And how do you provide accountability for, say, your mandatory items?

I know you told me that you know it's going to be elevated but what actually implementation mechanism do you rely on to make sure that what is mandatory is mandatory?

MR. CRANE: When the issues program issues its mandate. There is a mandatory inspection or guideline, here is a mandatory inspection. Each one of the plants has to take that guideline and start through the implementation process.

There is a time frame that will be required for that. There's feedback that is required to come back from the plant specific to the issues program on implementation. Now, I can give you an example.

The BWR VIP program, that the staff support for that program is provided by EPRI.

The project management and oversight is provided by EPRI. Industry executives and technical experts are involved at multiple levels of that.

The notice goes out, reply is required. It comes back and says if it's implemented or not implemented, going to be implemented or not going to be implemented. If something is not going to be implemented, it would have to come up by this protocol that's been approved by each CNO to the executive at that facility and say, we're not going to do it for whatever reason.

Notification of that will go back to the issues program. The issues program technical experts in the MTAG which is at the NEI level will evaluate each deviation from mandatory to see if it was technically based.

There is not many in our scenario conversations early on that we could see that would be that way but there may be something that is technically based. Most times, it should be considered a red flag.

The issues program will start to evaluate it. If they can't get response from the utility, they bring it back up. It comes to the executive level and we give it to the CNO review through the NSIAC we also have the INPO assessment and the finding being able to be given for those utilities.

So, it has a policing and a feedback function that we will be aware at the NSIAC and the MEOG, the executive level of anything that's not going to be implemented.

CHAIRMAN DIAZ: I'm sure you realize that the mandatory and needed level, that's where we will come in, where our interface will really lie and we will be trying to track them down at the same time that you are tracking them.

That's an area where really, communications need to be most effective. And of course I'm going to ask the staff the same question this afternoon; how we are going to track this mandatory and needed item.

MR. CRANE: The guidelines states and we have reinforced to all the member utilities that we believe that this is inspectable under Part 50. And we will continue to drive that.

And the push that we have is we can do this ourselves or you can get it in some kind of report from the regulator and it's better if we get it done ourselves. We have complete concurrence with that at a senior level. We are going to have to continue to police our own and work through those details.

CHAIRMAN DIAZ: Commissioner Merrifield already addressed this issue of duplication and reciprocation of resources. I think this is an area in which I think the Commission is fully harmonized that there are things that we can do better as long as the decision that needs to be made and regulatory space, we'll make it.

But there are areas in here in which we can all profit from sharing technical data, what is being gained and so I believe there is much more that we do in this area. So I look forward to staff addressing that issue. There is something that -- there is no doubt that we can do much better because it does not really help to have one piece of

information and we are not communicating it to you and vice versa. Now, decisions on the significance of utilization still relate to yours in your areas and ours in ours but there is a lot that can be done.

Let me go a little bit to the area of new technologies. And this is an area that, you know, that I believe we have underestimated. We are not being as aggressive as we should.

Any specific programs that you are looking at bringing on that you know are laying out there from other places that eventually, surely will provide additional assessments or you know, in-service inspection or all of this new things that are common? Is that going to be a separate program that you are going to be bringing on which does not have the mandatory or the needed but definitely, will be in the good issues category?

MR. MARION: As Mr. Crane covered in his presentation, we intend to continually meet with NRC senior management and technical staff on a quarterly basis to discuss the status of the complete scope of activities, whether they are mandatory, needed or good practice.

From the standpoint of new technology, as a result of discussions with the Office of Research last week, your staff had requested descriptive information on those projects, those 20 projects that we had funded and we are in the process of sending that information to the staff with the hopes of finding opportunities for collaboration.

But the one thing I want to make clear, there are a lot of interesting things you can do with new technology but you have to stack it up against practicality and realism in terms of how would you apply it in the field. And that's part of our entire prioritization scheme. As we go through these activities, we are hoping we can move forward with the

NRC in a complimentary manner to make sure that together, we are focusing on those important areas that can affect plant risk and safety.

And that's without getting into specific technology, that's about the best I can describe at this time. We are doing some work on developing new probes for non-destructive examinations and we intend to share that information with the staff. That's the most important area where we are committing our resources rights now.

MR. CRANE: But there are cases and I have overheard the conversations between us and the staff where the code is not being kept up-to-date with the technology. In those cases, we need to figure out what's the regulatory path for resolution or what's the method or mechanism to be able to advance the code. I think that's the example for some of these inspection techniques. We need to move along.

We talked earlier about regulatory paranoia. There is operator paranoia that some of the new technology may provide us with information that we don't know how to deal with or could just distract us from the basis of improving the reliability of structural integrity of the system.

So, there are issues out there but I think the code issues are one we have to address with the new probes and new inspection technology. How do we move those through to be approved? And on the other side, how do we keep a balanced conversation on what is truly the value add of applying some of this new technology?

CHAIRMAN DIAZ: And slide 13, at the very bottom, there is some very significant words there, "safety and operational risk significance of each issue is fully establish prior to final disposition."

I'm going to assume that this approach will be taken not only when you have an issue that you have to disposition because it is hot on the table, but it also should be addressed in those issues that you're planning not to have on the table.

In other words, the same criteria should be used to try to prevent an issue and put it in the right proper risk safety and risk significance when you have an issue and the issue is that's precisely where I think some of our problem delays and additional consumption of time comes, is if we have predisposition, the safety and risk significance or an emerging issue or an issue that has not happened yet. That's something that I think fits this definition. Would you like to comment on that?

MR. MARION: I would just make a comment: When we started the self assessment, it became obvious to us that there was a culture that existed within the industry relative to materials issues. And it is human nature, first responses is it will never happen here.

Second response is, well, that utility where it did happen wasn't operating the plant properly. Third response is, let's wait and see what the NRC is going do about it. That's one reason we decided to position this initiative to get the industry in a completely pro-active role.

We're not 100% there in terms of the culture but we are very, very close.

I think as we indicated earlier, communication is extremely important. And we are finding a marked improvement in the industry and the way they are thinking. It used to be on alloy-600 degradation, primary water stress corrosion cracking, people were thinking, let me know when it's going to happen to my plant. Okay. Now, every one realizes that it is going to happen so you ought to prepare for it. Don't worry about it's

going to happen three years from now because you can't address that with any certainty, but start preparing for it now, because it will happen at your facility as time goes on. We are seeing a change in that attitude which is very positive.

MR. CRANE: I think the prioritization mechanism, though, to work off the backlog from the issues template has the risk question and that's where the issues programs work closer with the owners' groups to understand what is the risk and what's the accident analysis, priority type. And we will continue to load the schedule that way.

The BMI's, the bottom mounted instruments, have a high priority. We are out inspecting as many as we can right now to understand that. Those type of things have a real battle cry.

The risk is up, let's get out there, let's get that done versus some others that have significance but not at the same level of safety significance. So we can load those a little bit further out on the work schedules.

CHAIRMAN DIAZ: All right. I think I provided some very nice slides last week for you to focus on some of these issues. I believe that this is one of the fundamental programs that both the industry and the NRC need to address.

You couple this program with the long term issues and you have the two programs that really have the right emphasis and that needs to be addressed in a systematic manner continuously and never stopped. So I'm pleased that we met today. I look forward to continuing the interaction.

I encourage you to maintain communications and we will meet with the staff this afternoon. I think I understand where you are. I hope you understand where we are.

And if that is happening, that is very good. Commissioner Merrifield, do you have any last comments?

COMMISSIONER MERRIFIELD: No, Mr. Chairman. I think this has been a very positive briefing and I appreciate the effort.

CHAIRMAN DIAZ: With that, we are adjourned.

(Whereupon the proceedings were concluded.)