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26th ANNUAL REGULATORY INFORMATION CONFERENCE

ERIC LEEDS SPECIAL PLENARY SESSION

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WEDNESDAY

MARCH 12, 2014

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The Regulatory Information Conference convened in the Grand Ballroom of the Marriott Bethesda North, 5701 Marinelli Road, Rockville, Maryland, at 10:30 a.m., Eric Leeds, NRR Director, moderator.

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

(10:30 a.m.)

MR. LEEDS: Welcome back. Thank you for returning for this plenary session. The plenary session will be a panel discussion on operating new reactors: answers to your question. I'd like to take a moment to introduce our panelists and then we'll get to the questions and have some answers for you.

Once again, my name is Eric Leeds. I'm the director of the Office of Nuclear Reactor Regulation here at the U.S. NRC.

First, I'd like to introduce Tony Pietrangelo. Tony is the Nuclear Energy Institute's senior vice-president and chief nuclear officer. Tony has been with the NEI and its predecessor organization since 1989. He's responsible for the management of licensing, risk-informed regulatory initiative, performance-based regulation and other comprehensive technical and regulatory issues.

Prior to joining NEI Tony was with Westinghouse Electric Corporation as a project engineer for the construction, testing and start-up of nuclear power plants in Brazil, South Korea, the Philippines and the United States.

Next is Dennis Koehl. Dennis is

president, chief executive officer and chief nuclear officer of STP Nuclear Operating Company. In this role he is responsible for the safe and reliable operations of Units 1 and 2, as well as the overall strategic direction of the company.

Prior to his current position Dennis was the senior vice-president and chief nuclear officer for Excel Energy responsible for activities at the Prairie Island in Monticello Nuclear Power Plants. Dennis has more than 30 years of experience in the nuclear industry, has a diverse background in operations, assessment, engineering and plant performance.

And our third and final panelist is Mike Johnson. Michael Johnson is the deputy executive director for Reactor and Preparedness Programs here at the NRC and he's responsible for leading the Offices of Nuclear Reactor Regulation, New Reactors, Nuclear Security and Incident Response, as well as the NRC's four regional offices.

Mike has 37 years of federal and nuclear service first with the U.S. Navy and subsequently with the NRC. He began his career with the NRC in 1986 as an inspector. And since then he has held a number of progressively more responsible staff and supervisory positions here at the NRC.

Now to begin with; and we're really dependent on your questions to keep this going, but we have a couple questions in store for the panelists to get things started while you all jot down your questions and get them up here so that I can read them to the panelists.

Unlike the session that I do with the Commissioners where you're here to listen to the Commissioners, even though I am the moderator, I will interject on occasion and provide my opinions with the panel.

So for the first question for the panelists, last fall the industry CNOs visited Fukushima Daini and Daiichi sites and saw firsthand the results of the accident and learned insights from the plant staff about the event. Three weeks ago the top NRC managers involved in the Reactor Program made a similar trip to Japan.

From the industry and the regulators' perspectives what did you learn and gain from the trip that you'd like to share with the audience? If I can begin with Dennis.

MR. KOEHL: All right, Eric. When we went over there, the best way to describe it is as you're approaching the site you go into this 20 kilometer

exclusion zone. So you get to see what we often preach about nuclear power that it's special and unique. And by that I mean is when you come into this exclusion zone, there is no one there. There's empty houses, there are stores that still have merchandise in them.

And then as you proceed further, you start to see these fields of black bags as big around probably as that table there, you know, four feet tall, stacked on top of another where they've started to decontaminate the area. So that's the first impression you get, but that reinforces to me over and over again is that our business is special and unique because of the fuel source that we use.

Then as you approach the site, you can start to see the devastation of both the tsunami as well as the impact; and this is at Daiichi, of the hydrogen explosion. So I mean, you get the visual of the physical site. And you can also see more of what the power of the tsunami, what, you know, Mother Nature can really do.

And I know yesterday was the three-year anniversary, but as you get to the site and you get an opportunity to start talking to the operators that were there, I mean, these are operators that were actually there on the day of. So you get a good sense of, you

know, how they felt and how they reacted.

We had a little bit of discussion about the tsunamis. You know, the Commissioners talked about the potential for complacency. The operators will even tell you that they had many tsunami warnings. And from the complacency aspect they would be told what the tsunami height would be, but it normally was less than that. So it became a pre-conditioner for them to think that it was less.

And then as you talk to the operators, as they carried out their functions and their duties, it brings a different perspective to, in my mind, how we should approach our emergency preparedness, some of the things that we do. You can't pre-job brief every condition that somebody may run into when they're dispatched to go out into the field to do an action or an evolution, because the conditions were very dynamic. They were changing very quickly, you know?

So I think it left me with the thinking of we've got to change that perspective. You know, we spend a lot of time/effort on training to get our operators, our maintenance people knowledgeable, but we don't always allow them to use some of that knowledge to make decisions when they're faced with that condition. You know, we sometimes ask them to turn

around and come back. And that may not be the right answer for us as we look at these beyond-design-basis events and evolutions that could happen. So very good perspective.

The people definitely wanted to do all the right things. As we moved roughly seven kilometers, I think it was, up the coastline to Daini, there what I took away was, you know, we had been working on our FLEX strategy for roughly two years, almost two-and-a-half years at the time we went to visit. And what that showed me when I got there is that FLEX works, because it was a little bit of an untold story, but they were actually faced with a similar situation with the units that they had there.

Yes, they had the tsunami. They lost electrical power. Yes, they did have one off-site power source. Was actually to a rad waste building. But their safety pumps, they needed to get power to several safety pumps. I think it was five motors had to be powered up. They were dispatching people to get the condition of the equipment, what needed to be done. And in the end, in a 30-hour period of time, they basically ran six miles of cable to these five different motors.

And, oh, by the way, at the same time I

think replaced either two or three of those motors or did maintenance on those motors such that they were able to power those up and to provide the needed cooling. So what that showed me was the method we were using, the flexible equipment, the pre-staging it, it brought credibility to the approach that we were taking here in the U.S., because they basically did it on the fly.

The next key item that I and several others took away is the leadership. The individual that was running that station, Masuda-san, definitely provided the crisis management, if you want to call it that, but it was true leadership to the people.

And everybody is going to react differently. I think we all would want to think that we're going to be very brave, we're going to not have emotion, but that's not the case. There's going to be people that will not function, there's going to be people that will function extremely well, but as the leaders you've got to figure out, okay, I can deal with this, this individual, we're going to have to, you know, set aside and deal with that aspect of it. But they've got to keep the focus on what the safety-significant items were and making sure that when people were dispatched they had a commitment from that individual that they were going to do everything they could to get

there, get the needed information, the assessment, get the information back and keep the work force informed, and communicate to the work force exactly where they were, exactly what needed help.

To me, that again became an item to bring back how do we train our leaders? Do we do everything that we should and could in potentially a crisis situation, in a situation where there is literally life and death occurring, so that we can help our emergency organizations to be better prepared?

And I guess the last take-away that I took is the choice had become a lot of the work at the facility was being done by contractors, so there was a lot of tasks and skills that really the in-house work force was not accustomed to doing. So again, as you look at your work force, how much are you relying on a vendor, because that vendor may not be there the day you need that task to be done, and can, you know, your work force really perform all the different and needed tasks?

I think we have, you know, one step up, and that's the fact that we do have our training programs having run through the academy, what the specifics are. We've got a lot of people. We've got a lot of specific task qualifications and the majority of them are in

house. But it was a slight little twist that I think we have to go back and look at to see is there any critical tasks or items that we may need and not really have the in-house people trained.

MR. LEEDS: Thank you. Thank you. Very comprehensive.

Tony, anything to add?

MR. PIETRANGELO: No.

(Laughter.)

MR. LEEDS: Mike?

MR. JOHNSON: Thanks. I do first want to tell you that a lot of the messages that Dennis gave resonate with us, resonate with me personally.

I will tell you that for us the trip by the Senior Management Team and the Reactor Program was probably one of the most impactful certainly that I've had in my career, and I think they would agree to a person also that it was impactful. The RAs went. Eric, Glen and Jim Wiggins went. We also took of course Dave Skeen as head of the JLD and Scott Flanders. Scott, you will recognize, is involved with the seismic and flooding reanalyses, and we thought it was important for Scott to be along.

So that team in Japan, we were able to reach out to the industry in fact and sample from them or

identify from them where they went, what they thought would be most beneficial. And we, like the industry, went to see Kashiwazaki-Kariwa. We went to Fukushima Daiichi and Fukushima Daini. We also met with the regulator, an RA, our good friends. We met with JNC, the Japanese INPO. And we had an incredibly candid opportunity or an incredible opportunity to meet with Tepco and found them to be tremendously candid in terms of the insights that they provided for us.

And so my overall impressions are, first, to recognize that there were tremendously heroic efforts that happened, not just on the day of the accident, but in the ensuing three years. And it shows when you show up in Japan. And so, you know, I always want to be grateful to our Japanese colleagues and friends recognizing what they faced and what they were able to with that situation in Japan.

As has been discussed by numerous presenters, they also suffered tremendous loss. As Dennis described, you can't help but as you ride on the roads leading up to the site be mindful of just the tremendous loss even today as a result of that particular accident.

On the day that we visited Fukushima Daiichi, there were 4,000 people on site on that day.

Recognize there will be many, many people, thousands of people on site for the next 20 to 30 years that it will take to decommission those facilities. Just a tremendous cost.

It certainly disrupted lives, as Dennis indicated. There are folks who are beginning to return, but there are folks who won't in their lifetimes return to some of those areas surrounding the plant. Again, just the scope of the loss, well beyond what was caused by the immediate impact of the tsunami. And so really I think it made an impression on us. Not to mention the fact that the industry -- those plants are still shut down. And so the Japanese regulator and the Japanese people are working with respect to the new regulations to be able to restart those units.

Also struck by the tremendous resilience, as I indicated, with respect to seeing the site. I was impressed by how much has been done, how much has been cleared away, how much the prefecture has been able to restore and recover. It just points to the tremendous resilience of that country, those people, our friends.

And I also, as I started, would just say again how we found them to be, everyone, tremendously willing to share their insights. I thought, gee, what a contribution to the international community to be

that sharing with respect to the experiences faced that day and those experiences as they've continued to recover.

For us the messages -- I'm just going to give three messages, Eric.

MR. LEEDS: Good.

MR. JOHNSON: The messages -- and they're sort of an overarching message for us, to be prepared for the unexpected. Prepare for the unexpected. Recognize that in terms of the way we approach regulation, we certainly want to have a good idea about what challenges the design will face, what challenges the operators will face. We want to make sure that the regulatory framework and structure is set up to deal with that. We want to make sure of course that licensees and operators, of course the plants are ready to handle those. But in the event the unexpected happens, the trip reinforced in our minds the importance that we prepare, that licensees prepare, that the industry prepares for the unexpected.

Like Dennis, we were impressed by FLEX. Can't help but as you visited, as we visited Fukushima Daini to be impressed by their ability to bring to bear strategies and have them be effective in terms of recovering those plants. Just tremendously

important. And you can see that mirrored in the way in which we approached the regulations, the requirements, the new requirements, I should say, to deal with mitigating strategies.

Also though, as a result of our trip to Daini, with respect to preparing for the unexpected, it reemphasized in my mind the importance of making sure that the installed plant equipment provides the time necessary for folks to bring to bear those strategies that they'll put in place to be able to deal with the unexpected should the unexpected happen. So, also the importance of the installed equipment. And we're working also with that perspective in our mind.

The second perspective I think is also one, Dennis, that you talked about in terms of -- the way I guess we talk about it is making sure that the licensees have a deep understanding of the plant. Clear to us based on interactions with the shift manager at Fukushima Daiichi who talked about the challenges. As we talked to -- for example, the maintenance supervisor at Fukushima Daiichi talked about the challenges, the struggles with respect to what they faced as a company, Tepco as a company as they were reliant, heavily reliant it turns out, on contractors. It reinforced in our minds the importance of making sure

that indigenous to the licensee is the technical capability to be able to understand that plant.

Commissioner Ostendorff talked about the technical capability, technical confidence. Tremendously important in situations like that. And an analogous thing for us as a regulator to make sure that on our staff we have the technical capability to be able to deal with those kinds of situations. So left us with that as a very strong impression.

And then last, but not least, I think we left with a dedication that I think we've always had, but reinforced regarding the need to make sure that whatever we put in place to meet the requirements today that 10 years from now, 15 years now, that those requirements, that those actions, that those plans, those strategies are still being implemented. We don't want to have taken good steps, implemented good actions only to have them be undermined because we've not paid due attention to them.

We're capturing the results of our visit on video. We got from Tepco the ability to capture those. We've got a number of good still shots and reflections from each of the participants. And so we're going to use that as a knowledge management tool to enable us to be able to communicate with the staff

10 years now, 15 years from now regarding lessons learned from Fukushima.

MR. LEEDS: Tony, you wanted to add something?

MR. PIETRANGELO: Yes, one other thing, and it struck us when we were there, and it comes up at each one of our Fukushima Response Steering Committee meetings that we have. And that is the ongoing situation with the water management at the site. We continue to be concerned by that. They have their trains of their decontamination systems running now, but they're not allowed to discharge any water back into the ocean even if it's relatively clean. You know, eventually that water is going to wind up in the ocean. You can do it in a controlled fashion after you've put through the decontamination system or you can do it in an uncontrolled fashion when -- and it's not if, it's when you have another earthquake that's significant.

There's lots of flat-bottomed tanks. There were 1,000 when we were there. I think they've got two to three years left of space on that site. You can see them clearing trees for additional tanks, but eventually the water has to be discharged. The reason it's not is that there's a lack of trust in the operator,

there's a lack of trust in the regulator. And that's the lesson learned is you can't lose that trust or you're going to shut down everybody.

So, you know, we've been talking about what the CNOs here could do in terms of a letter signed, you know, in concert maybe with the NRC and the U.S. Government to Japan saying you need to get on with this and enter a dialogue, you know, with the fishermen and other interested stakeholders to come up with a plan that puts some confidence in the operation to be able to safely discharge that water. Because again, when we were there they had just had a leak. When you were there they had another leak. When you're monitoring the level of 1,000 tanks and they go from one to the other, you're going to have some leaks from time to time.

So you're going to see it show up in the news and be a concern for all people. So the sooner they deal with that problem, the better. And we're trying to think about what we can do as an industry to help support movement towards the eventual discharge of that water.

MR. JOHNSON: And I think Commissioner Magwood talked about the very close relationship we have with the regulator and the Japanese government and

activities ongoing this week in terms of, for example, bilateral interactions regarding how can we assist them. It's certainly clear to me that when we were on site they are focused on water as an issue, water management as an issue. And we stand ready to assist them any way we can. As Mr. Magwood indicated, we believe that they're approaching this in a highly capable way. We look to help any way we can.

MR. KOEHL: Just as one other item; and Tony reminded me of it, is the relationships that you have with the communities where you serve and around you. I mean, they ran six miles of cabling, but they didn't have six miles of cabling on the site when the event happened. I mean, they were making calls and trying to work relationships that they had, where that material could be, and even getting assistance from the people on the other end to get the material part way there so that they could meet halfway.

You know, especially in an event that's being driven by Mother Nature, you don't know what barriers you're going to run into. You only know, you know, like Commissioner Apostolakis says, the information that you have at the moment you're making the decision. So you really have to be leveraging those relationships and thinking all the what ifs.

Because that was a key item is questioning the what ifs and putting contingencies in place for those what ifs.

MR. LEEDS: Well, thank you, all. I really resonated with the panelists' discussion about the Fukushima accident.

I want to add one observation to your discussion. And the Chairman and a number of the Commissioners noted that yesterday was the three-year anniversary of the Fukushima Daiichi accident. I want to remind everyone that this month is another anniversary that's very significant to our community, especially here in the United States. Thirty-five years ago this month was the anniversary of the Three Mile Island accident.

So when I think about that, I think about, well, we've had 35 years of safe reactor operation here in this country. For most industries I think that would signal them to relax. It's time to, ah, we made it. We're there. And I really resonated with what Dennis had to say. This industry is special. We can never relax. We can never take our eyes off the ball. We can never think that we're there. We need to exercise. I think what we learned, one of the principal learnings from Fukushima Daiichi is that we need to continue to exercise and exercise in new ways

so that we are prepared for the unexpected, as Mike mentioned.

So thank you, all. Very profound experience going over there. So thanks, guys.

Let's go to the next question. Yesterday at one of our breakout sessions we had a session on cumulative effects of regulation, impacts of regulation on the industry and on the regulator. We had outstanding attendance at that meeting. I got there a little late and couldn't get in.

(Laughter.)

MR. LEEDS: So for those of you like me that weren't able to hear the discussion, I'd like to pose a question to the panelists so we can catch up on the status.

So the question reads, what actions have the NRC and industry taken to date to address the issue of cumulative effects of regulation? Are there any plans going forward?

Tony, I'll ask you to begin from the industry's perspective.

MR. PIETRANGELO: Yes, I actually was at the breakout session, Eric. I found a seat. So it was very, very good. Several panelists.

But let's put it in context first. I mean,

back to Fukushima for just a moment. Our principal concern has been that in terms of evaluating and implementing the Fukushima lessons learned is that we were going to divert operational safety focus from the current fleet. Okay? And that continues to be a concern because this is implementation really for many of the Tier 1 requirements.

It's really the same rationale that applies for cumulative effects of regulations. Can you focus on the right things based on safety significance, prioritize those and really, you know, get the bang for the buck in the shortest amount of time?

So we're making great progress I think. We've had three successful tabletop exercises. In fact, one started at Summer and then got snowed out and they're finishing it this week. But they've been to Robinson. They've been to Prairie Island testing out our prioritization guidance that looks at safety, security, EP, reliability. And through an expert panel-like process prioritizes the work that gives you the biggest safety benefit for the buck.

As noted at the panel yesterday, that really should include things that are already on your plate that haven't been fixed yet. Where does it fall in the scheme of things? I know we want to move forward

with pilots later this spring or summer. I know the staff -- Michael, I'm sure you'll talk about the paper that's going up to the Commission pretty soon. So we're anxious to move forward with it because we do think it's a way to focus.

And one thing I see across the board; I see it at NEI with my own staff and at the plants we talk about it with the CNOs on our Nuclear Strategic Issues Advisory Committee, you know, there's just too much stuff. I know you feel it at NRR sometimes about all the different demands on your time and resources. And, you know, the pie isn't getting any bigger. So we've really got to focus on the things that deliver the most safety benefit and reliability. That's what that effort is about. So we're anxious to move forward with it and get it rolling.

MR. LEEDS: Thank you. Thank you, Tony.

Dennis, did you want to add something?

MR. KOEHL: Yes, there was one item that came out. I was in that session yesterday. And there is two sides to that coin in reality, because it's not all specifically about total, you know, bang for the dollar, but it's also a distracter to our work force. And we've got to make sure that we do not put distracters in place that are going to take them away from what we've

trained them to do in the jobs and the evolutions that we're asking them to do.

So I think this process, we're going to have to constantly reassess it. Because again, going back to one of the Commissioner's talks, you know what you know at the time of the decision. If facts start coming in or data starts coming in, we may have to reassess. It may mean that there's a regulation that does have to be changed or new regulation that gets put in place. But it's the process of constantly assessing that I think will help keep the distracters away from our work force.

MR. LEEDS: Mike?

MR. JOHNSON: Thanks. And I did not attend the session. I'm sorry. I'm sure I was somewhere else in an interesting RIC session getting great insights.

Cumulative effects of regulation has been tremendously important to us. And in fact, I know we talked about that topic at last year's RIC, and I know we've been working that issue for several years. For us, evaluating and seeking to better manage the cumulative ongoing activities that are required by the regulator is something that we think is a priority activity. We in fact share with the industry the idea

that if we're not careful with respect to all of the things that are on our plate and making sure that we prioritize and managed those -- if we don't do that, we will potentially distract both our attention and our focus, but also the industry's focus on operational safety, operational security. And that's not where we want to be. And so that's why we've continued to work on cumulative effects of regulation.

And, you know, I won't, for the folks who were in that session, try to repeat everything that you must have heard with respect to what we've done and where we're going. Certainly you should recognize we've made progress with respect to looking at rulemaking, for example, in terms of making that process better in terms of engaging with external stakeholders earlier. The notion about providing guidance, draft guidance with the proposed rule, final guidance with the final rule. That all, if you will, serves with respect to improving our cumulative effects of regulation, or understanding of the cumulative effects of regulation as it relates to rulemaking. Recognize also that we are moving beyond rulemaking and certainly looking at the other major activities that again add to that entire list of things that licensees have to do with respect to implementing what is

required.

We are looking of course in terms of the activities that we have taken today, as was all the direction from the Commission, to look at their effectiveness. For example, to gain insights or to make changes, we'll do that. In addition to that, as Tony indicated or maybe didn't indicate, but certainly would have heard in the session, we're focused on, engaged with the industry on case studies. Those case studies look at reviewing how we do regulatory analyses or looking at, for example, the costs and scheduling information providing in regulatory analyses. See to what extent we can make that better. We know that we're challenged. We the NRC, we the industry, are challenged in understanding up front with respect to what in fact the actual cost will be for a new requirement that we're going to put in place. And so, activities that have been recommended, discussed in a public meeting with the industry based on those case studies are certainly things that we think move us in the direction that we need to move in with respect to that.

Commissioner Magwood this morning talked about the issue or the initiative and direction for the staff to explore prioritization or the ability, for

example, for licensees to prioritize requirements. All of the requirements that might be on their plates in a risk-informed; and I would stress that, risk-informed, not risk-based, manner and be able to propose that to the Agency. We think that also is something that we ought to explore.

Tony talked about tabletops that are ongoing that we watch. We think they're productive. From my perspective I think that initiative has two pieces, actually. I think there is a piece that looks at; again from a risk-informed perspective, generically all of the things that are on the industry's plate. And then in addition to that, it looks at a process that would enable a licensee then to go back and make additional adjustments in a way that is risk-informed. And so, that's where we're headed with respect to that.

The activities' cumulative effects of regulation I talked about with respect to rulemaking and starting with rulemaking and this initiative about looking at plant-specific prioritization we think are so intertwined that we ought to be working them as a single action, as a single product for the Commission. And in fact, we're working on a paper that will make that proposal to the Commission. We want to align the

different milestones on those two activities, bring them together and talk about the next steps in terms of the pilot activity that we think will be important in terms of enabling us to pull together pros and cons and provide the Commission with a rich set of options and recommendations.

So again, you know, I just want to leave where I started. Cumulative effects of regulation is certainly important. Recognize continues to be important. We want to get it right this time. We've taken a swing at setting up a prioritization scheme. We did it actually in the late '80s and early '90s and we don't think we were as well-served as we could have been, should have been as a result of those activities. We want to make sure that we get it right.

And then last, but not least, we are the safety regulators. Safety and security is our mission. And so all of the things that we do in terms of looking at flexibility, looking at providing an integrated schedule are all going to be done, all need to be implemented not losing sight of the context which we go after. We the industry, licensees, the NRC, are focused on safety and security.

MR. PIETRANGELO: Eric, can I add one other thing?

MR. LEEDS: Oh, please, go ahead, Tony.

MR. PIETRANGELO: We've been talking about the cumulative effects of regulation. As an industry we're looking at the cumulative impact that the industry organizations and even the corporations put on the sites. So for example, we've looked at the NEI initiatives and what that takes to get those done as one of the things we're looking at. INPO has some initiatives ongoing on the Corrective Action Program, work management and human performance, also looking to streamline those processes because they've kind of become, you know, burdensome over the years as we've added to them. So we're looking from the both a scope and a process standpoint on how we can streamline some of the impact we make on ourselves. So it's not just regulations. And in that spirit, you know, we need to do better, too.

MR. LEEDS: Thank you.

MR. JOHNSON: And one second. Thanks, Tony. You know, and it's not just reactors. It's not just reactors. I should have made that point. The fuel cycle facilities have -- leadership of Kathy and Scott and that community, have also engaged in an activity of looking at in a similar way how do we get a handle on, a better handle on the cumulative effects

of regulations in that community? And so, for example, there have been meetings. There has been an activity to develop an integrated prioritized schedule again with the idea of eliminating conflicts, to improving coordination and certainly again as a bottom line to make sure that we do focus on those things that are most safety-specifically first.

MR. LEEDS: Thank you. Thank you, gentlemen.

I've got a related question from the audience, which I think is very interesting, and I'll break it down for both the industry and for the regulators.

The question is what are the top three areas that plant owners can focus on to reduce operating costs? And for the regulators, what would be the three top areas that the regulators should focus on to improve effectiveness and efficiency?

So, Dennis, if you would?

MR. KOEHL: And I think Tony hit on just a few real quick from the industry's aspect is our Corrective Action Program. We've continued to modify our Corrective Action Program over time. And I think it's like everything. You sometimes have to reflect back on it, look at it. And the things you changed,

you know, 5, 6, 10 years ago, are they still effective today and are they really, you know -- or have we gone beyond them? So our Corrective Action Program, definitely one on the top three.

When we look at our work management process, and it's bigger than just work management thinking it's the work order and everything. Our pre-job brief process. Things that we've worked on. We've revised those procedures and it's adding additional time. Is it effective time? And I think we've got to look at that as a whole, you know? And are the people that are doing those -- is that time well spent, or should they and could they be shortened focusing strictly on the safety issues and the specific items there?

And I think, you know, the third area really becomes how we train and how we get our work force to where they're, you know, competent at performing the tasks. We've swung the pendulum. I think we're on our third or fourth. You know, we have skill and craft and we put it in the procedures. We take away the skill and the craft. So I think we've got to look at that process, too. And I'd say that would be a third.

MR. PIETRANGELO: Those were actually established in a survey by INPO of the chief nuclear

officers across the industry. So Dennis got the quiz right there.

(Laughter.)

MR. JOHNSON: I'd like to take a shot from a regulatory perspective. And, you know, I could give three or four, five items actually that I think that we should focus on. One we just talked about at length, and it's cumulative effects of regulation. Again, we've been working on this for several years now and we think there's more to do. It's important I think from an effectiveness perspective.

With respect to continual learning, we devote in the NRC a fair amount of effort to looking at operational experience, to looking at insights across our programs with the idea that we ought to be always alert for ways in which we can do things better.

We've had just list a number of activities, some of which will be discussed in the regional administrative breakout session focused on the reactor oversight process. In the new reactor area activities that the new reactor folks put in place to look at how do we -- based on Part 52 licensing. What can we do? How can we make that more efficient, more effective?

With respect to construction oversight, how do we make that more efficient and effective?

We're getting ready to stand up, if you will, an activity to look at SONGS, an issue that we talked a lot about probably this time last year. Everyone knows where SONGS is today with respect to the fact that they've permanently shut down.

But what did we learn? How do we learn from the challenges, the licensing challenges, the technical challenges that were faced? All of those things. How do we focus on squeezing out lessons learned from that operational experience and make ourselves better? So that's an activity I think that we continue to focus on.

And then something that we struggle with, could do better, continually work on is our ability to be able to prioritize given the uncertainties in workload, the uncertainties across our programs. Eric and Glen and I will meet next week actually to talk about the realities of workload for the operating reactor business line, we call it, the realities of workload in the new reactor business line. How do we match the resources based on what we understand as the available work or the work that needs to be done, prioritize, and how do I process this? How do our processes serve us in being able to do that? So I think those are opportunities for us to continue to improve across our

business.

MR. LEEDS: All right. Good. Tony?

MR. PIETRANGELO: Can I name one for the NRC?

(Laughter.)

MR. PIETRANGELO: I was going to say respect for the Backfit Rule. And let me say it in this way; and Commissioner Magwood raised it in his talk: It's not a rule that's there to protect licensees. Okay? To me the Backfit Rule is a safety-focused rule because there's only so many resources around to deal with what's important. Okay? And the Backfit Rule makes you focus on what's important. You have to have substantial additional protection, right, that's cost-justified in addition to all the stuff we have to do for adequate protection.

So it is a safety-focused rule. It is necessary. I think it needs to be reinvigorated in your Committee to Review Generic Requirements. If that's not working, let's come up with something else. But I think that's part of what the importance of the regulatory analysis is that was talked about earlier this morning and in that cumulative effect session.

We did a lot on the cost side of that. We're taking also a look at the benefit side of that

as well going forward. So it's all about staying in process. That's a regulation that's there for a good reason and we need to follow it.

MR. JOHNSON: Yes, I think we'd, Tony, agree with the importance of the Backfit Rule. And in fact I would say that as an agency we've becoming increasingly steeped in our understanding of the Backfit Rule.

First of all, looking at the items that were recommended by the Near-Term Task Force in terms of Recommendation 1, for example, that has us look at the framework and how do you apply -- you know, what do we want to do? What does the Backfit Rule tell us, for example, with how we should be approaching those particular items? When we looked at each of the Fukushima lessons learned, for example, we were very mindful of what the Backfit Rule would do in terms of helping us recognize that for an adequate protection issue, you know, there are exceptions. There is specific treatment with respect to how we handle backfitting, that we won't consider costs, for example.

The staff has a greater awareness, a greater appreciate for the Backfit Rule, and I would submit; and I think Commissioner Magwood made the point, I think the Backfit Rule contributes to

regulatory stability. And so we're certainly with the Agency focused on implementing the Backfit Rule, recognizing that the Commission has within their authority also the ability to administratively exempt themselves or take an exception to the Backfit Rule where they see it necessary. And there have been a few instances where that's happened.

MR. LEEDS: Dennis, did you want to add something?

MR. KOEHL: Yes, I would be remiss, because there's four CNOs out there that have talked to me on an issue. And, Mike, you hit on it when you said prioritizing it right. It's unfortunate, but we have units that are being decommissioned. We've got to get the rulemaking on them moving. We've got to get it right. I think we could leverage some things that we presently have in place, you know, whether that's a 50.54(q), whatever the processes we want to use. But there's a lot of unneeded expenditures happening there and it's taking away from the decommissioning fund to be able to decommission those units and return them to Greenfield.

MR. LEEDS: Thank you for mentioning that, Dennis. The issue on decommissioning plants is a real one. We're sensitive to that. I was talking with Dave

Heecock last night about trying to raise the management level on both sides, on the industry side and the NRC side, put more of a steering group on it so that we can go after those issues.

But I want to go back to the backfit discussion, and I really appreciate you guys bringing that up. I want to make a plug for the Regulatory Information Conference. If you guys noticed, during intermissions and during quiet times we run a series of factoids up on these screens. And Dr. Brian Sheron, my partner at the RIC, he's taking the lead to make sure we have good factoids. One of the factoids is on the Backfit Rule. It's the only regulation that actually pertains to the staff, as opposed to licensees. So just a little factoid for you all. And I hope you're paying attention the factoids. You could learn something.

MR. JOHNSON: Eric, and I want to go to the mention that Dennis made on decommissioning. I think it is an important topic. And, you know, it's funny, as Mark was giving his opening yesterday, he talked about what we did in 2009 in terms of looking forward, the crystal ball perspective. And, you know, we did a good job overall in terms of looking forward, in terms of how we scope at a macro level the sides of the New

Reactor Program, the Operating Reactor Program based on the state of the knowledge, I guess, Commissioner Apostolakis would say, as we saw it then.

But in 2009 we certainly would not have anticipated waste confidence, the remand of the court. We certainly would not have anticipated that there would have been Fukushima. And look at where we're spending resources, industry resources and NRC resources. And we certainly would not have anticipated that we would have had -- what is the count, Dennis?

MR. KOEHL: Four right now.

MR. JOHNSON: Four utilities or four plants right now, sites right now: SONGS 2 and 3, Kewaunee, Crystal, VY soon. We certainly would not have anticipated that in 2009.

Now we had earlier on, as Dennis probably knows, around the early 2000s, like 1999, probably, early 2000, we were focused on a decommissioning rule that would take on a process, provide a process for how you would deal with the issues that plants now find themselves in decommissioning -- how we would take that on. Of course you know what happened at 9/11. And suddenly 9/11 demanded our focus and the Commission did not continue with that rulemaking.

Having said that, given where we are, we are focused on making expeditious decisions with respect to the licensing actions that have to be implemented or considered and approved in order to facilitate decommissioning, the exemptions that have to be executed, if you will. So we're focused on that, but this is another interesting area where we have to consider priorities.

It turns out actually that some of those exemptions, the folks that would review some of those exemptions are also some of the folks who are working on, with respect to the operating fleets, supporting implementation for the operating units of the Fukushima items. So that's a perfect example of how challenges with respect to priorities can cause us to have to make adjustments in order to be able to accommodate all the work. Understand we do recognize the priority of folks who are walking their way through the decommissioning process and we're bring resources to bear to focus on.

MR. LEEDS: Thank you, all. I want to change the subject of our questions a little bit. I have a number of questions from the audience here involving new construction, new plants, questions involving quality assurance issues and others. And for a broad perspective, I'll read one of the broader

questions.

it's been just over two years since the issuance of the COLs for Vogle 3 and 4 and Summer 2 and 3 and construction of the Watts Bar 2 unit is progressing. NRC has conducted lessons learned and so has the industry. For the regulator, can you provide some of the key findings that you've taken out of the progress so far, lessons learned?

And from industry, have you identified lessons learned and process improvements from the new construction?

Mike, I'll ask you to tackle it first.

MR. JOHNSON: Sure. And I should point out that there is a session -- I was just checking -- there is a session on Thursday that will deal with those issues in detail. So I would hope that if you are interested you do go to that session. It is certainly true, as I made the point, that we have continued to try to learn lessons as we've gone forward, and that certainly is the case with respect to new reactors licensing and new reactor construction.

We completed a couple of those reviews actually in 2013. One of them looked at the Part 52 licensing process and how it was performing and what could be learned. We do believe that we successfully

implemented the Part 52 licensing process up through issuance of the COL. Shouldn't surprise you to hear that we also identified that we could do aspects of that licensing program better, and we're working on improving it.

Also, from a construction perspective post-COL we did look in terms of how those activities are being implemented. And of course we think we are being effective. We're having success. Certainly there are areas that we could work on to make that focus be more effective.

One of the things with respect to licensing that we learned was -- and actually it was a reemphasis on something that we always knew, and it is the importance of a high-quality technically-complete application. It turns out that if we're not careful, you know, we accept an application that doesn't have the appropriate quality, doesn't have the necessary depth in all of the areas that we need to review, that can prolong the licensing reviewing. So, we've gone back through audits and pre-application stage, looked to make sure that the applications that we get in will meet our expectations with respect to quality and technical completeness. And as we do acceptance review we're continually looking to make sure that we

live by that standard.

I'll just give one example in the construction area. Certainly we've learned, continued to learn that communication is critical in enabling us to be able to make regulatory decisions early in support of licensee plans moving forward. Communications with the staff. So if we see an issue, if Vic's folks in Region II see an issue at the site, that the processes support them raising those issues up early in communication with the folks in Glen's organization and communicate those with licensees. That communication is important from a regulatory perspective. It's also important that licensees and their consortium members communicate early, for example, when they identify design changes, they're changing the design or they're running into construction issues. The earlier those activities can be communicated, the earlier we can focus on them and make decisions in time such that they don't adversely impact the schedule.

MR. LEEDS: Thank you.

MR. PIETRANGELO: So we've been on a learning curve with Part 52, first to get to the design certification and COL stage, and now in the actual implementation of Part 52 in real projects.

The projects are going well. Everybody's focused. I'll be honest, I continue to be concerned about the level of detail expected with some of the license amendment requests. I think when the design is certified, roughly 35 to 40 percent of the design is final. And we're having issues about, you know, what has to be submitted v. an amendment, versus what can be put through a 50.59-like process and be screened and the licensee can move forward with a document to change and move forward.

I think we still need more dialogue on that. I'm sensitive to when you get into full-bore construction with systems, piping, instrument, etcetera, that if we're not careful, we're going to snow ourselves with minor amendments that take up your time to review and the licensee to prepare. And is there a way within the current construct of the rule to somehow screen some of these items? Maybe do a true-up when you're done with the system. You know, you hear this thing "strict compliance during construction." We're not going to let you build a -- if you went for an AP1000, end up with an ABWR-kind of deal.

(Laughter.)

MR. PIETRANGELO: That's not what we're talking about. But there has to be some flexibility

in that process to, I think, get to the finish line on these. And these projects are of national significance to us, to our industry, to our stakeholders, and I think we need some more dialogue on how we can navigate that process.

So steep learning curve. We're doing well, but there's more to learn still.

MR. JOHNSON: Yes, I guess I would be remiss; thanks, Tony, also if I didn't mention -- and I'm sure this will be discussed in the session on Thursday. But, you know, the back end of that process, the ITAAC finding is tremendously -- it's well thought out, I would say. It's a demanding process that would ultimately enable a plant to load fuel and begin operations. And the more work that we've done; and we've done a tremendous amount of work again with the reactors in Region II, the more work that we can do, the more work that licensees can do with us in terms of making sure that we have sort of met expectations with respect to ITAACs being closed. We have a process that works well with respect to scheduling, so we're there as a part of the things, our activities to be able to verify those ITAAC for the ones that we need to verify. The better orchestrated that piece of the process can be as the ITAAC are coming in towards

the end, the better off that entire process is going to be. So there's more work to be done, and I'm sure that will be discussed on Thursday.

MR. LEEDS: Thank you. Good. Good. Good questions.

All right. The next question both for industry and for the regulator, the question is with Fukushima in mind, which was considered a highly improbable event, do we still think that a performance-based or risk-based approach to regulation can give us the confidence that we need to handle severe accidents going forward?

MR. PIETRANGELO: Absolutely.

MR. JOHNSON: Yes.

(Laughter.)

MR. LEEDS: Thank you, Commissioner Apostolakis.

(Laughter.)

MR. PIETRANGELO: I wondered who was going to say that first.

(Laughter.)

MR. PIETRANGELO: Commissioner Apostolakis went into great length about how PRA is really the current state of knowledge. I want those tools with us as we deal with Fukushima. I don't want

to look at this without my full set of tools, whether it's operating experience, as reflected in the PRA, other analytical insights. We want everything on the table. So I think we also need to be smart enough to know we don't know everything. Right? And, you know, the approach to this point has been, you know, in the design basis these very highly-stylized transients, that licensees do analysis to show they can safely shut down the plant for all these worst-case assumptions that could happen. And that's how we got licensed. And you do your own confirmatory analysis.

This is a different space. You don't know how you got to where you got in severe accident space. Okay? So taking the same approach really isn't going to get you there because all the stuff you had you have to assume failed. So, you know, this is a different approach we're tackling. And I think having flexibility, diversity, redundancy, where you stage it, where you hook it up, where you get the water from, give the operators -- trained operators, drilled operators, okay, who have contingency mitigating strategies, you know, that they've practiced on in their hip pocket, so when if you do get to that, you know, kind of extreme event, you're giving them all the best thinking and tools they can to deal with that

scenario. So in addition to what we already have in place in the permanent plan.

So, I mean, we think that's a durable answer going forward as opposed to trying to design for what you think is going to get you exactly, you know, in that scenario. You just assume we lost all our power. We lost our ultimate heat sink. What are you going to do to safely shut down that plant? I mean, those were the two real lessons learned from Fukushima. And I don't care what the design is. If you starve it for power long enough, you're going to melt fuel.

MR. LEEDS: Tony, if I could, yes, here's one incidence where I think the regulator and the industry are very closely aligned and agree. We want all the tools available. We don't want to try to guess what the next accident is going to be.

MR. PIETRANGELO: Right.

MR. LEEDS: You want to be prepared for whatever could arise and you want to have that quiver of every arrow you can to be prepared.

MR. PIETRANGELO: Right.

MR. LEEDS: So I think that we're in agreement on that.

Dennis, you wanted to say something?

MR. KOEHL: Yes, and I just think, you

know, and Tony hit on it, you know, we spend a lot of time training our operators with the operational focus and a good understanding of the plant. They're going to be faced with situations where they're going to have to take the knowledge they have and make a decision, because they're going to have additional information that we don't have today, but they're going to see right there. And we've got to work to train them to understand that it's okay. At that point you now have new information. Make the decision.

MR. LEEDS: Well said.

MR. JOHNSON: Yes, and I guess I would just add, not that I don't support all of the points -- in fact, I support all of the points that have been made. I think they're all very good.

You know, with respect to moving forward, I would say not only do we not want to go without PRA risk insights in our tool box. Actually on a number of areas we have to have, we're reliant on those insights to be able to make ultimate decisions about what fixes might need to be made at plants. For example, we're looking at in the area of seismic and the seismic reanalysis. Ultimately when we get around to figuring out whether or not we need to add margin at a plant, we want to have, again, one of the tools

-- not the only tool, but one of the tools we want to have in our toolbox to enable us to do that is the results of, for some plants, the seismic PRA.

So again, Fukushima didn't tell us that PRA insight or PRA as a tool is not a good tool. It told us other things, and I think we've talked about that, each of the panelists talked about those incidents.

MR. LEEDS: Thank you. Now it's interesting. That question, I think the regulator and the industry had a lot of agreement.

On this next question it will be interesting to see if there is much agreement. And I'm going to ask the industry to respond to it first. Remember, this is one of your questions, not from here.

As a general observation --

MR. JOHNSON: There's regulators sitting in the field.

(Laughter.)

MR. LEEDS: I don't know think a regulator sent this question.

As a general observation the more staff a regulator has, the more regulation is created.

(Laughter.)

MR. LEEDS: Looking at IRS, EPA, FAA, FDA, the others, this seems to be the case. How does this

principle apply or not apply to the NRC? Industry?

MR. KOEHL: All right. You want me to start?

MR. LEEDS: You can start. Go ahead.

(Laughter.)

MR. LEEDS: We read the tough ones, guys.

MR. KOEHL: I don't think I would draw the same conclusion that maybe -- the basis of the question more staff, more regulation. I really believe it comes down to effectively utilizing the staff. You know, we sit here and we've talked about cumulative impact. We've talked about the multitude of regulations. We've talked about decommissioning. I really believe it comes down to prioritizing. If we do as leaders a poor job of prioritizing what should be focused on when, you leave your resources to focus on what they think they're work list is. So they could pick an item from the bottom of the work list and be working on that because it's on their work list, you know, but it may not really be the right item to be focusing on at the time, you know, at that very moment. So I think that's a leadership and a management item that we have control over, or the regulator has control over in their leadership and management department.

MR. LEEDS: Thank you. Tony?

MR. PIETRANGELO: I think whether you're an operating company or, you know, a regulatory agency, no one's going to hold an umbrella over you from market conditions or what the budget constraints are for the Federal Government. You got to deal the -- what the cards are dealt. So as Dennis said, when you're in a situation like that, you just got to prioritize based on, in our case, safety significance and reliability. I mean, those plants are there to product electricity safely. You don't get to produce electricity if you're not safe. That's the ticket into the game and that's what you guys do so well. So, you know, whatever, how many resources you have, you just got to make sure they're focused on the right things.

I get concerned when kind of the -- and, Eric, you own a lot of the product lines associated with the day-to-day operations, the tech spec requests, relief requests, what have you, that has to get done to support, you know, continued safe operation. And you've got a lot of other stuff on your plate that's a little -- I'll call it a little bit more esoteric than just the day-to-day stuff, whether it's Recommendation 1, or the Risk Management Task Force, or let's go look at the License Renewal Rule again, or -- I can name a bunch.

MR. LEEDS: Yes, foreign ownership control and domination.

MR. PIETRANGELO: There you go.

MR. LEEDS: All of these types of things.

MR. PIETRANGELO: The day-to-day stuff matters.

MR. LEEDS: Yes, it does.

MR. PIETRANGELO: And you guys I think do your best to keep up with that. I think we see some instances where you're starting to crack at the seams a little bit, decommissioning being one that we're going to address. But there's others, too. I think we have to be able to prosecute -- you're about to get hit with a lot of Fukushima reevaluations on seismic and flooding. Lots of work for the staff to do there. And, you know, this is a challenge that you all face with the resources you're dealt. So it's time to prioritize. You've already been doing it, obviously.

But go ahead, Mike.

MR. JOHNSON: Yes. No, as Tony was talking, I was more and more recognizing that this question isn't all that controversial, actually. I don't think we're going to come out in a different place.

You know, from a what-do-we-need-from-an-overall-resource perspective, the challenge is that

what we need changes based on changes in what the work load actually is that will materialize in any given year. So this year it's Fukushima. You know, you can build the list.

If we have a good idea about what that work load looks like, the question about how many resources do you need, that's actually that's not difficult a question. What the changes cause you to do, as we've discussed, is to prioritize the resources that you have on board at any given time based on the work that you have.

Now, we can certainly be more efficient in terms of the way that -- or be more effective or more efficient, I guess, in terms of the way that we do work, and we continually, as I discussed, try for that. And I guess the example that comes most readily to mind is in the new reactor area, the reviews and getting ready for the small modular reactors, or the SRP and getting ready for small modular reactors, the Standard Review Plan. That is the guidance that reviewers will use. We've developed a design-specific review standard that is risk-informed, recognizing that if we can focus most on the areas of that guidance, that are highest priority, highest priority from a safety perspective and less on other areas overall, we think we can do that

work, that unit of work with fewer resources.

So again, if we can on occasion, or as a routine part of the way in which we approach work, if we can become more effective or more efficient in terms of doing that work, we do. But the work load really is the major driver and so we need to be able to prioritize.

And I guess the other thing I would say is; and this hearkens back on the point that I made regarding Fukushima, we do want to make sure that we have skills indigenous to the staff to do the work that will show up on our plate. Now, we can flex, we can rely on commercial contractors, we can rely on the labs, for example, if there's work in any given year that exceeds the ability of on-board bodies to be able to accomplish what is on our plate, but we never want to be in a situation where we're reliant on that expertise and not have that expertise indigenous to the staff. So that sometimes drives what is in place in terms of the size of the staff.

MR. KOEHL: Just one other; and it's a small item, but I think it goes back to, you know, the amount of knowledge transfer and the amount of training that we give, because we all face new people coming into the industry. And as we have new people, with it comes

challenges, whether that be in the form of questions, whether that be in the form of I don't accept these past judgments that were put in place. You know, but it's really incumbent on management and leadership to make sure that all those questions don't pile up. It may not be new regulation, but it now is more and more questions about something or a subject that truly was vetted in years gone by. And there is no new detail. It's just questioning it. We've got to respect the question, but I think we've got to manage, you know, the more that gets piled on, if you understand what I'm saying.

MR. LEEDS: Right. We certainly don't need to reinvent the wheel. We've got to be able to transfer that knowledge and how we made those decisions. You know, what the technical basis of those decisions? Lot of agreement there. Thank you.

MR. JOHNSON: I want to talk about knowledge management since Dennis raised the issue. Can I do that?

MR. LEEDS: Go for it.

(Laughter.)

MR. JOHNSON: So it is important, right? So I guess 20 percent of the staff have done at the NRC fewer than five years. Fifty or so percent of the staff

have been at the NRC fewer than ten years. That's a good number. And so we are reliant on our ability to make sure that we transfer knowledge between staff members and -- whether they be inspectors, or license reviewers, or enforcement specialists, or you pick the area of discipline. And we've got processes and a focus to be able to do that in things that we provide in terms of qualification requirements and things that I mentioned like the Standard Review Plan, inspection procedures and all of the bases that support those kinds of things.

So again, it's one more of those continuing challenges for us to make sure that we have the right folks on board with the right expertise. I think we're doing a good job. We can obviously continue to work it.

MR. LEEDS: Thank you. Thank you.

All right. Let's move on. Aside from the Fukushima action items what are some of the key technical and/or safety issues causing the most concern for the operating fleet looking forward, both from an industry and an NRC perspective?

The industry has taken the last few. Mike, you want to take the lead on that?

MR. JOHNSON: Sure, I'll start. And even

though you accepted or set aside Fukushima, I do want to point out that this really is a tremendous year with respect to Agency actions on Fukushima and industry actions on Fukushima. Certainly in addition to all of the other things that are significant we can't lose sight of the fact that this is an important year. Next year will be as well. The year after will be as well.

I would be remiss if I didn't mention cyber. I know it was talked about. Commissioner Ostendorff talked cyber. You know, there are a few threats that are evolving faster than cyber. Cyber threats have the potential to challenge us in safety and security areas. It puts a spotlight, if you will, on safety and security interface. That's certainly an area that I think we as the Agency are focused on, certainly the industry is focused on. As Commissioner Ostendorff indicated, I think we're off to a great start, but certainly there's more to do, and you're probably never done. So that's an area that we want to focus on.

I worry about, I know the staff, Eric, your folks, Glen's folks worry about things like; you more so than Glen in this case, component degradation, material degradation and facilities. We're still seeing, plants are seeing leaks, leaks in pipes and

leaks in tubes and leaks in housings and indications. And we're seeing shield buildings and with ASR, and those kinds of issues. Those are all issues that again I think the industry/licensees are dealing with as they arise. They're issues that we need to stay on top of, the industry needs to stay on top of or they'll challenge safety systems. So that's certainly an area of focus.

And I guess rather than going on and on, if you look at the agenda of the RIC, you'll see a number of topics in the technical breakout sessions and those topics hit on very well, Eric, in terms of the way you guys set up the agenda -- hit very well on the things that are on the minds of the regulator with respect to technical issues as we go forward. So I'll stop there.

MR. LEEDS: Thank you.

MR. KOEHL: About the only item that that I would possibly add is -- and Commissioner Ostendorff made mention to it when he was a control room, and I can't remember. He named Sequoyah, Watts Bar. He named a couple of plants. But, you know, when you look at some of the controls of them being analog controls, you know, it's not always bad if we've got the right vendor support and we've got the right material support that we don't move to some of the newer technology,

whether that be digital, brings in cyber.

You know, so I guess I view it as we've got to make sure that, yes, if there's an equipment issue that we're solving the equipment issue with the right fix, not necessarily an easy fix or something new that's out there, you know? Because like I do with my staff, when we put digital in, the first challenge is going to be how are my operators going to react? Are they going to do something different, you know, based on that digital information than the analog information?

MR. LEEDS: Okay. Very good. Thank you.

Tony?

MR. PIETRANGELO: You took the words right out of my mouth, I mean, and Commissioner Ostendorff mentioned it. We're lagging on the implementation of digital I&C technology. I mean, it's almost shameful at this point. So we need to get on with this. I mean, hopefully new plants will show the way on this but, we got to make some more progress here.

The other thing I worry about is the cumulative effect and the operational safety focus, trying to implement all the Fukushima things this year, Tier 1 for most people, as well as deal with the current work load. I think you've got to stay focused on the safe reliable operation. Really, I don't worry about

any of the stuff you've got on the agenda. That's not what gets me. It's all of it at the same time.

But the digital thing, it's what we're not doing that worries me. We have got to make strides in this country and move forward with this technology. It's got so many advantages over the analog. I understand some of the, you know, common mode software failure. I was in the early '90s working on the analog to digital upgrades. And we did a guidance document. And that's being looked at again now. But I mean, we've made some progress. But I mean, we need to make a lot more, because the analog is getting obsolete.

MR. LEEDS: Thank you.

MR. PIETRANGELO: And you can't even find people to service the stuff. I mean, they might have read about it in text book, right?

(Laughter.)

MR. PIETRANGELO: History. When they're doing history.

MR. LEEDS: With a slide rule.

MR. JOHNSON: Yes, and I think the obvious advantages, potential advantages of digital are certainly there. And I think the staff shares, if you will, an appreciation for Eric's guys, Glen's guys, folks, guys and gals -- share an appreciation for what

can be done with respect to digital. Of course, our concern is to make sure that we have built, in terms of the design, sufficient redundancy and independence that we don't set up a situation that could result in things that are unsafe for the plant.

And I know with respect to some of the designs, particularly in the new reactor area where we're talking about a plant that has a broad use of digital across the plant design, that creates a situation where we want to make sure that we understand what that architecture is like, that we have in fact been able to satisfy ourselves with respect to the potential safety of that design in terms of how it is implemented.

Again new reactor challenge. Recognizing that at the time that you approve the design you may be years from when the actual plant is built. And so how do you approve an infrastructure or a design that provides a structure with respect to digital instrumentation and control that then enables at the time when the plant is built us to have assurance --

MR. LEEDS: Right. Good point.

MR. JOHNSON: So there are challenges. Recognize that there's work to do on both the industry and licensee's part, applicant's part in terms of being

able to move forward.

MR. LEEDS: Well, thank you. We have time for a couple more questions.

This next one is both for the industry and the regulator, and this has to do what your perspective is on shutdown plants looking at delayed decommissioning, taking advantage of the safe store option. And the question more or less is pointed at public acceptance and how a licensee should go forward and proceed. Thoughts?

MR. KOEHL: Well, my perspective and, you know, just from feedback that also comes in through the NSAIC, I think each utility has to face that decision based on where they're decommissioning funds are and what they have in their decommissioning funds, where you are in the life of the plant. I mean, it's a lot different that, you know -- and I think, Mike, you said it, in 2009 we didn't think there would be four units shut down in 2013. I mean, it just wasn't on the horizon. So as the horizon changes and the information changes, I think you have to face where are you economically and is it the right decision?

But once the decision is made and in reality the fuel is taken out of the core, I think that's what we owe the utilities now, or I mean the regulator owes.

We got to get the regulations right so that it can move along and we don't spend unneeded dollars on decommissioning because we're holding resources. You know, it's everything from cyber to security. You know, what do you secure now? The fuel is all over. You know, can you reduce your security? Can you reduce your security force? EP. You know, there's no longer, you know, core damage. You're now talking it's in the pool and the structure is different.

So I think those are the items that we've got to get them right because there are decommissionings. And if you read, there's other ones that may come just purely based on the economic situation that we face.

MR. LEEDS: Sure.

MR. PIETRANGELO: And it's been demonstrated that both safe store and more immediate decommissioning can be done Safely. Obviously if you've got two units on the site and one's retiring and the other one's still operating, it makes perfect sense to go into safe store and wait until the second one's ready. So we like the flexibility given that they're both safe. And as Dennis said, you know, we have to pay attention to the decommissioning funding as well. You don't want to unnecessarily draw from that fund

waiting to do certain things. So I think we need to look at that.

MR. JOHNSON: Yes, and I guess the only thing I would add to that is I -- Commissioner Svinicki I think fielded this question, and I think she did it very well. You know, the regulatory structure is such that either option is viable. Plant has to be decommissioned by 60 years. There's a reason for that, a rationale for why that is in the regulations. That's appropriate. It's a decision that I think the licensee has to make.

There is opportunity of course for public involvement, stakeholder involvement in terms of understanding, providing comment on the plans of the licensee associated with the post-shutdown decommissioning activities report. And when that report is received, you know, we provide an opportunity for stakeholder to weigh in. Of course, you get closer to license termination, there's another opportunity for stakeholder engagement, involvement. Stakeholders' views are important, of course, in terms of how that decommissioning is exercised, but I think from a regulatory perspective we're comfortable with the flexibility provided and recognize that licensees need to be able to make the decision based on how they

want to do that.

MR. LEEDS: All right. Time for a last question. I have a number of questions here involving SMRs. So basically I'm just going to ask the question as broadly as possible and let you guys take it wherever you'd like.

The future of small modular reactors, does the industry see this as being viable in the commercial market? Any interest in the U.S. industry? And for the regulator, how is the safety review going for SMRs and where do we see SMRs going?

MR. PIETRANGELO: Yes, and yes.

MR. LEEDS: Thank you, Commissioner.

(Laughter.)

MR. KOEHL: I probably shouldn't answer that.

MR. JOHNSON: And what was my question? Can I answer my question with a yes/no? What was my --

MR. LEEDS: Any safety concerns with our review of SMRs to date?

MR. JOHNSON: No, I -- well, so, you know, we're still in I guess pre-application stage with respect to the SMR applications that we might receive. We've worked to identify policy issues and move those

forward. We think we're on a good path to move forward with respect to those. This is another area where we're trying to read the tea leaves with respect to what might actually materialize, recognizing that we certainly want to be in a position to be able deal with what actually materializes. We haven't seen anything. We haven't done the safety review, obviously, engaged in pre-application work, so it would be premature to judge the safety of those designs.

But I will say my own personal view is that it holds great promise. Now, we've got to get an application and we've got to work through the process where we conduct those reviews obviously and ultimately end up with a decision moving forward. What actually materializes, I don't know. Predicting what will show up in small modular reactor space is continually changing, so we're trying to make sure that we're resourced and ready to deal with it when it materializes.

MR. LEEDS: Great. Tony, you wanted to --

MR. PIETRANGELO: Well, you know, I'm hard on your guys sometimes, but in this case I sympathize with you because market conditions change, people playing change, and you're trying to make sure you've got something in place to deal with whatever comes your

way, and it changes all the time. So, I'm glad you're there doing your jobs as federal servants, you know? Thank you.

(Laughter.)

MR. LEEDS: Well, this will conclude our panel.

(Laughter.)

MR. LEEDS: I want to thank the audience for your questions. And if you'd please join me in thanking the panelists for their answers.

(Applause.)

MR. LEEDS: Now, everyone, we're going to take a break for lunch and we will reconvene in the technical sessions at 1:30. Thank you, all.

(Whereupon, the hearing was recessed at 12:00 p.m.)