UNITED STATES OF AMERICA

U.S. NUCLEAR REGULATORY COMMISSION

WORK ORDER 100

THE 24TH ANNUAL REGULATORY INFORMATION

CONFERENCE

March 14, 2012

9:15 A.M.

TRANSCRIPT OF PROCEEDINGS

APPEARANCES

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Director
Office of Nuclear Regulatory Research

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P R O C E E D I N G S

BRIAN SHERON: All right, could I ask everybody to please take your seats? Okay, good morning. The Honorable William Ostendorff was sworn in for a second term as commissioner of the U.S. Nuclear Regulatory Commission on July 7, 2011, to a term ending June 30, 2016. His first term was from April 1, 2010 to June 30, 2011. Mr. Ostendorff has a distinguished career as an engineer, legal counsel, policy advisor, and naval officer. Before joining the NRC, Mr. Ostendorff served as the director of the Committee on Science, Engineering, and Public Policy and as a director of the Board on Global Science and Technology at the National Academies. Mr. Ostendorff came to the National Academies after serving as principle deputy administrator at the National Nuclear Security Administration from April 2007 until April 2009. From 2003 to 2007, he was a member of the staff of the House Armed Services Committee. There he served as counsel and staff director for the Strategic Forces Subcommittee, with oversight responsibilities for the Department of Energy's atomic energy defense activities as well as the Department of Defense' space, missile defense, and intelligence programs.

Mr. Ostendorff was an officer in the United States Navy from 1976 until he retired in 2002 in the rank of -- I'm sorry -- in the grade of Captain. During his naval career, he commanded an attack submarine, an attack submarine squadron, and served as director the Division of Mathematics and Science at the United States Naval Academy. Mr. Ostendorff earned a bachelor's Degree in systems engineering from the United States Naval Academy and law degrees from the University of Texas and Georgetown University. And he's a member of the State Bar of Texas. Commissioner?

[applause]

COMMISSIONER OSTENDORFF: Thanks, Brian. Good morning. I'm really pleased to be with you here today, the 24th RIC. It's a privilege to speak to this assembly of distinguished colleagues. I want to welcome those who have been welcomed by others who travelled so far from any countries in particular to be here. I think this international cooperation is just terrific. Before I begin my remarks, I do want to thank and add my thanks to those of others to the NRC staff who's worked so hard to bring this about, and to Brian and Eric and their teams.

A good sense of situational awareness is really important for a commissioner and relevant to my remarks. I've got to tell a sea story -- I promise, only one. But I want to highlight the importance of situation awareness, and I'm going to use this story to send a message. I apologize in advance to some of you who I know have heard this story. While Commissioner Svinicki may have two neutron jokes, I only have one situation awareness story.

[laughter]

So, we go back to 1979. Lieutenant JG Ostendorff is underway on USS George Bancroft, SSBN-643, the gold crew, a missile submarine on a deterrent Cold War patrol. We're submerged someplace in the Atlantic. I can't tell you where. We're in a routine. We're on about a 70-day underway period, and I walk into the ship's office about 1930, 7:30 p.m. for those non-military types here. And I see Chief Link [spelled phonetically], the YNC, the E7 ship's only personnel officer at his IBM mag card machine. Some of you may recall those. The chief's in there and he's doing the two-finger typing, and he's saying oh, blank -- I can't tell you what he said. But I watched him for about five minutes.

He's making a lot of mistakes here. I said, "Chief, what's wrong?" Ostendorff's a hard name to pronounce. He says, "I don't know, Mr. O." "Chief, how much coffee are you drinking?" "I don't know, probably too much." So, I pulled out of my pocket a three-by-five card, I said, "Chief, here's what we're going to do. It's 1935 here. I'm going to come back in in 24 hours from now, and I want every time that you have drunk a cup of coffee in the intervening 24 hours, I want you to draw a little tick mark down here." "Okay, Mr. O." I walk out, come back in 24 hours later. "Chief, how are you doing?" "Not so good." "Did you count your cups of coffee?" "Yes, sir." "Well, how many did you drink?" "I'm not going to tell you."

[laughter]

"Chief, how many did you drink?" "I'm not doing to tell you." I said, "Dammit, Chief, this is an order. How many cups of coffee did you drink?" "37."

[laughter]

I assure you from this point on that Chief Link had proper situational awareness of his coffee consumption. So why do I tell this little sea story? Well, two reasons. First, acknowledge my awareness of the insightful comments of my commissioner colleagues down here yesterday and today. I really enjoy hearing your perspectives, and I think Commissioner Svinicki last year said, you know, I don't know how many of you know this, but these comments and our remarks are not coordinated in any way. I had no idea what Bill Magwood was going to say until 8:35 this morning. And I think that's really a refreshing aspect that you all here, the unvarnished perspective of what individual commissioners think is an important message. I'll also comment that I think Bill did a great job on taking on some tough questions. I think I saw the local Rockville chapter of the Mensa

Society out here trying to work with EDO's office beforehand. Well done, McCauley [spelled phonetically].

Second, as the fifth of five commissioners speaking, I am mindful that I need to be brief in my remarks. Attention span half-lives for commissioner comments gets shorter with time. I'll do my best to be brief. But one last preliminary before getting into my formal remarks, I want to extend three thank you's, and I'm going to join my colleagues -- some of them have already made these comments, but I think they're important to repeat. First, I want to add my thanks to those of Chairman Jaczko yesterday when he extended his thanks to the leadership of Jim Ellis at INPO. Admiral Ellis has been an inspirational leader. He's had a unique vision and a calming voice, and I think we all thank him for his service.

[applause]

Second, I want to join Bill Borchardt and Bill Magwood in thanking Marty for his service. I personally think the NRC is in really good shape on our post-Fukushima actions. Marty, I credit your leadership of the steering committee for taking us to where we are today. Thank you.

[applause]

Third and finally, I want to associate myself clearly with my good colleague Commissioner Svinicki's remarks from yesterday when she talked about the importance of the NRC staff and Commission office staff. I will personalize this a little bit further and bring it closer to home. For the past two years, I've been blessed to work alongside one of the most dedicated, hardworking professionals I've ever seen. That's my chief of staff, Ho Nieh. Ho is soon leaving my office to replace -- not replace but to fill in behind Fred Brown

as the director of the Division of Inspection and Regional Support. I credit Ho for making my job much easier than it would have been otherwise. Ho, I'm personally grateful for you for all the things you've done. I know you'll continue to serve this agency well in the Office of NRR.

My formal remarks: Last year at my first RIC, I provided my initial impressions as a new commissioner. This year, when I set out to find a topic that I thought was meaningful, I was looking at what this broad, diverse audience may have in common. So, I reflected upon the major events and challenges we face in nuclear safety since I last addressed this group two days before the great Tohoku earthquake and tsunami. Those extreme natural events obviously affected the Fukushima Daiichi Nuclear Power Plant, but let us not forget that those extreme natural events caused broader and significant devastation to the people and country of Japan. The tragedy in Japan was followed by natural disasters that challenged U.S. nuclear power plants last summer: A tornado strike at the Surrey plant in Virginia, the Missouri River flooding at the Fort Calhoun station in Nebraska, and the earthquake at the North Anna plant in Virginia. Other significant events in the nuclear arena over the past year included the release of the NRC's Near-Term Task Force Report, the final design certification rule of the Westinghouse AP1000, and the NRC's issuance of a combined license for two new reactors at the Vogtle site in Georgia.

These reflections on the past 12 months also brought to mind selected non-nuclear events in our country that our regulatory counterparts addressed over the last year: Listeria and E.coli outbreaks in the United States and in Europe, the Transportation Security Administration's use of full-body scanners and pat-downs at U.S. airports, the Federal Aviation Administration's

emergency inspection orders for cracks in older Boeing 737 jets. So, with that in mind, I thought to myself, is there a common thread among these nuclear and non-nuclear issues, and can that common thread be found from the perspective of both the regulator as well as the regulated industry. I think so.

The common thread is communications and, more to the point, how good communication builds public trust and confidence. Let us think about it for a moment. In each of these examples I just mentioned, the way in which those who are responsible, namely government and industry, communicate with those who may be affected, namely the public, directly shapes their understanding of the matter under review or discussion. This understanding, or lack thereof, directly impacts the public's trust and confidence in how we do our jobs. As is the case in the nuclear industry, regulators and industry officials outside the nuclear arena also face similar challenges in building and maintaining public trust and confidence. In meeting this challenge, we all need to proactively communicate and engage with the public. And in doing so, we cannot assume that the general public has a high level of scientific and technical literacy. Some may, while the vast majority may not; therefore, we must appropriately adapt to the public we serve by ensuring early, accurate, and understandable communications. At the end of the day, the public will reach their conclusions based on what information they take in, whether that information is scientifically supported or not.

Now, going back to our interest in nuclear safety: The chart you're looking at is one that I've used in other talks. It is very relevant to today's topic, so I'm showing it again. The chart comes from a 2010 report on the risk of nuclear accidents prepared by the Nuclear Energy Agency. We know that

nuclear power, because of its inherent risk, is unique and carries special concerns among the public. Let us look at the axes of this graph. The X axis shows the public's degree of trust in the nuclear regulator. And the Y axis shows the degree to which the public believes that nuclear power plants can be operated in a safe manner. As you can see by looking at the upper right-hand quadrant, there's a strong correlation between trust and regulators and the public's perception of nuclear safety. The greater the trust in the regulator, the greater the belief that nuclear power plants can be operated safely. So how do we, the regulator and industry, build public trust and confidence in what we do for nuclear safety?

This question brings me to the main focus of my remarks -- effective public communication and meaningful engagement. You may reasonably ask why is Ostendorff talking about this, he doesn't know anything about communications. I'm certainly not an expert. But rather, as many of you in the audience, I am a practitioner and user of communications. And I, along with you, continue to witness day in and day out the vital importance of communications for the NRC and the industry. Now, I touched on the topic of communications in last year's RIC address in a very brief discussion of the NRC's principles of good regulation, specifically the principle of clarity. The events of the intervening 12 months have highlighted its importance. And every one of us in this ballroom today shares responsibility for effective communication and meaningful engagement with the public.

The topic of communications is, first, enduring; second, universal; and third, an area where we must all see continuous improvement. Let me start with the tragedy in Japan last March for context. Now, Fukushima was a

significant event not only from a nuclear safety perspective, but also from a communications perspective. The event involved complex, technical circumstances, resulted in significant onsite and offsite consequences, and led to the evacuation of over 100,000 people. Last month, in response to the Freedom of Information Act request, the NRC released transcripts of discussions in the NRC headquarters emergency operations center during the first days of the Fukushima accident. Some of you may have read these news stories and seen the transcripts and the audio recordings on NRC's YouTube channel. Now, I listened to some of the recordings. It was evident there was some confusion, and at time, an absence of reliable information. On a personal note, I have also experienced similar levels of confusion combating fires and other emergencies at sea during my career on six submarines. Confusion and lack of accurate information typically accompany most emergencies. It's a fact of life.

Now, the NRC headquarters is about 7,000 miles from Japan, but we did have direct lines of communication with U.S. assets in Japan to provide us with what information was available at the time. What about those public citizens who lived only a few miles from the site? Did they have direct lines of communication as to what was happening at the site? Who were their sources of information? Did they understand the risk significance of the unfolding events? Given the crisis situation at Fukushima, I'd say that regardless of whether you are an operator, an emergency responder, a company executive, a government official, or a member of the public, you all must be able to rely on clear understandable communication and information in order to do your job and to understand what's happening. Crisis communications are vitally important.

Well, what about our public communications and engagement when

there is not an emergency, when we're not in a crisis? What we say, how and when and to whom we say it are also very important, especially to our public audience on the risk of our nuclear facilities. As I mentioned earlier, all things nuclear carries special concerns to the public. In the public's perception of safety, it is directly correlated with their level of trust. Clear, understandable, and frequent communications can have a direct positive effect on trust. As with many thing, this is often much easier said than done. That said, I think there are a few basic considerations for effectively communicating with the public. These basics are knowing, first, who is your audience, second, what is their level of understanding of the issues at hand, and third, what is your communication objective. Now, I took these basic considerations from a 2004 NRC document shown here on effective risk communications. I found this to be a very well written document. I encourage you to get a copy and read it if you've not seen it in the past.

Let me share a few examples to illustrate each of these three basic considerations. The first example, knowing your audience. The slide on the left comes from the NRC Near-Term Task Force's initial presentation to the Commission following the release of their report last July. Here the audience was the Commission, which was already well aware that there is no imminent risk of continued plant operation and licensing. There is no need to reassure the Commission during that briefing that U.S. nuclear power plants are safe. Thus, a bullet plant approach on the left here was an effective communications tool.

On the other hand, Pacific Gas and Electric had a stronger message to convey to a much different audience. They needed to communicate to the public that the site characteristics of Diablo Canyon are significantly

different from those of Fukushima. Any member of the public can see the drawing of the plant on the right, digest the Diablo Canyon plant is on an 85-foot bluff, and understand that this specific site is protected against the maximum projected tsunami of about 32 feet.

Second example, knowing the level of understanding your audience has about the issues at hand. Last August, a 5.8 magnitude earthquake near Mineral, Virginia directly affected the North Anna Nuclear Power Station. I showed a picture of this event at the beginning of my remarks today. Although the earthquake felt at the site was greater than what the designers had planned for, all safety systems functioned as intended, and the plant shut itself down automatically without incident. Now, I can recall the meetings and briefings my colleagues and I received on North Anna during that time period. Those discussions included talk about the operating basis earthquake, or OBE, cumulative absolute velocity, or CAV, and the ground motion response spectrum, GMRS.

Now, I consider myself to be a reasonably technically competent individual. However, I must admit to you that I am certainly not a seismic expert. And, quite frankly, I did find it challenging at times to really understand the information presented and what it meant to me from a safety perspective. I thought to myself how would a concerned member of the public living near North Anna receive this same information. And would such information build trust and confidence in the safe operation of this facility and what the NRC as a regulator was doing about the event. When we communicate with the public, we really need to understand their level of technical knowledge and adjust our communications accordingly. As I mentioned earlier, there are certainly

members of the public out there who are highly knowledgeable on technical matters, but, at the same time, there are likely to be others who are not.

So, while discussions about OBE, CAV, GMRS may be useful to regulator or the NRC staff in understanding the impacts at the North Anna site, those terms and the squiggly-line graphs are probably not the best way to communicate the earthquakes' onsite impacts to a member of the public. And I know this graph on the left is a bit hard to read. It's not my intent that those of you in the back of the room distinguish these plots of vertical ground motion acceleration as a function of frequency. A graph such as this may not be useful for someone with an engineering background, but it was quite useful to the NRC and the Commission.

In contrast, for a member of the public, photographs showing the actual damage sustained on site are often times far more effective, as might be offering a public tour of the facility. This hairline crack shown on the right slide with red arrows is somewhat difficult to see because it is fairly small. This cosmetic, non-structural defect was the most serious damage discovered after about 10,000 man hours of inspections and evaluation onsite at North Anna. I personally found that Dominion's presentation at the October 21, 2011 public Commission meeting on the earthquake was a good example of clear and understandable communication. The two slides on display right now are from that session. I think that briefing struck an optimal balance of technical information useful to the regulator, the slide on the left, and image that are meaningful for member of the public, the slide on the right. I invite you to the NRC's website to see these slides.

The third example, knowing your communication objective. I'm

going to use flood design to talk about this point just for a moment. Now, let's say my objective is to assure someone from the public that a nuclear plant is safety designed and protected against flood hazards. I believe as Chairman Jaczko mentioned yesterday in his remarks, in August of 2011, Hurricane Irene was making her way up the East Coast of the United States. The headlines on the left had the objective of communicating the potential for damaging impacts from Hurricane Irene. The news media is generally pretty good at meeting their communication objectives. The graphic on the right is from a briefing I received from a Salem and Hope Creek licensee, PSE&G. Salem and Hope Creek were in the projected path of Irene. If PSE&G's objective was to communicate that the Salem and Hope Creek Nuclear Power Plants were safely designed and protected against flood hazards, I think their graphic on the right is a nice job in meeting that objective. It shows the relative elevations of key safety systems and the relationships to various flood design levels. It is simple and effective.

Let's tie these basics back together. This is a more personal example. It's not a sea story, but it is a water story. I'm going back to the 1974/1975 timeframe. That time, along with others, I was doing a lot of fairly complex cave diving in the freshwater caves northwest of Gainesville, Florida, in the panhandle area. A lot of these are decompression dives. One of those underwater caves, and perhaps some of you have heard of this or seen this cave, one of these caves called Jenny Springs had a very clear sign stating the number of divers who had died from drowning in that cave. In the 37-plus years since I first ventured into that cave, and there had been a -- excuse me, there had been a sign with a tombstone on it back in 1974 when I first went there that said "12 divers have died here." In the intervening years, that sign was updated

to reflect the higher number of deaths. And it was later replaced by the sign shown here with the grim reaper. I don't know if you can see the upper right-hand slide, in later years, there were grates that were installed to prevent divers from going back into this cave that goes back probably 1,200 to 1,500 feet towards another spring called Devil's Eye.

Why am I showing this? The warning signs, the risk communications could not have been more clear to divers. The danger could not have been more apparent nor the consequences more plainly stated. In December 1975, about four days before Christmas, I went down into that cave for a night dive with two very close friends, one of whom, Bruce Hinkley [spelled phonetically], is here today at the RIC. Now, I'm not going to recount a very sobering near-death experience that Bruce, Craig Scott, and I experienced that December evening other than to say two things. It was very near death, and two quit cave diving that night. In spite of clear warnings, we ventured into dangerous territory, and we were very lucky to live to tell the story.

Let me offer a few comments on the risk communications from the land owners of that cave site. The communications were indeed early, accurate, and understandable. The audience was certified cave divers with an advanced level of understanding of cave hazards and decompression tables. The communications objective was clear in articulating the very real risk of death for those who entered the cave. In sum, the land owners did effectively communicate t he danger of that cave to myself and others. The fact was that three young and, seemingly to themselves, invincible Navy guys chose to ignore that warning. The moral of this story is that sometimes we just have to accept that providing the information to others is all that we can do, but we still must do

it. Others will then take that information and act on it to form their own judgments of the situation.

I've covered a few basics. How do those basic considerations get put to good use? This is not rocket science. It's pure and simple, common sense engagement with the public. I'll share one recent example. As a commissioner, along with other on the front row here, I am very interested in hearing different perspectives on any given matter, including listening to those members of the public who may disagree with me. As previously mentioned by Commissioner Magwood, he and I visited the Diablo Canyon Nuclear Power Plant in California last October, and we also met for two hours with the San Luis Obispo Mothers for Peace. We sat down for two hours and had a very open, frank dialogue. From my perspective and I think Commissioner Magwood's, that engagement was very meaningful to both of us. And I walked away from that meeting with a much greater appreciation for their concerns. One specific subject dealt with how the NRC conducts public meetings. Another dealt with how the NRC explains its post-event decisions to the public. Elmo Collins, my good friend, Region IV administrator, also participated in this meeting. I know that Elmo, Bill Magwood, and myself took away some very constructive feedback that Elmo has already used to incorporate into how they, in Region IV, conduct public meetings.

So, here's a key message. The time to build trust with the public is before a major event or emergency occurs. Regulators and the industry must build credibility and trust continuously, yet we also have our independent responsibilities to do so. In the past, there may have been a natural reluctance to communicate in certain areas or certain groups because of a belief there may

be little to gain. I reject that position. I'd assert that it is our obligation to openly, continually communicate with those in the community we serve. Building and sustaining community trust requires significant education, outreach, and senior leadership commitment.

There have been some recent developments that provide us with an opportunity to communicate and engage with the public in a meaningful way. And with those same three basic considerations mentioned earlier in mind, I'll mention three. These developments include the recent steam generator tube leak at SONGS, the release of NRC's State-of-the-Art Reactor Consequence Analysis, or SOARCA draft report, and the study results to update the seismic activity in the Central and Eastern United States.

Now, I could probably spend another hour talking about better communications and provide other examples. Don't worry; I'm not going to do that. But I will leave you industry members, regulators, both here and abroad, with a few take-away considerations as food for thought.

I offer the following three closing take-aways, things that we ought to all think about as we go back to our jobs after this conference. First, we should assess our communication tools, especially our websites and social media. Are your communications tailored to the scientific literacy of your audience? Second, I encourage you to look at how your organization critiques and assesses your own public communications. Are your efforts achieving your communication objectives? And third, I encourage all of us to be proactive in our communication efforts to the public. We should not be afraid to see out those who might disagree with us.

With that, I will close. Thank you for your attention.

[applause]

BRIAN SHERON: Okay, thank you. We have a number of questions here. I doubt we'll get through all of them, but we'll take a good try at it here. It is difficult for a company to develop an application for a reprocessing facility without a regulatory framework. Will the Commission develop a regulatory framework for a reprocessing application?

COMMISSIONER OSTENDORFF: I know Commissioner Magwood provided some comments earlier today, and I agree with his comments. I'll add a couple other thoughts here. I know that the current NRC budget does have some resources developed, or in there, to look at what are the regulatory gaps that might be associated with a reprocessing framework. When I meet with Mike Weber and Cathy Haney and others in the organization, I think they have articulated the importance of continuing to have NRC staff engagement in these areas in advance of receiving a potential application. So I think we are looking at this area, but it's a matter of balancing resources. There's only so much that can be done before we receive an actual application.

BRIAN SHERON: Fukushima does often some lessons learned. However, some of the key contributors to the accident were Japan's challenging geography, cultural aspects, including regulatory culture, safety culture, et cetera. Does NRC factor in such soft issues in policy making?

COMMISSIONER OSTENDORFF: That's a very thoughtful question, and let me comment here and there's different ways of answering this question. Let me pose it this way. Bill Magwood and I were in Japan together January 18th and 19th. On the 18th, we met with NISA, METI, and other government officials in Japan who have responsibilities for nuclear regulation.

And we had some discussions with the Japanese officials about their efforts to reform their regulatory approach. And I think the Japanese are taking this very, very seriously. The next day, we went to the Fukushima site and saw firsthand, albeit 10 months after the event, the devastation of the tsunami. I would say in response to the question that all of the commissioners integrate, synthesize these kinds of issues, soft or hard, technical, policy, politics, in our decision-making process. And so, I think, yes, we are taking those into account as we look at Fukushima actions. And I think we've done so in a responsible manner.

BRIAN SHERON: Okay, thanks. What's the greatest risk to nuclear operation that keeps you awake at night?

COMMISSIONER OSTENDORFF: I sleep pretty well at night.

[laughter]

I've got a bad back, and eight years ago, I bought a Tempur-Pedic mattress.

[laughter]

My wife will also testify to that. You know, I'd say there's not anything that keeps me awake at night. I'll tell you, though, having spent 16 years in sea duty operating nuclear propulsion plants, albeit I never have operated a commercial nuclear power plant, there is one concern I have, and that's one that's, I think, common to both the naval reactors program, the submarine nuclear powered program as well as commercial nuclear industry, and that is avoiding complacency. Twenty-four/seven, there are folks out there operating our commercial nuclear power plants and our fuel facilities, our waste facilities, and that complacency is something that is so important to always be aware of the risk of. And so, I'd say that I am alert to and worry about

complacency in any area. We can never rely upon on how well we did last week or yesterday. We need to make sure that today and tomorrow we're operating safely and have our focus on safety.

BRIAN SHERON: Much of what you've discussed as communication falls into the category of outbound communication. What is the role of the other direction? How can the Commission listen better as well?

COMMISSIONER OSTENDORFF: Let me go back and highlight an example and looking at Elmo again. I know that when Elmo and I and Bill Magwood talked back in October out in California, we had a really good post-meeting discussion, the three of us, about how as Region IV, how should the NRC headquarters, the Commission, act upon some feedback we're getting from Mother for Peace. And so, while it may not be evident to the broader public or to perhaps this audience, I would say that we are very mindful of the need to listen and process feedback we get from our constituents. I will tell you that when we have our periodic meetings as commissioners with each other, with the other senior staff at NRC, oftentimes we engage the issues of what kind of feedback are you getting from the public stakeholder meetings. And I'll tell you, having worked in the Department of Defense and the Department of Energy, I will -- I take great pride in how this agency stands up and engages the public. Could we do better in processing that public feedback to us? Of course, we always can do better. But I think right now our processes and the sensitivity of this agency to listening to the public is pretty high.

BRIAN SHERON: What are your views on how regulatory bases for rulemaking are presented to the Commission and stakeholders? How about threat bases for security rulemakings?

COMMISSIONER OSTENDORFF: Two questions there. I think certainly, in my execution of responsibilities as an individual commissioner, I think we need to be very mindful of the need to have a strongly defined, articulated basis for us to take an action, whether it be to issue an order, to approve a rulemaking, et cetera. And I know that I think the regulatory analysis part of that is really important. I know that the chairman and other commissioner colleagues here in the front row, I think all five of us have taken the position that we believe that regulatory guidance ought to be done sooner rather than later to facilitate proper decision making.

In the security area, I'm going to kind of take a side step here, I would say that I have had some votes that I've cast since I have been a commissioner where I have not necessarily approved of the staff's recommendation because I thought that a threat basis was lacking. And I've not approved going forward in certain areas. So I think across our whole spectrum of activities, whether it be safety or security, we need to have that regulatory analysis, we need to have an understanding of the threat for security issues, and we need to take all that into account when we make our decisions.

BRIAN SHERON: This one says, "I believe NRC has made efforts on crisis communication so far, including lessons learned from historical nuclear events. Having said that, what are the top three lessons learned of the Fukushima event for NRC in terms of crisis communications?"

COMMISSIONER OSTENDORFF: Well, I don't have in my hip pocket a top three. I will make a couple of comments. I know that Jim Wiggins in NSIR and others in the organization provided a post-Fukushima report to the agency that I thought was very well done. And I think they captured a lot of

elements. I think as has been mentioned in various Congressional hearings but also in other form, it's reality that in the crisis, you don't have all the best information. And I know that there were questions about spent fuel pool level about a year ago, pool number four. And it was very challenging for those involved in the decision making here at the NRC to understand what the best information was and then to take prudent actions associated with what they thought was the best information. And I quite frankly think they did that. I'd say that recognizing, I think, probably the top lesson is recognizing that you may have inaccurate or unreliable information and then having some error bars around your actions in order to frame responses appropriately.

BRIAN SHERON: The recent Commission action to require spent nuclear fuel pool instrumentation was implemented by waiver of the cost-benefit backfit analysis. Is this a decision limited to the specific facts of spent nuclear fuel pools, or can we expect this type of waiver to become the norm?

COMMISSIONER OSTENDORFF: I'll speak about my vote on that. I'm not going to categorize any other commissioners' votes. That's for them to do. I voted to support the issuance of all three order, the first two orders for mitigating strategies and reliable hardened vents under adequate protection need. I voted to support the issuance of orders for spent fuel pool instrumentation under the administrative exemption. Why? I did not see any core damage or any direct impact on core safety or core protection directly associated with the spent fuel pool instrumentation. At the same time, having operated nuclear propulsion plants for many years and having been back maneuvering as [unintelligible] watch engineer commanding officer, I'm certainly aware of the importance of operators not being confused or distracted. It's for

that confusion and distraction reason, not core protection, that I thought it was important to approve those orders as an exemption. I can't predict how we'll go forward with others. We'll wait and see.

BRIAN SHERON: Okay, and I think we have time for one last question. Regardless of the connection, or lack thereof, between the events at Fukushima and the U.S. nuclear industry, the events may have impact on future U.S. licensing. What can the industry do to reassure the public that U.S. plants are safe?

COMMISSIONER OSTENDORFF: I hope they'll listen to my talk today.

[laughter]

COMMISSIONER OSTENDORFF: I'm not being so facetious to think that's an appropriate answer, but I think that's part of it. I think continuing to communicate effectively with the public is extraordinarily important. I think the clarity of communications explaining to the public and the NRC staff what actions are being taken goes a long way towards ensuring confidence in the public. I know that I've been very pleased, and I go back to my comment earlier when I was commending Marty Virgilio, I believe the entire process that Marty and the steering committee and the Japan lessons learned directorate that Dave Skeen and company have followed has been a very proactive one to engage the public and engage industry. And those communications over the last X number of months could not have been more fulsome. So I think we're doing a lot of the right things. We just need to stay focused on it.

BRIAN SHERON: Okay. Well, with that, I think we're just about out of time, ready for the break. So, thank you very much.

COMMISSIONER OSTENDORFF: Thank you.

[applause]

BRIAN SHERON: Okay and I think we're now scheduled for about a 30-minute break, and then if we could reconvene here at 10:30 for a special plenary session.

[Whereupon, the session concluded]