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U.S. NUCLEAR REGULATORY COMMISSION

BRIEFING ON THE PROGRESS OF THE TASK FORCE REVIEW OF NRC PROCESSES AND REGULATIONS FOLLOWING THE EVENTS IN JAPAN

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TRANSCRIPT OF PROCEEDINGS

Public Meeting

Before the U.S. Nuclear Regulatory Commission:

Gregory B. Jaczko, Chairman

Kristine L. Svinicki, Commissioner

George Apostolakis, Commissioner

William D. Magwood, IV, Commissioner

William C. Ostendorff, Commissioner

APPEARANCES

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P R O C E E D I N G S

CHAIRMAN JACZKO: Good morning. Before we begin today's meeting, I wanted to take a moment to acknowledge the passing of a former NRC Chairman, Lando Zech, earlier this year. Before his time with the NRC, he served 39 years with the U.S. Navy, retiring as their chief of Naval Personnel. And his life will be celebrated with services, today I believe, followed by internment with full military honors in Arlington National Cemetery. I just wanted to take a moment to honor his service to the Commission and ultimately, to the nation.

I'll now turn to the subject of today's meeting, the systematic and methodical safety review that the Commission has launched in response to the events in Japan. Although we remain at a very early stage in the process, the task force we'll be hearing from today will be discussing their short-term, 90-day review and how that's progressing and ultimately, their next steps.

Among the broad range of issues they'll be examining are flooding, seismic, and other natural hazards, station blackout mitigation strategies, and emergency preparedness. And this is the first in a series of meetings that will focus on the task force's short-term, 90-day review. There will also be a public Commission meeting at the 60-day and 90-day mark, so approximately 30 days from now and then another 30 days following that, to keep the public informed of additional developments as we do this short-term review.

Ultimately, the task force report will be made public, and I know Charlie is going to talk a little bit about that today. Unfortunately, because of the time constraints with doing this quick review, we've not had the opportunity to have the kind of public participation we normally would have in an agency action.

But the purpose of this meeting and the following meetings we'll have are to serve as an opportunity for the public to hear about the progress we're making, the issues that are being looked at, and to provide some insight on the direction that the task force may be heading.

As we transition into the longer term review, the Commission has asked the staff to more fully engage stakeholders in a way that unfortunately the time constraints of this short-term review do not allow.

I just want to say that this is going to be a very important meeting. This is the first opportunity for the Commission to hear from the task force. This is the first opportunity for the public to hear from the task force. And so I certainly look forward to hearing from you on what issues you're identifying, what processes you'll be taking, and fundamentally, I fully expect that there are going to be lessons that we are going to learn. And likely, because of those lessons, we'll be making changes to the way that we do business and the way the industry does business in this country.

One of the issues that I'll certainly be keeping a close eye on, as we go forward, is the importance in the time frame in which we make changes. I think it will be very important that whatever changes come out of this process, we do these in an expedited way. I think it will not be acceptable if 10 years from now, we're still working through the recommendations of this task force or even the long-term task force that comes out of this process, so I certainly will be keeping an eye towards how we can implement whatever recommendations the task force does provide to us, in a very expedited way, to put these issues to rest as quickly as possible. I think that will be important for stability for the industry, it'll be important for the agency and ultimately, for our public stakeholders. So

with that, I would offer my colleagues an opportunity to make any opening comments. Commissioner Magwood.

COMMISSIONER MAGWOOD: Yes, just a few brief comments. You know, it's been two months since the earthquake and tsunami in Japan brought so much death and destruction to that country and caused damage to Fukushima Daiichi reactors. And, as you know, the work to stabilize those reactors is still going on, and our thoughts and hopes go with those who continue that difficult work.

You know, we today are here to discuss what we can learn from this experience. And I wanted to sort of highlight the fact that I really believe that we brought our A-team to this task. You know, this agency has the best expertise in nuclear safety in the world, bar none. And we've brought our best and brightest to this work. So I, you know, I thank Dr. Miller for leading that effort.

You know, while this task force continues its work, I wanted to echo Chairman's comments about public participation, you know, as this work goes on in the short-term task force. And I think it's very important that the Commission work with the staff to consider the best way to engage the public as we go forward, because I think it's very important to make sure that our stakeholders have a chance to have a voice in this process.

I also think that, you know, we have other things that are beyond this task force's mandate that we should also consider; for example, communications that we've had with stakeholders, the public, and the states in the early days of this event. I think there's some lessons learned to be had there as well. And I also think there's some lessons learned beyond where our agency

can cover, but I wanted to highlight the fact that this incident also showed that there's some interesting aspects to the international framework to respond to emergencies. And we learned some lessons there, and I think that, you know, that we and others in the United States Government should give some careful thought to that and maybe make some recommendations for the future. With that, I look forward to hearing what the task force has to say, and I appreciate all your work on this. Thank you.

CHAIRMAN JACZKO: Thank you. Okay. With that, Bill, I'll turn it over to you.

MR. BORCHARDT: Good morning. Before we get into the activities of the task force, I'm just going to spend a moment talking about the situation in Japan, just to provide a brief update. I'd say that we are still -- well, TEPCO and the Japanese government are still in the active accident mitigation phase of their activities. While plant conditions are not exactly stable, you might say that they're static. The core vessel containment, spent fuel conditions, while they change, they're not changing at such a rapid pace that it's causing any kind of undue concern.

There have been some new issues identified. There's been some structural conditions that have recently been identified that are receiving increased focus and attention. I would describe the feed-and-bleed situation that they're using to control temperature inside the reactor vessels as something that deserves considerable, continued attention. It's not steady state yet. It requires constant monitoring and adjustment.

There is also the situation of unfiltered and unmonitored release paths that are continuing at various degrees amongst the three units: Units 1, 2,

and 3 that were operating at the time of the event. And then, of course, the remaining challenge is still that the reliability of instrumentation complicates our understanding of the exact plant conditions at any given time.

TEPCO has initiated a multi-phase effort, a recovery plan, that has a number of important activities embedded within it. The enclosure over the units is beginning. Right now, they're doing the enclosure over Unit 1. They're working on a number of ventilation modifications to improve conditions inside of the plant, installing closed loop cooling for Units 1 and 2 on the spent fuel pools, and then engineered systems around the facility to help contain those releases that I mentioned earlier.

There's at least six challenges that I would say are of concern for continued operations and recovery activities. The first is the radiation fields inside the reactor buildings, which are certainly going to impact the rate that work can be done and the accessibility of various parts of the plant and pieces of equipment. Similarly, high humidity levels inside of the reactor building is going to be problematic for the workforce. There's considerable amount of debris inside of the spent fuel pools and in the turbine buildings, much of this caused by the tsunami, and also some of it from the hydrogen explosions that occurred shortly after the events started.

I mentioned that there are some structural concerns that have recently been identified, at least potential structural issues in the Units 3, 4 spent fuel pool. There's the challenge of what to do with the radioactive waste that has been generated and is being held in various tanks and locations around the plant. And then there's the natural challenge that -- they're now entering into the rainy season, which will just complicate more the activities around the plant. I

mean, there's an immense cleanup challenge resulting from the tsunami by itself, and then much of the soil and the cleanup that needs to be done has the added complication of it being a radioactive contamination area as well.

But overall, I believe the Japanese are making progress on addressing these issues. They have a well-organized plan and are moving ahead deliberately.

I'd like to also add my thanks to Charlie Miller and the entire team that we've put together on this task force. They've been working on this very diligently, and with that, I'm going turn over to Marty, who will begin the presentation and Charlie will give the details.

MR. VIRGILIO: Thank you, Bill. Good morning, Chairman, Commissioners. What I want to do is talk a little about the status of our activities subsequent to the event itself. And as you know, on March 11 the event took place and we activated our emergency response facility, went into the monitoring mode, and subsequently dispatched a team out to the site. Our first interest was in ensuring that the tsunami itself was not going to have an impact on our licensees in the Pacific and on the west coast. And subsequently, we've been providing support to the Ambassador, the citizens of Japan, and the government of Japan.

Subsequent to the event, the nuclear power industry reacted and took a number of actions to assess the capabilities of the nuclear power plants to respond to events such as occurred at the Fukushima site. And we began our activities. I think the first was the Information Notice that we issued on March 18. This provided a description of the event, as best we knew it at the time, and highlighted to the nuclear power industry the underlying regulations that we have

in place to ensure that nuclear power plants are designed and operated in a manner that would be responsive to such events and preserve safety.

Subsequent to that was on March 31; we issued a similar Information Notice, and that Information Notice was directed to our fuel cycle facilities, so they would have the same information as the reactors. If you go to Slide 4, the next set of actions that we took were Temporary Instructions. Temporary Instructions are basically -- provide guidance to our inspectors on activities that we'd like them to conduct, in terms of gathering information and assessing compliance with our requirements.

The first of the Temporary Instructions we issued was on March 23, and that TI was focused on independently assessing the adequacy of the actions that licensees had taken in response to the Fukushima event. And we went out and we asked our inspectors to look at what licensees were doing with respect to the capabilities and strategies they had to respond to large fires, and explosions respond to station blackout events, respond to flooding events. The inspectors actually conducted walk-downs of the facilities, look at the equipment, look at the operability of equipment, looked at the procedures, looked at the maintenance, looked at the training and everything that surrounds the capabilities that were put in place to address these kinds of events.

We're now getting -- from that first TI we're getting the inspection reports back. I think the final reports are due back today. And we're getting some insights from those inspection activities, with respect to what they're finding.

The second of the Temporary Instructions we issued was on April 29. That instruction was, as a result of Charlie's task force, and the need for

additional information with respect to severe accident management guidelines. These guidelines were put in place in the 1990s and they were voluntary industry initiatives, so they didn't have what we consider and use in our jargon a regulatory footprint, and hadn't been inspected and followed up on. So, in order to assist the task force in their effort, we've got the inspectors now out in the field, looking out the adequacy of these severe accident management guidelines and how they've been maintained over the years.

The third in the series that is not on this slide is a bulletin. Yesterday we issued a bulletin to the nuclear power industry, and that bulletin requests information, specifically with respect to the licensees -- what the licensees have done to implement strategies to respond to large fires and explosions. If you recall, following 9/11, we issued a series of orders requiring licensees to take a set of actions to respond to large fires and explosions, beyond the design basis of the plant. We subsequently codified those orders in a set of regulations and we've inspected those over time, but we wanted to go back out and check again to make sure that we understood clearly what licensees had done. So, there's a set of actions required by that bulletin, both short-term action and longer term actions.

The first set of actions, we're asking licensees to verify that equipment and staff are capable of performing the required actions. And the second set of requests for information, basically, is a longer term, asking licensees to provide us information on the maintenance testing, offsite support, and other features that were required by that regulation.

If you go to Slide 5, what I want to talk about next is what Charlie's been tasked to do, Charlie Miller and the task force. On the 23rd of March, the

Chairman, on behalf of the Commission, tasked the staff to establish this task force to perform a systematic and methodical review of our processes and regulations in light of the events at Fukushima. On March 30, the EDO then took that tasking and converted that into a charter for the task force, and we established the task force in response to that tasking memo and charter.

The task force, as we know, is led by Charlie Miller. I'd like to -- as Commissioner Magwood's "the A-team," we have Gary Holahan, Jack Grobe, Dan Dorman, Nathan Sanflippo, and Amy Cubbage on that team. And we've provided their resumes for you, for your benefit. But it certainly is the A-team.

If you go to Slide 6, the task force in the charter was directed to evaluate available technical and operational information on the reactors, including spent fuel pools, in light of the accident at Fukushima. They're to develop near-term recommendations and suggest a framework for us to move forward into the longer term, if there are any additional information or issues that we need to address.

They're doing information gathering and as several of you noted, we're not involving all of the stakeholders at this phase, but we have involved certain stakeholders in the near-term, in order to gather information that they need to conduct their assessment. And as the Chairman summarized, they will provide a report with their recommendations to the Commission, outlining any policy issues or operational issues that we identify, and that will be provided to the Commission in July.

So with that background, I'd like to introduce Charlie Miller and allow Charlie to tell you a little bit more about the work of the task force. Thank you.

MR. MILLER: Thank you, Marty. Good morning. As Marty mentioned, I've got a very experienced team here. We kind of added it up and determined that we've got collectively over 150 years of regulatory experience among us, and I think the team is fairly diverse. And I can assure you that as we go through our deliberations, we have a lot of lively discussions and have to come to agreement on issues that sometimes takes some time. So I feel very fortunate at that, because I get a lot of different perspectives and views in what we're doing.

If I could have Slide 8, please. I thought it was important to give you our current assessment, as we stand today. And as we stand today, the task force has not identified any issues that we think would undermine our confidence in the continued safety and emergency planning for nuclear plants in this country. That said, we do expect that we're likely to have findings and recommendations that will further enhance the safety of the nuclear plants in this country.

Slide 9, please. The Commission instructed the task force to be systematic and methodical as we went through our thought process. In doing this, the task force has tried to take the lessons learned from past efforts, especially the lessons learned from the TMI lessons learned. We feel that we're more focused and structured now, as an agency, than we were at the time of TMI, and that framework is much more mature than it was at the time of TMI.

The task force is screening issues to ensure that there is a nexus for what happened at Fukushima and that the issues that we look at are related to our insights from what happened at Fukushima. But we want to make sure that our focus isn't so narrow that we miss some related insights that we might get. For example, flooding can occur from other ways than tsunamis.

In our report, we're going to give a very high-level narrative of what happened at Fukushima, but only to the extent that it's necessary for us to inform our insights and our recommendations. A longer term review will look at the sequence of events in more detail once that's known, and that's probably going to take a considerable period of time.

The principles that we're really following start with defense-in-depth. It's been an agency principle since day one, and we follow it every day. We want to make sure that we have the appropriate balance in what we're looking at between protection, mitigation, and emergency preparedness in our requirements.

Slide 10, please. In keeping with that approach, the task force thought about how we would be making our recommendations. We identified several existing policies and guidelines to help frame the way that we thought and the way that we did our business. We looked at existing regulatory policies and guidelines such as safety goals. I've mentioned defense-in-depth, existing requirements in our regulatory analysis guidelines. Consistent with the principles of good regulation, the task force is striving to develop a set of recommendations that will further enhance the coherence, predictability, clarity, and transparency of our regulatory requirements, programs, and processes.

Slide 11, please. During the task force deliberations, the importance of severe accident management guidelines has been highlighted. Marty has already touched on that. SAMGs, as they're known, were implemented as a voluntary initiative by the industry in the 1990s. And they're not covered by our regulations. Consequently, we do not evaluate them as part of the agency's routine reactor oversight process. Marty mentioned that the task

force has already taken an action. At our request, the Office of Nuclear Reactor Regulation put out a Temporary Instruction, asking inspectors to go take a further look at this. I'd like to thank NRR for their timely issuance of this. The results, we expect to get back towards the end of May. And we very forward look at this, as task force did, for further insights to help us formulate our recommendations.

We wanted them to be able to look at the availability and the maintenance of these SAMGs. The training and exercises are conducted to support them. And again, I think that this will go a long way in helping us try to formulate some recommendations, and you'll hear me talk about a little bit more as this presentation goes on.

We also recognized the benefit of making the public knowledgeable of some of the efforts that took place following 9/11. Following 9/11, the agency worked with the industry, and there was some industry guidelines that were put in place to meet the regulations that we put in place. And we've asked that these be made public, because I think it'll help the public get a better understanding as to some of the things heretofore have not been made public. While these guidelines do not give the specific of some of these features, I think it helps a lot to know that U.S. plants do have some additional features added as a result of 9/11. This information also may be useful in international collaborations that we'll be doing from here forward.

Slide 12, please. The Commission directed the task force to address operating and new power reactor issues in their spent fuel pools. We'll identify issues that need to be addressed in the near-term and in the longer term, as has been mentioned. The applicability of the lessons learned to some of our other licensed facilities will be taken on in a longer term review, and that's not

part of the near-term task force review. With regard to the -- on agency's response to the incident in Japan, that's being addressed by our line organization, and NSIR is not part of the task force's review.

Slide 13, please. Let me now get into some detail about the areas of focus of the task force efforts. Consistent with our systematic and methodical approach and the fundamentals and principles of defense-in-depth, the task force has identified the following area of focus. The first area of focus is on protection from design basis natural phenomena. Then we've extended our focus to consider beyond design basis natural phenomena. Again, we're looking at extended station blackout. If you found yourself in an extended station blackout, what can we do to better protect? Finally, we're focusing on emergency preparedness as a final line of defense to protect public health and safety.

Now, we're also looking internally, as a task force, to see where the agency itself and the staff itself may be able to change the way that we do business with regard to our own internal programs, and where potential enhancements could get made. I'll expand upon each of these as the presentation proceeds. Slide 14, please.

First layer of defense-in-depth is protection. The Fukushima event reinforces the importance of protection from natural phenomena. In light of the Fukushima event, the task force is evaluating design basis requirements for seismic and flooding events and the associated safety margins, including how those requirements and margins evolved over time. In addition, we're evaluating design basis in the margins for external events that could affect large areas of the plant that might be affected from an extended station blackout or the loss of the ultimate heat sink. We're not limiting ourselves to just the earthquake-

tsunami pair. As I mentioned, flooding can occur from other phenomenon. So we're looking at things like seismic events followed by dam failures, seismic events followed by fire, large amounts of precipitation that could cause a dam to be compromised, et cetera.

But we also wanted to be able to acknowledge, however, existing agency efforts that have been ongoing and started before the event at Fukushima. Generic Issue 199 is addressing the updated seismic hazards in the Central and the Eastern United States. There's going to be a new generic issue as it relates to dam failures. The task force has tried to look at these activities and other ongoing agency activities to see if the focus on those activities is sufficient in evaluating their effectiveness in addressing the Fukushima lessons learned. And if not, the task force will make recommendations for how they might be enhanced.

Slide 15, please. The task force is evaluating the survivability of AC power to provide core and spent fuel pool cooling during and beyond design basis external events. This includes an evaluation of AP power sources and their distribution. It includes support systems, things like diesel fuel transfer, tanks, cooling, et cetera. We also want to be able to include in our thinking the availability of alternate AC sources for station blackout and other available AC sources that could be utilized. The task force is evaluating these issues to explore existing and potential capability to maintain AC power during beyond design basis events.

Slide 16, please. The next layer of defense is mitigation. We're very focused on ways and looking at mitigating the consequences of a long-term station blackout to first, prevent core and containment and damage, and

secondly, to prevent spent fuel damage in spent fuel pools, and any potential releases. Fukushima highlighted the challenges regarding long-term station blackout and the ability to cope until offsite support can be effectively implemented. I'll give you some more details of this in the forthcoming slides.

Slide 17, please. We're looking at the availability of AC independent heat removal capability. Reactor core isolation cooling, auxiliary feed water for example. We're looking at strategies to ensure that station blackout event is not further complicated by things like the loss of reactor coolant pump seal integrity in PWRs. We're looking at effectiveness of containment venting strategies. Hardened vents have been put into the American -- U.S. Mark I BWRs. These are there as an intended function to prevent containment overpressure failure. Hydrogen control measures to prevent containment failure in the event of core damage is an extremely important subject. Mark I and Mark II BWRs are inerted with nitrogen. Mark III BWRs and ice condenser PWRs have hydrogen igniters that have backup power. The design of large dry PWR containments is such that they're supposed to be able to withstand hydrogen detonations. So we're trying to take a step back in looking at all of that, and see where we stand in the U.S. industry and as a regulator. These are features that are in our plants today, but I think it's worthy of a look.

Slide 18. For spent fuel pools, we're looking at heat removal capability to prevent fuel damage. We're looking at water cooling, ways to get make-up water, sprays, things of that nature. We're looking at the fact that if you lost water, would there be air coolability maintained in the pools. We're looking at things liked reduced fuel inventory in spent fuel pools to minimize the heat load and enhance air cooling. We're also looking at considerations to mitigate the

releases in the event of fuel damage. The task force is exploring whether hydrogen control in spent fuel buildings is needed as a defense-in-depth measure, the capability to filter and monitor releases, and the capability to scrub releases by sprays. All of these things are issues that have come to bear that we're trying to examine.

Next slide, please. We've identified what we consider to be cross-cutting considerations for evaluation, and let me elaborate a little bit on that. The task force has identified three areas, here, that are somewhat related. The emergency operating procedures are for design basis transients and accidents. They're included in the NRC requirements. With regard to station blackout, there are procedures for coping and recovery in a beyond design basis scenario. These are also part of our rules through the station blackout rule. As we've mentioned a number of times in this presentation, the severe accident management guidelines were a voluntary enhancement. But we've noticed, in our examination, that these are limited to core and containment and do not consider the spent fuel pool. So, we looked at the extensive damage mitigation guidelines that resulted from our efforts after 9/11 where there could be a loss of a large area of the plant due to explosion or fire. This, again, is beyond design basis.

So while we thought about these things, and we've looked at these things, and we've put things in place prior to Fukushima, one of the things that the task force is really looking at is are they really integrated together in any way? And is there a better way to integrate them together? You have various levels of training. You have various levels of requirements. You have various levels of procedures and configuration control. So we're trying to look at the

integration of these, or whether there could be better integration of these, so that you would get a more seamless response if you should ever experience a severe accident.

We're looking at issues as do the control room operators in a tech support center have adequate information to monitor and mitigate beyond design basis events. Spent fuel pool level, for example, is one issue. Survivability and backup power. Are the expectations clear with regard to command and control and decision-making? Transition timing from the operators in the control room to the TSC, decision points for initiating requests for offsite help. One of the advantages that we do have in this country is that -- as part of our regulations, 50.54(X) does allow for a licensee to take an emergency action immediately, even if that action causes them to have to violate license conditions or Tech Specs -- if they feel that public health and safety protection is imminent. These actions, however, have to be approved at a senior reactor operator level as a minimum. So we're trying to look at all of that together to see where the command and control issues are and if there's anything that needs to be further enhanced in that regard. Next slide, please.

Emergency preparedness. The third level of defense-in-depth is emergency preparedness and the task force wants to make sure we take a thorough look at it. As Fukushima has taught us, it was a situation where you had major infrastructure damage. Evaluation of evacuation and sheltering following natural disasters with a large amount of infrastructure damage is something that we need to look at a little bit farther. Also, if you look at the way that we've analyzed accidents in the United States and the way that we deal with them, it really focused on a single unit being affected. Fukushima is a situation

where multiple units were affected at the same time. So our EP requirements focus on a single unit event. The size and staffing for emergency preparedness is really based upon a single unit event, so in many cases at multiple unit sites, resources that could be brought to bear to help fight the problem at that single unit may be taken from a multiple unit. And if you're dealing with a multiple unit event at the same time, you have considerations with regard to adequate staffing, how to triage, who makes the decisions on how to triage, and how you go about proceeding with what you need to do first.

Other impacts of long-term station blackout. The ability to provide emergency notification when communications would be very damaged. The ability to transmit plant data to licensees is extremely important for the people that are in the emergency operation facilities and emergency operation centers for the state to have continued information so that they're better informed and so that the state and locals can make better decisions with regard to protective actions. The availability of real time and on-site and offsite radiation measurements during accidents is an area that we're looking at.

Finally I'd like to spend a moment on the appropriate use of potassium iodide. Information education regarding radiation response decision-making and the appropriate use of KI is an important subject. If you look at the days following Fukushima, even in the United States, there were various levels of information being given out about the prophylactic use of KI, not all of which was prudent. And I think that we need to take a look at whether further education in that regard is necessary. Next slide, please.

Looking inwardly, we're trying to take a look at our own regulatory framework and how well that we consider within our regulatory framework events

that go beyond the design basis. Looking at reactor licensing issues, operator licensing issues, reactor inspection program -- does it need to be refocused anyway? Should we have additional inspections in certain areas? And we're trying to take a look at our evaluation of operating experience program. We do an awful lot of work in that area, but are there better things that we could even improve upon with regard to looking at domestic and international events that might help us learn some lessons before an event happens? We're trying to examine areas for possible enhancement of information access and integration across technical organizational boundaries. Let me explain for a minute what that means to us.

As part of our effort, we've had an opportunity to talk to a lot of staff. And we have a lot of great expertise in this agency. But in other forums, we've many times talked about how the agency has gone through a transition with many of our more experienced people having retired, a number of our staff have less than five years of regulatory experience. We have a very bright, dedicated staff, but as they gain more experience, it's important that people who are working on related areas talk to each other and understand what they're doing in these related areas. You might have someone who's an extreme expert, for example, on diesel generators or spent fuel pools, didn't know certain aspects of it, but are they talking with people who are looking at other aspects of it? People who are very adept in looking at adequate cooling in spent fuel pools, and what would happen if you lost adequate cooling? A better focus perhaps on the integration of people who are looking at some of the severe accident consequences following a 9/11 type of an event. There are areas that I think that we could possibly make some recommendations on that we're still trying to gel.

Let's go to slide 22. I think it's important to try to explain how we're gathering information. As I've mentioned, we've had the opportunity to interview dozens of agency experts on a wide variety of technical topics: seismic, tsunamis, flooding, spent fuel pools, hydrogen control, emergency preparedness, EOP SAMGs, emergency mitigation guidelines. We've had the opportunity to continue to get the insights from our coverage in the operations center and our site team in Japan, and I'm fortunate to have Dan Dorman on the team who spent some time in Japan as part of our site team. We've had the opportunity to talk to FEMA for any insights that they might have for emergency preparedness. And we've had the opportunity to gain the insights by understanding how INPO is going about their efforts with regard to gathering information.

That said, and while we've talked a little bit in this meeting about the limited time we've had for stakeholder input, I want to assure you we're not working in a cave, okay. There have been a lot of published articles, Congressional testimony, correspondence to the agency from various stakeholders and concerned public citizens about the affairs following Fukushima and the U.S. plants. We're trying to make sure that we take a look at all of those as they come available to us to see if insights that we get from that can better inform us in our decision-making process.

We've already begun some international interactions. I've had the opportunity to attend the NEA Steering Committee -- Nuclear Energy Agency Steering Committee meeting recently where the Japanese made a presentation. I also had an opportunity to talk to them outside of that meeting. Gary Holahan has chaired the MDEP Steering Committee where we also had presentations by the Japanese. Various members of the NRC staff have had a number of

interactions from various Japanese delegations and have an opportunity to give us insights from that. But we're trying to focus on where those insights take us with regard to what we can learn for U.S. plants. As a task force, as we said, we're not focused on the specifics of every single day of what's going on in Fukushima. That's being handled in the line organization. Next slide, please.

Well, what are our next steps, are the Chairman has mentioned. Our next meeting and update will be in the middle of June where we'll give you a status briefing and if I could give you a little bit of coming attractions for that briefing as we say it. By then we'll have the results of the both Temporary Instructions and how those insights may help better inform us with regard to our recommendations. If we identify any other prompt task force actions that were needed, we'll report that at that time. Further, our near-term evaluation of lessons learned from Fukushima will give us additional insights I think we can report at that time as we formulate our recommendations from the information that we've gathered. And then finally, we hope to give you at that time a better vision for how we would proceed in the long term as an agency for those issues that are more appropriate for long term review and consideration. Finally, our task force report will become publicly available as we move towards the July Commission meeting.

Chairman, Commissioners, that concludes my presentation and we'll be happy to take your questions. Thank you.

CHAIRMAN JACZKO: Well, thank you, Charlie, and Bill, and Marty for a very informative presentation. We will start our questions with Commissioner Svinicki.

COMMISSIONER SVINICKI: Thank you, Mr. Chairman, and I

thank you, Dr. Miller, Charlie, for agreeing to lead the team and for the team's hard work, and as you mentioned, not working in a cave. There are an awful lot of NRC employees who aren't on the team who are supporting you in that work, so I'm very grateful for their, I think, what is a very strong, both professional and personal commitment to the work that they're doing, so I'm grateful for that. The last time the Commission met in the days immediately following the events I had made a comment about faith in nuclear technology maybe being shaken, but that we don't regulate and we can't respond on the basis of faith, that has to be on the basis of facts. I had the opportunity yesterday to be at an event where Chairman Jaczko was speaking and in response to a question he received, he had an insight that since he didn't use it in his opening remarks, I'll repeat it here because I think it's very, very important.

I think the question he was asked had to do with the many international meetings that have been called in the coming months, and it had to do with what is the specific agenda and objective of the various meetings that Chairman Jaczko will be, I'm sure, representing the NRC at. And he gave an answer about the fact that at some point, there needs to be a mutually agreed upon internationally accepted set of understandings and facts about the events that occurred there. And since, in Japan, they are still in a process -- as we've talked about -- getting to the stabilizing point and responding to the events. This isn't the moment in time where we perhaps have that kind of internationally agreed to -- and a set of -- a chronology of events, a set of facts on the ground that we all know, we're very confident of, and that there's no longer uncertainties associated with. And it will take time to get to that point. And I think that's important to repeat here, again, I thought it was an insightful response to the

question that the Chairman received yesterday. So, the international community will begin to organize itself to achieve that mutually agreed to set of facts of what occurred there.

And I -- Charlie, you mentioned in your presentation, that you have begun to talk to international counterparts. Is it too early to begin organizing how we will get to that more searching examination of a chronology or set of events given that, again, Japan is very focused on the events on the ground there? Or do you see the beginnings of any of that -- or maybe Bill Borchardt would answer that -- starting to take shape now? How will we get to that set of facts?

MR. BORCHARDT: There's a meeting that's been called by the Director General of IAEA, Mr. Amano, that's going to be held the week of June 20. That's -- in part, as I understand, they're currently planning a ministerial meeting but then also, in part, a more detailed discussion of some technical experts. I believe that what we'll see coming out of that meeting is more indications of what an overall plan is for the international community with the participation, obviously, of IAEA and the Nuclear Energy Agency, and then all of the member states of the IAEA participating -- that out of that will be kind of this umbrella view -- if you will -- of how we will address it internationally.

I'm aware that the IAEA has put together a team of international experts that is going to be going to Japan to begin that kind of multi-national assessment of plant conditions and perhaps contribute to the chronology that's being developed in Japan. And I would expect, coming out of this June 20 ministerial meeting, there'll be a number of other subsequent international meetings. One that's already been identified is that the Convention on Nuclear Safety -- which is normally held every three years -- had decided this last April to

hold a -- what they're calling an “extraordinary meeting,” and that is that -- in, I believe it's going to be in August of next year -- a special meeting that will focus on the international response -- member state by member state, of all the people -- of all the countries that belong to the Convention -- on what they've done individually and collectively in response to the events of Fukushima.

COMMISSIONER SVINICKI: If I could ask -- I'm really just sincerely unaware of this. But we talk about the set of actions that were taken in the United States that were ordered after 9/11 for nuclear power plants, that were in response to the measures that can look at catastrophic events and have some application, of course, then to natural disasters. And we’ve talked -- the NRC has talked a lot about this in the days since Fukushima. Are you aware -- did any other country's nuclear safety authority look at the U.S. experience of 9/11 and put in place for their power plants anything akin to what we had done? I'm just -- I’m genuinely not aware if other countries took action based on our 9/11 events for their nuclear power plants -- in terms of catastrophic -- dealing with catastrophic events.

MR. BORCHARDT: Yeah, I'd have to give you a complete answer after some specific review. But my recollection is that just about every country looked at the events of 9/11. They looked at what we did -- and I know we've actively shared with a select member of countries, specifically, what we've done, the kinds of analyses that have occurred in the U.S. -- and many countries have, in fact, taken similar actions. I don't believe there's anyone that's done anything quite as comparable as we've done, but there are a number of countries that I am familiar with that have taken specific measures.

COMMISSIONER SVINICKI: And I have been aware of some

countries certainly expressing an interest in how we approached our analysis and evaluation after those events. I'll just reflect -- we have Senator Carper, who is the Chairman of our Oversight Sub-Committee in the Senate, and he had said that one of the great regrettable outcomes of these events would be if we failed to learn from them. So I think, much as we've tried to share after 9/11, I imagine there'll be a similar international spirit of coming together and really wanting to learn these lessons after these tragic events.

If I were -- to turn now to a couple of specific questions that I had. Charlie, you had mentioned that the task team's efforts are very separate from our Office of NSIR, looking at lessons learned in terms of the kind response we mustered internally, operation center -- and again, some of these may be very kind of procedural things of how we conducted ourselves. Is there a timeframe for NSIR's review? Is it going to be at all coincident with any of the lessons learned or recommendations that you bring forward, or is it entirely a separate effort?

MR. VIRGILIO: Commissioner, it is running in parallel. It started while we were still in the operation center. And over the last -- I would probably say it was last month that we concluded the information gathering exercise from -- principally from people that stood the watches, and were interacting with the team as the event unfolded. I don't have a time -- a specific time as to when we would finish that, but it's probably along the same lines or timelines that Charlie's team is working to that we would have that assessment completed.

COMMISSIONER SVINICKI: Okay. Thank you. And Marty, I think you had referenced that we were starting to receive some insights from the results of the walkdowns that were done in response, I think, to the Temporary

Instruction or -- actually, INPO had initiated some walkdowns by licensees and now we've built on that through our efforts. Is there anything that you can discuss, just at the very highest level, in terms of even areas that would -- what areas are we getting insights from?

MR. VIRGILIO: Well, we'll have the inspection results completed today, I believe, and we'll do a complete assessment. But I can give you a little bit of anecdotal information I have from talking to Regional Administrators and NRR. And that tells us that none of the observations posed a significant safety issue, but there was -- there were observations that in some cases, equipment that was relied on would not start, that it had not been maintained, that procedures -- and these are anecdotal, they don't add it up at any one plant, but if you look across the entire fleet, there were some places where the capabilities to deal with the large fires and explosions, the station blackouts, design basis external events like the flooding, where there were discrepancies in terms of the procedures, the equipment, and the training.

COMMISSIONER SVINICKI: Okay. And that's again, as you said, anecdotal, or at a very high level. It sounds like the staff will be processing through in a more systematized fashion, exactly what we found there. So I appreciate you sharing at a very high level.

MR. VIRGILIO: And that information would then be provided to Charlie and the team for their use.

COMMISSIONER SVINICKI: Oh, okay, very well. And that is a good segue way to the very last item that I wanted to cover, which is -- Charlie, could you talk a little bit -- because we talk about your team, and I think it's interesting -- we talk about your scope, which is expansive, and you're looking at

a lot of issues. You actually have a very small team, so could you help me understand a little bit more? My perception is you're really tapping into -- and you credited NRR for some responsiveness and help -- but, could you just broad-brush explain how you're tapping into all the other areas and programs that are -- program support, because it just doesn't seem like something that a team so small could get done in the amount of time that you have. So, could you help me understand how you utilize the rest of the agency?

MR. MILLER: Sure. One of the things that we have got great support for is -- I feel I have all the agency's resources at my disposal. The Office Directors and Regional Administrators have been very cooperative. If we need to talk to someone in a certain technical area, the team makes a request, and we get a very timely response, and people come over and talk to us.

We have had many hours of discussions with them. A typical session can go two, three hours, where we go back and forth. We ask questions. They give presentations. It helps us to get a better understanding of what the state of affairs is now, and what the individual members of the staff are looking at with their efforts. And it gives us a better understanding with regard to how our own plants in the United States -- and as seen by our own NRC regulators who oversee them every day -- see how we are prepared and how our plants are designed to withstand design basis and beyond design basis events -- and where the staff, through what they're doing every day is assuring safety and where the staff, and what they're doing every day, are looking at the various issues, independent of what the task force is looking at. So we wanted to get the insights of what's already going on within the agency and where we might make recommendations if things should be enhanced in any way.

But it's been an extremely valuable because while we have a broad brush of experience on the task force, bringing in people who deal with particular issues every day can't be equaled. I mean, it's given us a tremendous amount of insight.

COMMISSIONER SVINICKI: Okay, that's very helpful. Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman. I would also like to thank the members of the task force for the great job they're doing, serving the Commission and the nation. I will start with a question that probably needs some clarification. If I wanted to play the devil's advocate, I would say we are allowing the plants to operate because they meet our regulations, and yet the purpose of the task force is to see how the regulations might be changed. So why don't we shut them down until we know?

MR. MILLER: Well, I guess the way I would answer that question, Commissioner, is first of all, you're right, we're allowing our plants to operate because they do meet our regulations. We think our regulations are robust. But we also consider ourselves, as a staff, especially a learning organization, and we always look for ways where safety can be enhanced where it makes sense. But as I went through in my presentation, we want to make sure that our process is disciplined this time and so if there are any areas that we would recommend where safety should be enhanced, it's going to have some real meaning and not just, you know -- if we look back to the time that TMI happened, a lot of what was put in post-TMI enhanced the safety of nuclear plants in this country, but it didn't -- we didn't have the structure that we have today with regard to the discipline

that we have to put in to looking at what regulatory enhancements need to get made.

COMMISSIONER APOSTOLAKIS: So it is then a preliminary conclusion of your team that we are talking about enhancements to safety.

MR. MILLER: Yeah. Right. Right. And --

COMMISSIONER APOSTOLAKIS: But we are safe enough already.

MR. MILLER: But some of these enhancements may not necessarily result in changes to our regulations. There may be some practical things though.

COMMISSIONER APOSTOLAKIS: But it is enhancements.

MR. MILLER: Pardon me.

COMMISSIONER APOSTOLAKIS: It is enhancements we're talking about. We're not talking about --

MR. MILLER: Currently from what we focused on we see it as enhancements. Yes.

COMMISSIONER APOSTOLAKIS: As you know there are many decisions that are made regarding changes to the licensing bases of existing plants that come under the umbrella of risk-informed initiatives. The Commission has safety calls, of course. And one of the metrics that we are using when we make such decisions for changes is the early release -- the probability in a year that we will have a large release early from the containment or through the atmosphere; the so-called LERF. Now LERF -- now, for new reactors we drop the "E" and now we are looking at the LRF: large release frequency. And I believe, in fact more than I believe I know, that LERF is calculated for an

individual unit, the release and then it has to meet a certain goal.

And like the Fukushima, though, shouldn't we revisit this and maybe stop talking about just early releases, because Fukushima shows that you can have a long-term release, a late release. And also consider all the units at the site, and how much they contribute to the release. And to include spent-fuel pools. In other words, what I'm saying is the large-release frequency should be a characteristic of the site, not of individual units of the site, including the spent-fuel pools. Is that a crazy idea? Is that something that the task force may give us some options to think about it?

MR. MILLER: I think, to answer your question, as I mentioned earlier, one of the insights that we did get as a result of Fukushima was, you have to consider, take a step a back and consider, what would happen if you had multiple units affected by some beyond the design basis event. So with regards to our insights I think we're trying to formulate where we go with that. And so I think it would be premature -- I don't think your idea is a crazy idea, but I don't think I'm prepared to be able to give you a specific answer to that.

COMMISSIONER APOSTOLAKIS: I don't think it's crazy, either.

MR. MILLER: Well yeah, but you need to think about it. You need to think about what it is, yeah.

COMMISSIONER APOSTOLAKIS: Yeah, sure. Oh no, that's all I'm saying.

MR. MILLER: Yeah, yeah.

COMMISSIONER APOSTOLAKIS: I'm not asking you to give me an answer right now.

MR. BORCHARDT: I think the previous Commissions have

addressed the issue. We now have the experience of Fukushima. Clearly I would see this as likely an issue that we're going to bring back to the Commission either as part of the short, the near-term or the longer-term review activities. I mean, it's an obvious question but very broad policy implications.

COMMISSIONER APOSTOLAKIS: Yes, it does. Now, Charlie, you structured a lot of your presentation around defense-in-depth.

MR. MILLER: Yes.

COMMISSIONER APOSTOLAKIS: Which I think is appropriate. It is the cornerstone of our safety philosophy, so you're talking about prevention, mitigation, emergency planning and so on. But it seems to me that under defense-in-depth we can do a lot of things to integrate, for example, some of the SAMGs and so on that you mentioned, but right now are not integrated, to understand better the possible accident sequences, maybe to go beyond the eight or 16 hours that we go to now for station blackouts -- in other words, to answer a lot of "what if" questions by developing a so-called Level 3 PRA risk assessment. And there has been general reluctance to do that over the years even though the first one was done by The Reactor Safety Study in 1975. So would your task force explore the benefits, perhaps, of having a site-specific Level 3 PRA and how that would help achieve some of the goals that you think should be achieved?

MR. MILLER: We've already had some discussions about that, about how risk assessments and PRAs can help better inform us. So I can tell you that we're looking at that. Where we'll come out with that, we'll report on in a future meeting. But it is a topic that we've talked about and what the merits of it are; what goes into doing that; the complications of doing something like that

from not just an analytical perspective but from a time perspective; and then what insights that you get from that that would be useful to both the industry and the regulator in enhancing safety or letting us know where we stand with regard to safety. But I, myself, am not a PRA expert so I'll need to continue to go back and pulse the team about that in formulating our views.

MR. BORCHARDT: I don't want to let Charlie off the hook for all the difficult questions, but this is another one where I would expect the near-term task force to look at the issue, identify some of the key questions and not be able to resolve it finally. I think this is maybe something that's going to take more thorough discussion and review than the limited time period we're giving this task force. But they would identify it as a topic that would go into the longer-term review, which we would have, under my current thinking right now, a specific task force that might look at the use of PRAs and the current regulatory scheme on how -- which ones are required for which plants, those kinds of questions.

COMMISSIONER APOSTOLAKIS: Well, that's all I'm asking. I mean, you didn't mention the acronym at all so I figured somebody had to.

[laughter]

MR. MILLER: I'm surprised it was you, Commissioner.

[laughter]

COMMISSIONER APOSTOLAKIS: I know you were. I know you were. I will note, though, that both the licensees and our staff really appreciate Level 1 PRAs, the internal PRAs. They were useful, they were using them, and it seems to me that now Fukushima is saying Level 3 may be -- can have the same utilization. But I'll wait to see what words of wisdom you will come up with. One last question, Mr. Chairman. I'm really bothered by this separation between

design basis and beyond-design basis events. I appreciate the need for a design basis. The licensees know what they have to do, right? We impose all sorts of conditions; this particular pump must deliver this flow rate under these conditions, and then we go and inspect. We are asking them to test it and tell us what they find, all that stuff.

And then you have beyond-design basis events. I went back and looked at the station blackout rule. Well, that's paradise. Tell us how you would do it and tell us how you would handle the station blackout. Tell us what kind of frequency or loss of off-site power you assumed. Tell us how much time do you think it will take to restore it, and tell us what you did about it. Well, the licensee has tremendous freedom to do all these things, maybe supported by some statistical analysis, and then they will say, well we went to Sears and bought a portable diesel and everybody says we're happy. I'm over-simplifying.

CHAIRMAN JACZKO: You're also not getting to a question.

[laughter]

COMMISSIONER APOSTOLAKIS: It's getting there. It's getting there. The question -- and then we don't do anything after that as far as I understand. We don't inspect. In fact, today in Energy Daily there was a statement from INPO that they looked and maybe some of the equipment was not available, as Bill said earlier. Can we keep doing that? Can we keep saying, oh these are beyond-design basis events therefore we don't get involved or we are happy that the industry responded?

We look at it once and that's it. In the future it's up to them. I am really bothered by that idea, although I do appreciate the value of having the distinction between design basis and beyond-design basis events. So any

advice that the task force can give us, I would at least appreciate, as to how to handle that. Make sure that what they told us -- not that they are bad people, but I mean, you know, it's an industrial facility, things happen, you know. So to give that, for us to get that warm feeling that, yes indeed, all the stuff that they said is available 10 years down the line.

MR. BORCHARDT: It's a constant challenge that we have to deal with. There's a balance, and what comes to mind as I was listening to you are the principles of good regulation; the talk about having clear regulations. And I think that's one of the founding principles that why we have a design basis: that there's a clear identification of what is required to protect public health and safety. That's our mission and our objective. Beyond that adds margin, but it's not the same kind of regulatory pedigree as things that are within design basis. I think it's an issue Commissions have struggled with since the first day of the NRC.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Magwood.

COMMISSIONER MAGWOOD: Thank you. Before I ask my questions I have a couple of personal observations I'd like to share. One was -- not long after Fukushima I was talking with a friend of mine who has nothing to do with the nuclear business, knows nothing about it, doesn't particularly care for it quite frankly, and while we were talking about this I was trying to reassure him about the safety of U.S. plants and the high levels of training of the personnel at nuclear power plants.

He challenged me with a comment that went something like, you know, if you're in the middle of a situation where people are dying all around you

because of some large event and things are blowing up and people are panicking, how do you know these people in these control rooms don't just simply get into a car and get as far away from this thing as you possibly can? How do you know these people will stay and do their jobs? How do you really know? And I talked with him about it, and I talked about the training and everything, and I don't think I entirely convinced him, but I tried to reassure him that we train, and we know the people, and know the jobs, and they've done it for a long time.

But something occurred to me recently. I visited several licensee facilities over the last couple months and at a recent one sort of brought something to mind that I'd thought I'd share that might mean something to some people and it may not to others. But, as I was talking and I was asking about, I was asking some of the people that I've met at the plants, you know, the managers and the operators about something about their background, and I realized that a very, very large percentage of the people I talked to were trained in the U.S. Navy and that they were former sailors; submariners, you know, surface ships, people who had that background shared with our Commissioner Ostendorff; people who had, you know, put their lives on the line in the service of the country. And I haven't gotten back to my friend yet to tell him about this. I don't know if it will impress him or not but it impressed me. And gave me sort of a personal level of comfort that when I tell people that these people will stay and do the jobs that I think there's good evidence to support that.

So another observation; Charlie, I appreciate you mentioning KI, because I was actually quite disturbed to see the stories in the media. After Fukushima, people in the United States running out and buying potassium iodide,

and some of them apparently did take some of it, and they're very concerned about that. There were -- I think we -- I think the government did what it could to get the word out on this, but there were other groups as well. I just wanted to highlight that. The Health Physics Society, I thought, also put some information about KI that's very good. Physicians for Social Responsibility, on their Web site, actually had a nice story about what KI really should be used for and why people should not run out and start taking it. So even beyond the government there are other organizations out there that did the right thing and made the right kinds of decisions and I wanted to sort of highlight that and congratulate them for that effort.

Just a few questions. We've had this conversation this morning about the post-9/11 modifications we've made, what we call B.5.b. And I wanted to see -- what is your understanding, and maybe this is more for Bill and Marty than for the task force, but what's your understanding about what our level of assurance is about the availability and operability of before we got to the Fukushima, just sort of as we've gone over the last few years, of this equipment? I mean, what did we do when this equipment was installed to assure ourselves that it was the right equipment and it could do what the licensees were saying it could do? Because, as you've pointed out, this is a voluntary effort. We have made a lot of references to it. What's --

CHAIRMAN JACZKO: It's not a voluntary effort.

COMMISSIONER MAGWOOD: I'm sorry, the implementation, the specific implementation, was, well --

MR. MILLER: The implementation -- the industry had guidelines that were developed and the NRC endorsed those guidelines for the

implementation to meet our regulations. That's all.

COMMISSIONER MAGWOOD: Right.

MR. VIRGILIO: But to ensure that the regulations were in fact met we conducted inspections and it became part of our tri-annual fire protection inspections to go in and sample. Sample is, I think, the operative word here. So now with the TI we're going in and we're doing a very more -- a more systematic look at the equipment, the procedures, the training, et cetera, et cetera, to make sure that everything is in place. We're also going out with a bulletin, or the bulletin has in fact been issued. And that bulletin will, in fact, ask for information in 30 days and then another set of more detailed information within 60 days to provide us the highest degree of assurance that that equipment is in fact operable, and that the operators are capable of, in fact, implementing the strategies that they've laid out for responding to large fires and explosions.

COMMISSIONER MAGWOOD: I appreciate the task force asking for the bulletin because I think that in the TI I had some questions, and as I mentioned, I visited several licensee facilities. When I ask them about the inspection that actually took place in response to the TI, it seemed that the actual work of showing inspectors that the equipment was available and would work as advertised, there were -- it was implemented in somewhat different ways, depending on which licensee you talked to. Some of them seemed to go through a lot of effort to sort of lay things out and actually move hoses around to show that hoses would reach where they said. Others did more of a walk down. What's your understanding about what we got back from the TI. What's the level of confidence that you got from that, when you look at, as you look at the results?

MR. VIRGILIO: I think -- well -- this -- let me start out by saying

that, at this point in time, it's our understanding that whatever's been found has been corrected. And I haven't said that thus far, and I think that's an important statement, that if there were equipment inoperable, if there were deficient procedures, it's my understanding that those issues have, in fact, at this point, been resolved.

That said, we're still going out and we're asking for the confirmation via the bulletin to ensure that is, in fact, the case. Because we tend to do -- all of our inspection activities are, in fact, samples. We don't go out and do everything, every piece. We rely on the licensees, or direct the licensees, to take those actions when we have those doubts. And so that's really what the bulletin does for us. It ensures that every piece is, in fact, walked down. The licensees have to respond to us, and they're held accountable to those responses.

COMMISSIONER MAGWOOD: And when you say, you know, I want to sort of focus on the walk down part, when you say “walk down,” what do you expect the licensees to do at this part of the walk down? Just to --

MR. VIRGILIO: To make sure that if there's a hose coupling, and a hose that they made up, and that's part of the problems that we have: to make sure that all the procedures and strategies they have are actually implementable, that there's not some piece of equipment blocking access to a pump or a valve, or something that needs to be operated, as part of the strategy that they lay out.

COMMISSIONER MAGWOOD: Do you expect them to unfurl the whole hose and show that it can go from wherever it's supposed to go to a spent fuel pool --

MR. VIRGILIO: I think that depends. I don't know that I would go that far, but the hose would have to be there. They'd have to have assurance of

the integrity of that hose, and that the couplings would in fact fit up, that the length would be the right length.

MR. BORCHARDT: I'd just add one additional topic because it relates to the task force and the follow-up to Fukushima, is that you could comply with the current regulatory requirements, and it might not be really what you want to have as the plant condition, as a result of flooding. We're going to learn things from review of the Fukushima event, and then look at 50.54-H, HH, which is the B.5.b requirements in the regulations, now through a different lens. And that may inform us to want to pursue a different regulatory approach, or make a modification to the current regulatory requirements. And that's part of what'll come out of the lessons learned.

MR. MILLER: Yes. If I could augment that, Commissioner. One of the things that, really, the task force has got an insight about is that equipment those procedures were put in place for a specific type of event. But we also recognize that they could have the benefit if they're capable of being utilized for dealing with events other than what they were intended for. But, given that they were intended for a certain type of event, as Bill said, there may need to be some thought with regard to how they might be augmented, positioned, things like that, to better be able to deal with a broad spectrum of events.

So try to take the maximum benefit from our Fukushima lessons learned of what's in place already, and is there any expansion of that needed to deal with a broader state of events without having to -- and consider issues like multiple units, and things like that.

COMMISSIONER MAGWOOD: We've made -- I think you made the comment, Charlie, early on, that part of the guidance that you received for the

task force was that the task force should be operating independent of any of the industry activities that are --

MR. MILLER: Yes.

COMMISSIONER MAGWOOD: -- going on. And as we've observed, the industry activities that are underway through NEI and INPO are very beneficial, and good things to be doing. But one thing that occurred to me as I talked to licensees, is that there are, there's a lot of energy among the individual plants to think about things they might make specific changes, they might pursue. And I see that as a very positive energy, very good that they're thinking about this. Do you have any thoughts for, as this process goes forward, how best to harness that, not so much the industry-wide efforts, but really the individual plant managers and operators, they're giving good thought to how they might respond to these sorts of events?

MR. MILLER: I guess, from our perspective, first, we're very happy that they're giving good thoughts to these types of events. It's good, you know, the primary responsibility for safety does fall on the licensees. Okay? So the fact that you're doing that is a very good thing. But independent of that, I believe that, you know, our task force, with what we come up with, with recommendations, should be done independent of that. And if some of our recommendations had been taken care of by some of the things that they're doing, that's not a bad thing.

But then the question becomes, you know, what, if any, regulatory footprint we may want to put upon that. But I think that -- I think it's a good thing. And I'm encouraged by the fact that they're not just sitting back, waiting for what the NRC might do or not do. I think that the insights that they gained from

Fukushima are helping them inform their decisions in that also. We're trying to stay back as the regulator and say, “Hey, as a task force, what do we think?” And then you can look at the two and see how they marry up, and if anything from our perspective needs to be augmented.

COMMISSIONER MAGWOOD: Bill, do you have any --

MR. BORCHARDT: Just that, one of the unique things about the U.S. nuclear industry is the way that they share operating experience and approaches to resolve problems. We don't try to get into the middle of that. We view that as a positive activity. We will deal with the industry in a generic manner as we come up with our inspection guidance or the criteria that we're going to use to verify compliance with a regulatory requirement, and we'll deal with them at that stage. But we don't try to facilitate that information sharing. There's other industry groups that play that role. We think they do that well. But we don't need to be in the middle of that.

COMMISSIONER MAGWOOD: Okay. Thank you. Thank you, Chairman.

CHAIRMAN JACZKO: Commissioner Ostendorff?

COMMISSIOENR OSTENDORFF: Thank you, Mr. Chairman. I want to join my colleagues in adding my thanks for Dr. Miller's leadership here of this effort, the people sitting behind you and your team, and also the very deep bench of the NRC staff who are supporting. I've been very impressed. And when I've talked externally as my other colleagues have, we've been very proud of the competency, professionalism, and commitment of the NRC people working on this, and so I want to join others and thanking you Charlie.

Bill, I'm going to start out with a question for you, a very high level.

I can remember, you sat there, March 21, when we had our Commission meeting, and talking about, you know, the way ahead. And the Chairman had drafted a COM and we had commented on it, and the Commission unanimously approved this COM to move forward with the task force. And now that you've had, maybe, seven weeks or so have passed, or close to eight weeks have passed since that task force kicked off, and I'm mindful of your comment, March 21, that said, you know, after Three Mile Island, it went in too many different directions, the efforts. And it was too dispersed and somewhat diluted in some respects.

Given where we are today, here, May 12, do you feel like the -- is the task force charter, is the task force direction from the Commission, is it where it needs to be? Or are there any other changes need to occur, here? Are you comfortable with what the current scope is?

MR. BORCHARDT: Yeah, I'm very comfortable with the activities of this task force. I think it's going about its work in a very deliberate and thoughtful manner, and that was one of the concerns coming out of Three Mile Island: it was a little too reactionary, a little quick, in some respects. So I think it's, we have set up a process that will give serious consideration to a number of topics. The ones that warrant more work in the future are likely to be passed to more detailed, issue-specific task forces that, you know, I think will operate under the guidance of a steering committee, agency-wide steering committee, but then will also have the ability to have a more thorough engagement of other stakeholders as we come up with the individual, specific task forces.

So I think it will enhance the communication and the participation of other stakeholders by the time we get to the final regulatory analysis. One of the

things I place the most value in having people of the quality that are on this task force was to have the ability to step outside of their normal jobs, because they're doing this full-time, and really challenge ourselves: Is there something we need to do right away to ensure the safety of the U.S. fleet?

We made that judgment the day of the tsunami, and we make it every single day, but it's really valuable to me, and I'm sure, to the Commission, as well, to have the kind of experts dedicated, focused on that caution, as part of this task force. I think we're getting great benefit out of that.

COMMISSIONER OSTENDORFF: Thank you, Bill. Marty, I'm going to give you a question here. And somewhat, again, of a high level. One of Charlie's slides, I think 11-14 had made reference to pre-Fukushima NRC regulatory efforts, GI-199, with respect to seismic reviews. We've had the dam failure research efforts and a lot of -- Brian Sheron's group's worked on that. There's decades of NRC research activities, regulatory rulemaking activities, et cetera, et cetera, that all preceded Fukushima. And I'm mindful of the challenge that exists, even pre-Fukushima, of trying to communicate to the public: This is what we, as a regulator, do.

And I think we all can recall back to April 2010, with the Gulf of Mexico oil rig explosion, where people trying to figure out what is MMS, Minerals Management Service, and how is that part of the Department of the Interior? What do they do vis-a-vis leasing, what do they do with respect to the Coast Guard?

So I think we're all mindful of the challenge of communicating to the public what our regulations are about and how we do business, even pre-Fukushima. And that effort is certainly magnified with respect to the Fukushima

event. Do you have any comments or thoughts on how best to communicate externally to, not just to the normal stakeholders, but to the average American citizen who, maybe, before March 11 wasn't that focused on these kinds of issues?

MR. VIRGILIO: In working through individual issues, and I think you cited a couple of them, like GI-191, where we're looking at seismic activity, what we're trying to do as we continue to move forward, because we're not stopping those events, or those issues, what we're trying to do is build into each issue a little communications plan that explains how Fukushima fits into that activity. We continue to go out and, I think our generic letter on GI-191 is a really good example, where we've continued to press on, but included within that, an acknowledgment of the issues in Fukushima, and that we are, in fact, looking at them.

I haven't thought about the issue, the broader issue you raised: Do we need an agency-wide communications plan? We're using the blog; we're using a number of different individual activities to try to communicate about Fukushima. We've got -- we've established a SharePoint site, a place where somebody can go to get all of the information that we have. If you're a member of the staff and you've been asked to make a presentation somewhere, we've provided a standard set of slides and communications tools.

So I think there is a variety of things that we're doing today to make sure that we're communicating clearly, effectively, consistently, about what the agency is doing with respect to our follow-up to this accident.

COMMISSIONER OSTENDORFF: Okay, thank you. Charlie, I'm going to turn to you, here. I've done a little studying before I came down here,

and I have not, you know, full disclosure, prior to this week, really looked at the procedures a licensee would have to handle some of these issues. And so my reactor assistant, Mike Franovich, helped me go through the severe accident management guideline procedure for primary containment venting for one of our BWR facilities.

I saw a chance, as a former operator of plants, of submarine plants, to kind of have some feel for going through operating or casualty procedures, and I went through containment venting under conditions of extreme damage. This was the extreme damage mitigation guide for one of the procedures, one of the plants.

And I was very pleased, I'm not going to mention what plant it is, but to see pictures in there that had: this is where this valve is located, this is where, you know, you operate this particular switch, et cetera, that would help an operator in a casualty situation go through this. And then I went through and looked at the spent fuel pool make-up spray and refuel floor enhanced ventilation under conditions of extreme damage to one of our plants.

And so I was very pleased to see the existence of detailed, robust procedures, with pictures that were operator-friendly, et cetera. And now I'm kind of turning to a point that Commissioner Magwood was raising in his questions about, well, can we really make these things operable under difficult, stressful conditions? I know I'm dating myself, but 1974, when I was fighting fires at the D.C. trainer, Philadelphia Naval Shipyard, I got, you know, the hair singed off my eyebrows, and my hands were burned from fighting an actual, you know, oil fire, with a whole bunch of other guys on hoses, and so forth, and that was a real wake-up call for me to go fight a real fire under stressful conditions.

And so I'm just curious, and I don't have a lot of time to discuss this, but I think it's important that the task force provides some assessment to the Commission about the operator readiness to actually deal with casualty procedures, mitigation guidelines, et cetera, under stressful conditions, and for us to have, and this goes back to Commissioner Magwood's question on what was a walk down of equipment. It's more than just seeing what the equipment is, and is it there, but can people actually utilize it when they have to.

So, can you comment quickly on how the task force might look at this ability of operators to respond under these challenging conditions?

MR. MILLER: Yeah, well, first of all, we're not looking at it on a plant-by-plant basis.

COMMISSIONER OSTENDORFF: I understand.

MR. MILLER: But we are trying to look at it holistically, and we spent a lot of time thinking about that. And if I could -- I can tell you we're looking at the things that you talked about. But let me augment that a little bit, about how our thinking's going.

Those procedures may be very adequate in and of themselves. But as I talked about, while we're trying to take a look at, can we better integrate the EOPs, the SAMGs, and the EDMGs, into a framework that fits together, we're trying to look at that aspect of it also. It's great to have the procedures in place. How much training is done on it? How much physical practice is done on it? How much can you realistically do?

On some things, you can go farther than others. If you're not in an emergency situation, you're not going to vent the containment, just for practice. But there's other things, you know, Commissioner Magwood talked about staging

of equipment and hoses, and things like that. Does training include more than just sitting around a table doing tabletops? Because I think, as you know from your experience, a certain amount of actually practicing certain things helps, keeps it fresh in people's minds, it's important.

So how much do you need to do that? That's what we're debating right now in formulating a recommendation. What's a reasonable thing to do? How do you go about doing that? How can it benefit your readiness?

COMMISSIONER OSTENDORFF: That's a very important query. Thank you, Mr. Chairman.

CHAIRMAN JACZKO: I wanted to follow a bit on the comments that Commissioner Apostolakis made, in particular the distinction with design basis, beyond design basis. I think as you talked about the integration, perhaps, of severe accident, the extended damage mitigation guidelines, all of these different procedures that deal with, ostensibly, some type of event, whether it's beyond design basis, design basis event, or not.

It seems that there's a natural kind of, perhaps, need to bring those things together. And I'm wondering, again, to the extent that you're looking at these things, are you similarly looking about a way to bring together all events that, perhaps, gets beyond the traditional definitions of design basis and beyond design basis? Because I have to admit, I tend to struggle with what is in what category, and what, you know -- I think if you look at the hydrogen combustion requirements, most of those fall as beyond design basis events, but they are requirements in our Regs, therefore have the same kind of force as other requirements. So is there any thought to, you know, kind of redefining this whole idea of design basis, beyond design basis? And does the distinction really mean

anything anymore?

MR. MILLER: I mean, I think it's fair to say that we have given this a lot of thought. One of the things that we did reflect on, as you mentioned, Chairman, is that our -- we do have regulations that take us beyond design basis. And so what we're trying to take a step back and saying is: Are the regulations sufficient? Are there things within our regulations that could be enhanced? And that's where I think I get to the integration of the procedures that maybe better do it.

Let me try a specific example and see if it helps, because I always think better with specific examples. If you're the operator in the control room while that event's going on, your focus is on trying to achieve success. That's your primary focus. If this doesn't work, what do I need to do next to achieve success? Well, if you look back to the case of Fukushima, you know, was any, we don't know, but was anything being done to recognize that if you didn't achieve success, what should be your next step?

And that's where you really get into your mitigation thinking, so where should that onus be? Should it be on the control room operator at the moment that they're doing what they're doing? Should other resources be brought to bear; they can sit back and say that if we don't achieve success, we ought to be thinking about what we need to be doing for mitigation next, whether that means you start staging equipment, whether that means you start bringing resources to bear.

And, again, I'm giving you raw thinking that this is the kind of thing we're thinking through, is to --

CHAIRMAN JACZKO: And I think that, and the operator is not

sitting there, saying, well this is a design-basis event or beyond design-basis event.

MR. MILLER: The operators --

CHAIRMAN JACZKO: They're responding to information.

MR. MILLER: The operators, right. They're very highly trained. They're very highly trained, and obviously in that kind of a situation, they're under a lot of pressure and they've got to make a lot of decisions. And so I think, again, they're not thinking of it, but for example, this is where we got into our thinking with regard to where the command-and-control is, and where the command-and-control is with regard to the operators. Should others be thinking about it? It you look at the case of Fukushima, you had what some would call delay in determining whether seawater should be brought in to start flooding things. Who's thinking ahead about that when you're in a crisis? So what we're talking about here is having integrated crisis management so that you're trying to think ahead, and the more that you can do and the faster you can do it, in many cases while it's under mitigation it can prevent the next step from happening. And so that's the kind of thing we're looking at with regard to that. And of course, we're not precluding whether or not we need to make any regulatory changes in there, but we simply haven't gelled our recommendations yet.

CHAIRMAN JACZKO: Well, I appreciate that, and it's almost as you talked about, the thinking that I was doing here while the meeting was going on is that from a design perspective, that there probably is a similar -- it's more of a graceful transition from design-basis to beyond design-basis events. That there are events -- we treat events with varying degrees of regulatory requirement. The RECCS systems are required to be able to deal with a double-

ended guillotine, large break LOCA. Other types of events, the station blackout was more of a one-time analysis and a requirement to have a coping strategy, but not necessarily an ongoing review process. So just as we look at this, again, some of these concepts may be outdated in a way, but it's more of a smooth scale as you go to these different types of events.

MR. BORCHARDT: Chairman, I struggle, though, with the idea. Maybe I'm just slow.

CHAIRMAN JACZKO: And I could be slow too.

MR. BORCHARDT: But I think the concept of design basis adds a degree of regulatory stability that's very much needed. To have -- it serves as a starting point to begin the regulatory discussion. It doesn't undo the value of equipment that's there to respond to things beyond the design basis. There are regulatory requirements that go beyond the design basis, and there's functional equipment that PRAs take advantage of that's not even a regulatory requirement that you can take credit for. I mean, and the equipment is well maintained. But having a clear, defined regulatory basis in this era, when we're trying to come up with standardized plants, even, would just go in the opposite direction in my mind. It would never really be sure what the regulatory basis is at any one plant if we didn't have a clear basis. We went through a long, very difficult program I think starting in the mid-'80s to reconstitute the design basis, because it was not being maintained in a regulatory space in the kind of way that supported effective regulation and even operation.

CHAIRMAN JACZKO: I appreciate that, and I'm not suggesting we get rid of design-basis idea, but I'm not sure that that's the end of the conversation. Clearly, as I said and you said, we have those things that are

regulatory requirements for beyond design-basis events, and I'm not necessarily sure what that means sometimes. What matters is it's a regulatory requirement versus something which is not a regulatory requirement, which is a voluntary initiative; the SAMGs versus the extended-damage mitigation. But there's a requirement to have extended-damage mitigation guidelines which deal with beyond design-basis events, as opposed to the SAMGs which is not even a regulatory requirement to deal with beyond design-basis events. So I'm not sure that we're making these distinctions in the right way. What matters to me is more what our regulatory requirements are and what problems are they addressing, and what challenges are they solving. I think design-basis effort has been a useful tool, but clearly there are things beyond that, and perhaps a more graceful degradation than it appears. But that's perhaps more of a philosophical question anyway.

One specific question I wanted to address and touch on, and see if the task force is looking at this at all: If you look at Fukushima -- and one of the consequences for sure, and in particular as you get into a phenomena of the larger extended release, assuming after two weeks, three weeks, two months, whatever the time frame is, you've taken the appropriate steps to evacuate, to relocate a population, given whatever the dose levels may be, at that point you begin to deal more with consequences that are in a cost-basis or a contamination-basis. If there continues to be a release for another six months, let's say, in Fukushima, there will be an impact on the mitigation and the cleanup, not necessarily a health and safety impact for the population, because they've been relocated. How are we taking that into consideration, and to what extent does that factor into our determinations of whether or not something should be

considered an enhancement to safety? Do you need a back-fit test? Those kinds of things -- is that considered in our reg. analysis or not? Like, ultimately, the cost of cleanup, at a point in which you're no longer dealing with the potential for public-health consequences.

MR. MILLER: Yeah, I would say to some degree, but I'm not sure that it would go to the extent that you're thinking. I think our goals and our thinking are always: What do we need to do to have sufficient confidence that we won't get to that? Prevention is the top level, and then if you need to mitigate, what do you need to mitigate so that you don't get to that? But with the recognition that if you did get there, yeah, there would be consequences of that nature. But I don't think we've looked at it from what I would call the outside-in, that way. I think we try to look at it from the inside out, and making sure we've done everything that we're comfortable with doing that we won't get there. Marty, and I mean there have been a lot of discussions over the years about that: How do you factor the cost of the cleanup in? I know that's a big discussion with regard to sources and financial aspects of it, with regard to Price Anderson, and things like that.

CHAIRMAN JACZKO: Well, it's certainly -- again, as we look at these issues, I know our focus, I mean, we talk about public health and safety as our focus, and we talk about these events in the context of addressing those concerns first and foremost, but there certainly is that additional piece that can have an impact. Again, and in particular as we're looking at our analysis to see whether a particular safety enhancement, you know, we talk about safety enhancements, but there are things that could be done to reduce the likelihood of an accident that ultimately would have an impact on that economic consequence,

which, certainly as I think we're seeing in Japan, can be quite significant, and may have an impact ultimately on the decision-making. And again, it perhaps gets to the issues of looking at level-three PRAs and including in those analyses a look at the full breadth of consequences beyond just some of the health consequences.

Oh, good. I'm glad. That's why I said it. But again, I think it's just something as we go forward that I'll certainly be keeping a look at. Because we can have an event in which there's no public-health consequences, if the right mitigative actions are taken with emergency response. But that can still be a very significant event from the standpoint of economic cleanup and those kinds of consequences. And again, that is maybe not necessarily the traditional way that we've approached issues, but they do have real impacts and real consequences. And that's something that we'll look at, but with that, I would offer any other questions or comments that my colleagues want to make?

COMMISSIONER MAGWOOD: Just for a quick question. Hope the answer isn't too long. You've mentioned your interest in looking at command-and-control.

MR. MILLER: Yes.

COMMISSIONER MAGWOOD: What's our current regulatory footprint in command-and-control?

MR. MILLER: Well, I think that our regulatory footprint has put a lot of onus and responsibilities on the control-room operators, that they have the authorities to take the actions that they need to take, while they are on shift, and they have a lot of authorities in that regard to make the decisions that need to get made. What I was referring to is when you get into a situation that would be

proceeding, if unattended, to what happened at Fukushima, where does that command -- who's thinking about, you have a control-room operator that's focused on his unit if it's a multi-unit site, is there somebody thinking if all the units are affected because of some extraordinary event that's well beyond the design-basis from natural phenomena where the priorities should be? Where should we put priorities with regard to mitigation, or putting our resources, or calling for offsite resources? That's the kind of way we're approaching in a command-and-control. It's not questioning the command-and-control we've got within the United States today. I think we're comfortable that our control-room operators have those authorities.

MR. VIRGILIO: Commissioner, looking beyond the control room, if you think about our emergency-preparedness requirements and emergency-preparedness exercises, that's where you test the command-and-control all the way through, the whole sequence.

COMMISSIONER MAGWOOD: Well, I guess what I'm really thinking about is in the case of, if you'll excuse the expression, beyond design-basis event and you're into SAMG and beyond territory, do we have any regulatory footprint in the way decisions are made when you get into that regime, when you're thinking about whether you're flooding reactor vessels, whether you're -- I mean, any number of actions that might be taken?

MR. MILLER: Again, for things like SAMGs that were voluntary, that's part of what we're trying to determine through the temporary instruction. What are the licensees --

COMMISSIONER MAGWOOD: So the regulatory footprint really kind of comes to an end at that juncture.

MR. MILLER: Or for SAMGs, it's a voluntary effort, yes. It's not part of our regulatory oversight.

CHAIRMAN JACZKO: But I would -- and just my thought, too, as you're asking that. We do have, in an emergency situation, authorities to order actions that would be necessary to deal with the crisis, whether it's in our regulatory requirement or not. We do have that kind of a --

COMMISSIONER MAGWOOD: Yeah we do, but I think the issue for me becomes, because if you wait for the NRC to make the decision it might be too late.

CHAIRMAN JACZKO: Right.

COMMISSIONER MAGWOOD: You need someone at the plant making those calls. Now, as I've talked to licensees about this, they assure me that the plant manager is the guy who will make that decision, but it's the sort of thing I think the task force ought to give some thought to, is to whether we need to become more involved in that.

MR. MILLER: We're looking at that.

CHAIRMAN JACZKO: All right. Any other comments or questions? Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Well, just one comment. One of the concepts that I'm sure prior Commissions have struggled with, but I'm a new Commissioner, I guess. This idea of voluntary versus non-voluntary, really, I can see the value of encouraging the industry to do things on a voluntary basis, but at the same time, I have this nagging feeling that maybe we're not intervening too much. And I don't know, I mean, a lot of the decisions seem to be based on legal grounds rather than what nature is going to do, and I don't know about this

voluntary thing. I mean, all the risk informed initiatives are voluntary, until they are not. Like the ROP. I don't know whether you can call it now a voluntary initiative, so that's another concept –

CHAIRMAN JACZKO: Is it a voluntary initiative?

COMMISSIONER APOSTOLAKIS: Yeah, everybody's doing it. So that's another concept that I'm struggling with, and again, if you gentlemen can offer some advice maybe in the long-term task force report, I would greatly appreciate it. Thank you.

CHAIRMAN JACZKO: Well, I'll just close with that. I think that this is, I mean, we haven't really touched on the issue at all, but a lot of this, well, maybe I shouldn't say a lot of it, but some of the voluntary versus non-voluntary gets to the back-fit, and we haven't touched on the back-fit. And fundamentally, that sometimes presents a hindrance to our ability to impose requirements. And I certainly think that that's something that, as we look at this, we have to take seriously. Is that preventing the right kinds of activities from being implemented because we're not, and in some of these issues are very complicated, trying to go through and demonstrate a back-fit and do the analysis? And this is part of my question about looking at consequences in a different way. If we're monetizing the economic cleanup of an accident versus dose savings when you've taken into consideration an evacuation or whatever may go into an analysis, you may be skewing those results to miss an important savings or an important impact from the regulations and the requirements. But it is certainly a good point, and I think this has been a very good discussion that we've all had.

And I look forward to an update in about 30 days with your continued progress, and I certainly would echo the comments of my colleagues

on the Commission with the A-team that's been assembled and the tremendous work you've done so far in what is really a tremendously short period of time. And clearly, a lot of thought has been given to some very serious issues, and I would just stress Bill's point that doing this in a very systematic way is going to be important so that we have a good, clear understanding of what issues need to be addressed and why as we go forward. With that, we're adjourned. Thank you.

[Whereupon, the proceedings were concluded]