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U.S. NUCLEAR REGULATORY COMMISSION

STRATEGIC PROGRAMMATIC OVERVIEW OF THE SPENT FUEL STORAGE AND TRANSPORTATION, AND THE FUEL FACILITIES BUSINESS LINES

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TRANSCRIPT OF PROCEEDINGS

Public Meeting

Before the U.S. Nuclear Regulatory Commission:

Allison M. Macfarlane, 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 MACFARLANE: This morning -- first of all, let me welcome you all here. Welcome to the -- our staff, the media, members of the public and industry, for today's meeting we are going to hear presentations just from the staff today, the NRC staff, on a broad range of activities in the spent fuel storage and transportation and the fuel facilities business lines. And similar to the last meeting like this that we had, we're going to do this in two sessions with a break in between. The first panel will discuss topics related to spent fuel storage and transportation, and then we'll have a period of Q&A from the Commission, and this will be followed by a panel discussing the important areas related to fuel facilities and again, Q&A with a break in between, as I said. So I'm looking forward to the staff's presentations on this. Let me first check with my colleagues to see if anybody has any remarks before we begin. No? Okay, great. Well then why don't we begin? I'll turn it over to Bill.

BILL BORCHARDT: Good morning. As you mentioned, this is the fourth in a series of strategic program reviews that we've been conducting. Our focus today will be similar to the previous briefings in that we will be evaluating the strategic vision over the next two or five years for these two programs. Both business lines we're discussing today remain quiet dynamic, particularly in response to external drivers such as the international expansion of the nuclear fuel cycle and the National Program for Spent Nuclear Fuel. Before I turn the, briefing over to Cathy, I just wanted to reiterate one comment, and that is relating to the Waste Confidence decision.

Per the Commission order, the NRC will not issue licenses dependent upon the Waste Confidence decision or the temporary storage rule

until the court's remand is appropriately addressed. However, I'd like to just remind all entities interested in our licensing activities that this just has to do with the final issuance, and that all licensing reviews and proceedings, including new reactor applications, renewals for operating reactors, and renewals for storage installations will continue to move forward. In the meantime the spent fuel storage and transportation business line has the lead and is working on resolving the defects identified by the court, and reestablishing the waste confidence. So with that, I'll turn it over to Cathy.

CATHY HANEY: Thanks, Bill. Good morning Chairman, Commissioners. This morning I will be sharing with you a strategic look at the spent fuel storage and transportation business line. I will also be emphasizing the degree of interconnectivity we have with the operating and new reactor communities, and with the international community. I'm joined at the table today by Brian Sheron, the office director for the Office of Regulatory Research, Mark Satorius, the office director for the Office of Federal and State Materials and Environmental Management Programs, and Jim Wiggins, office director of the Office of Nuclear Security and Incident Response. I'm also joined in the well by Mark Lombard, Lawrence Kokajko, and Keith McConnell, who are all division directors in the Office of Nuclear Material Safety and Safeguards and help me with the day-to-day leadership of this business line. Finally, I have Scott Moore, my deputy office director in the well with me also.

Our work in this area assures adequate protection of public health and safety through licensing, rulemaking, international interactions, research, and oversight activities. Currently this business line has approximately 103 FTE and just over $9 million for contract support. For fiscal year '14, our resources are

essentially the same. I've structured the briefing today to touch on the strategic goals and business line priorities. I will then be describing our product lines and close with our forward focus.

Turning to slide five, with our strategic goals. As we have looked at this business line, we see a very dynamic situation where spent fuel capacitates in the United States are diminishing with time, leaving only a few viable options beyond dry storage. We know that we must have an efficient and effective regulatory program to be able to adjust to this rapidly evolving situation. Public concern about leaving spent fuel in pools was heightened after 9/11, and again after the Fukushima Dai-ichi tragedy. We are mindful of these concerns, and spent fuel strategies being considered and are examining our program to make certain we are fully prepared to address potential changes to industry strategies. Beyond the dry storage option, through our relationships with the offices of Nuclear Reactor Regulation and New Reactors and our direct involvement with industry, we are seeing many utilities shifting to high burnup fuel levels which helps limit the volume of spent fuel. Through our interactions with the Department of Energy, we are aware of efforts to develop new fuel designs which could also contribute to limiting spent fuel volume. While these are potentially useful strategies for the future, the industry has a today challenge, and we are seeing advances in the technologies and materials used for dry storage systems. These systems are the mainstay of the spent fuel management strategies.

As we implement our regulatory program, we remain attentive to this dynamic situation and are confident that we will be fully prepared to address the technical issues and industry proposed changes to spent fuel management. We are sensitive to the changes in the national policy for disposal of spent fuel.

We have seen national disposal policies evolve with time and changes in the administration and congressional direction. The Blue Ribbon Commission's recommendations have the potential to significantly affect our nation's direction on disposal. We have established and maintained a regulatory framework which accommodates a variety of disposal options, anticipating the associated technical and regulatory challenges and preparing to enhance the regulatory framework to address them is key to achieving our mission.

We have found that an open and active dialogue with all parties that have an interest in our work is very important in gaining their trust and in getting from them comments and ideas that help us build a stronger program. We are best informed by regularly engaging members of the public, special interest groups, other government agencies, and international partners in discussing our regulatory processes. Good communication and understanding with industry and other stakeholders are key for regulatory effectiveness.

While I do feel we have a strong program, we can always to better. Through our interaction with the Commission, other members of the staff, the public, and others in the government, we find areas where improvements and enhancements can be made, and our strategies and utilization of NRC and contract resources. Slide six please.

As I have looked at our priorities, assuring the continued safety and security of storage and transport operations, including dry storage loading and radioactive material shipments is very clearly our first and foremost priority. Once you move beyond safety and security, completing our work on waste confidence in accordance with the Commission direction is a driving priority. Finally, we have a significant responsibility to be able to respond to the evolving

national policy on waste. We have structured our work to implement the business line priorities through the six product lines depicted on this slide. Our success relies on close coordination with virtually every headquarters office and the Regions. Our successes are truly group successes.

Licensing is of course our primary tool in ensuring safety and security, and represents the bulk of our work. Some of our major accomplishments during the past fiscal year include the license amendment for spent fuel transfer from the Indian Point Unit 3 to the Unit 2 spent fuel pool, and the first standalone safety evaluation report for an Independent Spent Fuel Storage Installation physical security plan for the Lacrosse boiling water reactor dry-storage facility. We also issued two security exemptions at decommissioned Independent Spent Fuel Storage Installations to address security requirements.

During the past fiscal year, the staff completed approximately 15 storage licensing actions and more than 50 transportation certification actions, including those that support reactor waste shipments, gamma-knife medical isotope shipment, U.S. foreign fuel return program, and shipment of transuranic wasted from DOE facilities to the waste-isolation project plant. From these few examples you can see we've had a very busy year, and we anticipate a similarly heavy workload this year.

Licensing involves detailed engineering and analysis, and is often effected by difficult technical questions that sometimes need to be explored so licensing actions can proceed. On slide nine, you can see that industry proposals to use high burnup fuel have caused us to focus on a specific technical issue that is affecting licensing actions. This picture depicts the phenomenon of hydride-reorientation, a mechanism that can potentially embrittle and weaken

spent fuel cladding. Under the current regulatory framework, if cladding integrity cannot be demonstrated during storage, mitigating strategies may be needed to ensure retrievability of high burnup fuel assemblies. This impacts storage renewals for these fuels. Likewise, it impacts transportation certification for high burnup fuel, in that the fuel would need to either be repackaged before transportation or its transportation package be certified for damaged spent fuel.

As we address these issues and the licensing implications, it is possible that they may present policy decisions for the Commission. We are engaging the industry and public to solicit their formal input on the issue and potential resolution proposals. We will of course keep the Commission informed as the potential resolution of this issue matures and would provide a policy paper for Commission consideration if the resolution rises to a policy level.

On-site inspection activities are perhaps our most effective tool in ensuring licensees are in compliance with the regulations and their licensing basis. Our inspections range in scope from verifying quality assurance requirement procedures to visually observing cask loading activities. In fiscal year 2012 we performed 19 inspections and 23 inspections are planned for this fiscal year. We have had significant accomplishments in the inspection enhancement initiative. We have been communicating with the Regions, revising office instructions, inspection procedures, and manual chapters, and engaging interested parties on a variety of topics including operating experience.

We have a strong operating experience program, but this is an area where we feel we can do better, consistent with our goal of strengthening organizational excellence. We are revising the procedure for documenting, analyzing, and resolving concerns identified from operating experience. We

believe these improvements better endure that the immediate and long-term safety concerns identified from operating experience are documented, analyzed, resolved, and disseminated. Moving to slide 11.

From the previous slide, I mentioned that we support the Regions in conducting inspections of Independent Spent Fuel Storage Installations. An Office of Inspector General audit report from 2011 identified a weakness in our ISFSI training program, so we developed a qualification program and associated training for ISFSI inspectors. I'm very pleased to report that the first training session occurred last week in the Executive Boulevard building and was well attended. Moving to slide 12 and international activities.

The safe and secure storage, transportation, and eventual disposal of spent nuclear fuel is a concern in every country that has a nuclear power plant. We have engaged the international nuclear community through variety of venues, including the International Atomic Energy Agency, the Nuclear Energy Agency, and the International Commission on Radiological Protection, to name a few. We are actively engaged and provide significant leadership in these groups. Two such examples are Bill Brock's leadership of the IAEA Transportation Safety Standards Committee, and my participation on the bureau of the NEA's Radioactive Waste Management Committee. Staff and management involvement includes technical committees, research activities, and the development of safety standards. NRC's active participation and leadership has yielded benefits to our program in terms of specific products from the groups that support our program and contribute to achieving our goals. Moving to slide 13.

Rulemaking is one of the vital activities regulatory bodies perform. It sets the standards that, if met, assure safe and secure uses of

nuclear materials. While my staff in NMSS is primarily responsible for developing the regulatory basils for the rulemakings, we are partnered with the Office of Federal and State Materials Environmental Management Programs that provides the rulemaking project management, and where needed the Office of Nuclear Regulatory Research provides the technical underpinnings for our rules. Depending on the specific subject matter, the Offices of Nuclear Reactor Regulation and New Reactors also contribute to our effort. Our rulemaking efforts provide a very strong example of our degree of interconnectivity this business line enjoys.

In the past fiscal year, we completed a revision to 10 CFR Part 73, for physical protection of spent nuclear fuel and transit, which partially responded to a petition for rulemaking submitted by the State of Nevada. This petition requested that NRC amend its regulations concerning safeguards for shipments of spent nuclear fuel against sabotage and terrorism. We also completed revisions to 10 CFR Part 71 and 73 for advanced notification to Native American Tribes of transportation of certain types of nuclear waste. These rulemakings contribute to our goals of regulatory effectiveness and continued outreach.

As you are well aware, waste confidence has great importance to NRC and as a topic of stakeholder interest. With strong support from the other business lines across the agency, we have taken some important steps that will lead to successfully addressing this issue. I am very pleased to report that the Waste Confidence Directorate is now fully staffed. The Directorate staff has rapidly begun its work. One of the Directorate's two branches is currently developing a robust schedule of scoping stage public outreach, while the other branch is developing preliminary outlines of the draft Environmental Impact

Statement. Both branches are in close coordination with the contractors who will support the staff's efforts over the next two years.

Finally, I'd like to note that the staff is confident that it will meet the Commission's 24 month target for the Environmental Impact Statement and the final rule. And I look forward to providing updates of the staff's progress in coming months.

Looking forward, we are leveraging our leadership in IAEA's Transportation Safety Standards Committee by engaging on a Part 71 harmonization rulemaking to more closely align our regulations with the IAEA's safety standards TS-R-1 Regulations for the Safe Transport of Radioactive Materials. We are revising 10 CFR 71 for both international and domestic regulatory compatibility. This rule is expected to be published in the Federal Register in early 2013.

The rulemaking petition process is a very important part of NRC's overall rulemaking process. In that vein, we recently received a petition from the Nuclear Energy Institute to update Part 72, which is the licensing requirements for the independent storage of spent nuclear fuel, high-level radioactive waste, and reactor-related greater-than-class-C waste. The petition seeks several changes to Part 72 and we are actively evaluating the petition. It's too early to draw conclusions about the merits of the petition, but we find these types of engagements useful as we pursue our goal of continued outreach and engagement with our stakeholders.

Moving to slide 14. I have repeatedly stressed the benefit this business line receives from the significant interconnectivity with our partner offices. I've just noted the value we derive from the rulemaking petition process.

The security rulemaking for Independent Spent Fuel Storage Installation illustrates both of these points. This rulemaking is designed to improve the consistency and clarity of the security regulations for site-specific and general Independent Spent Fuel Storage Installation licenses, establish generic applicability of security orders, and establish a risk-informed and performance-based structure in updated security regulations. Our recommendation on the rulemaking scope is due to the Commission in May of 2013.

Moving to slide 15. We enjoy a very close and productive relationship with our partners in the Office of Nuclear Regulatory Research; they are a significant contributor to our goals on regulatory effectiveness, flexibility in responding to an evolving national policy on disposal, and continuing our outreach and engagement with stakeholders. In my discussion of technical issues that it can affect licensing, and that may result in policy matters, I use the example of hydride reorientation and high burnup fuels. In support of this and other business lines, our research partners have completed research on the properties of high burnup fuel and the development of a unique testing instrument to be used in research of fatigue testing of high burnup fuel, which is show in the photograph. For this business line, this research supports transport certifications, storage renewals, extended storage and transportation project that I will describe in a moment.

Moving to slide 16. Research plays a vital role in both our ongoing and forward-looking efforts to support extended storage and transportation. This slide shows corrosion found at a Point Beach cask in 2019, and cracks in the storage modules in the Three Mile Island ISFSI in 2000. Although such conditions are rare, these examples underscore the importance of the extended

storage and transportation considerations, especially with regards to aging management. The challenge for us and industry is what to do about it. We have issued a draft report for public comment that identifies and prioritizes the technical information needs for dry storage systems to address aging concerns in support of extended storage and transportation. Some technical areas identified as important for extended storage and transportation are also relevant in near-term licensing and renewals.

The long-term research activities we are pursuing under this business line are well-coordinated with our research efforts from the domestic industry, as well as the international community. We are pursuing independent evaluations of the degradation mechanisms and possible in-service methods for monitoring storage systems and components. Through these efforts, we are confident that we will be able to address the challenges to the long-term effectiveness of storage and transportation strategies proposed by the industry.

In closing, I want to emphasize that the staff and management who make up the spent fuel storage and transportation business line work in a very dynamic environment. As we move forward, our unwavering focus will continue to be on the safety and security of storage and transport operations, including the focus on extended storage and transportation. Waste confidence is a priority to the business line and the agency. And, lastly, we will focus our work on ensuring that the agency is positioned to respond to the evolving national policy for disposal. I am confident that we have the knowledgeable, dedicated staff and management resources necessary to ensure success. This concludes my presentation and we would be pleased to take questions.

CHAIRMAN MACFARLANE: Okay. Thank you very much, Cathy,

that was very good. We are going to start questions off with -- well, Commissioner Magwood is the one who is going to start questions off this morning.

COMMISSIONER MAGWOOD: Of course, start off with the jet-lagged Commissioner, or not. First of all, thank you for the presentation, Cathy. It was very comprehensive, covered a lot of ground. You stressed the issue of hydride reorientation. Because you mentioned that specifically, I wonder, do you see that as one of the most significant potential vulnerabilities in long-term storage?

CATHY HANEY: I would say it is -- I don't know if I would say it's the highest, but it is one of the big considerations that we are looking at. And I guess I would call for my first life-line, too, if you want to go into a deeper discussion of some of the other items that we're looking at.

COMMISSIONER MAGWOOD: Yeah, please.

CATHY HANEY: Okay. Mark, do you want to --

MARK LOMBARD: Mark Lombard, director of Spent Fuel Storage and Transportation Division. At this point, Commissioner, there's some information that is evolving, emerging on high burnup fuel and a potential embrittlement, as the spent fuel cools off, below 400 degrees. So we're at a point where we don't know, specifically, if it's going to be an issue, but we're at a point, of also looking at it very closely, working with Research -- with our partners in Research, and, also, some Oak Ridge National Lab studies that are going on now. There's also, I'm sure you saw, on the one pager on this issue, the DOE demonstration project that the industry is working on.

So I guess my answer is the information is still emerging, it's very

young in its process, so we're not sure yet if it's going to be even a potential, but we're looking at it very closely because some of the early information that's out there, indicates that there is hydrogen embrittlement of the spent fuel cladding as it cools off.

COMMISSIONER MAGWOOD: While your lifeline is still standing up --

[laughter]

Brian, you may want to weigh in on this as well. Can you give us just sort of a summary of what you think the major vulnerabilities are likely to be, when you think of storage for, perhaps, decades in dry casks? Where should we really be focusing our attention from a safety perspective?

MARK LOMBARD: This is one of the issues, as Kathy says, we are pursuing. And we're also looking -- special corrosion cracking is probably the next on the list of the canisters themselves looking forward into long, long term storage, up to, you know, the 300 year timeframe. That's probably in our top three list. And also you see, from the pictures in the presentation, cracking of concrete for those types of spent fuel storage installations is also a big concern. So those are probably the top three on the list right now.

BRIAN SHERON: Yeah. I would just add that, you know -- I guess my concern is that, fuel does become embrittled and the like, and then we do have to move it at some time in the future. It's the transportation part, putting it on a truck or a train and, you know, does it fall apart? And so that's something, I think, we're trying to look at, is what are the effects of this embrittlement, if it does occur over the long-term, and how it affects future transportation.

COMMISSIONER MAGWOOD: That actually moves into another

question I was going to ask, because I think you're right, because we're talking about the integrity of the spent fuel, the physical integrity. So, if it does fall apart, so what?

MARK LOMBARD: That's exactly it, does it become a safety issue or not? And that's another piece of the high burn-up fuel issue that we're looking at. Is it really a safety issue if you have gross cladding failure? Initial indications are probably not, but we want to look at that very closely to make sure we don't have a safety issue.

BRIAN SHERON: Yeah, or -- I mean, is there any special packaging or anything that we would need to do further before we did allow it to be moved, you know, to ensure that you don't have a pile off pellets, for example, when it reaches its destination.

COMMISSIONER MAGWOOD: Cathy, when you think about -- I think you and I have had some of this conversation in this past, when you think about the packaging that currently exists, where the spent fuel is currently stored, are -- what does our infrastructure look like? Are we in decent shape, as far as being able to move the spent fuel when the time comes? Or are we looking at major repackaging of spent fuel when the time comes to move it to a centralized storage or repository in the future?

CATHY HANEY: I would say it's -- we're in good shape on the timeframes that we're working towards right now. As you start to look out toward the 100 to, you know, 200 year storage, then it does call into question some of the aging management, touching on what Mark has said already. And that's some of the areas where my staff is continuing to look and engaging industry in discussions, as well as other outside -- other government agencies, primarily

Department of Energy. So from, you know, right now, today, yes, but as we look on further it's something that I think we need to closely monitor.

COMMISSIONER MAGWOOD: When you're asking -- I think you can sit down if you like -- we know where you are if we need you -- when you think about these questions, is the program configured and, is it staffed in a way that we can answer all these questions? Or are there any gaps in terms of our infrastructure and being able to attack these questions?

CATHY HANEY: No, I don't -- we have no gaps with regards to attacking the topic. I think we have clear support, strong support from the Office of Research on those activities. Also, within Mark's division, we have those individuals that are working on what we call the day to day licensing and inspection of the facilities, but there's very strong ties within that division, and across division lines, to those that are looking at the extended storage and transportation, that is the focus of one of Lawrence's division. So we have been very successful in matrixing within the Office of Nuclear Material Safety and Safeguards to address those issues, and I think are very well positioned as we gain new information through outreach activities, where, I think, -- again, the infrastructure is there.

COMMISSIONER MAGWOOD: Including all the questions on high burnup fuel?

CATHY HANEY: Yes.

COMMISSIONER MAGWOOD: There's a lot of research, I think, that needs to be conducted in that area. Are we planning to conduct that research, or are we going to rely on DOE -- how is that going to get accomplished?

CATHY HANEY: We are working through some, within our office, but I would say it's just a strong that we have ties to Department of Energy for that activity, and then, also, working with the knowledge that's coming out of the industry. We have to be careful, NRC is the independent regulator, and it's not our job, necessarily, to do that research, but we are very closely linked with those groups that are. And then, also, would use that, through a lot of the international committees and organizations that we work with, we're leveraging knowledge that's coming out of the international community for all the extended storage and transportation work.

COMMISSIONER MAGWOOD: Recognizing that we do have to remain the independent regulator, I trust you're familiar with all the aspects of that particular issue. Nevertheless, there are limited federal dollars to go into this research, and we do have to have some coordination with DOE as they go through their efforts. Can you characterize how we're approaching DOE in this? Are we simply looking at what they plan to do and looking to see where we can leverage when they have results? Or are we really coordinating a program to investigate some of these questions? How would you characterize it?

CATHY HANEY: I would maybe not go so far as to say that we're coordinating, because we are recognizing DOE's role in the federal government, but we do have -- several members of my staff are on committee, DOE committees, where they're planning the path forward with regards to this activity, extended storage and transportation. And by being a member of that committee, we have an -- we're playing -- we're influencing outcomes. But, yet, recognizing it is a DOE organization and, again, I would call Mark up, if you want to go down into some examples of what's referred to as the escape group that's coming out

of DOE. If you'd like that we can do that.

COMMISSIONER MAGWOOD: Sure. Why not? Maybe there is something I haven't heard.

MARK LOMBARD: See, I should have stayed here. Just so you know, we are staying closely coupled with DOE on many levels. And one level is -- lets' see tomorrow we're continuing our quarterly meetings with Jeff Williams of DOE, who is, really, -- there has been kind of some realignment in DOE on this topic, so Jeff is really the one closely tied to us, as far as activities going forward on extended storage and transportation. And, again, those -- that's our next of quarterly meetings that we're having with him to just make sure that we understand what direction they're going, as they determine that direction, and that we're not going to make any regulatory decisions in our space that may cause them some problems down the road.

COMMISSIONER MAGWOOD: But we're not actively trying to -- maybe this is, sort of try and interpret what Cathy just said -- are we giving them advice as to what we think the technical questions are, or are we giving them specific information on what our needs are, from a research perspective?

MARK LOMBARD: I wouldn't term it as advice, necessarily, but maybe, a soft influence of what they're looking at going forward, and working with some of the challenges that we have now, like retrievability, retrievability on a fuel assembly basis or a container basis. That's really something that could affect them long-term, as they look toward a final disposal method and location, so those are things we want to make sure, that decisions we make, the regulatory changes that we make interpretations of our regulations going forward, don’t invalidate or cause them harm down the road, and that they're not surprised

in the end of, "Oh, why did you make this decision or that decision?"

COMMISSIONER MAGWOOD: Brian, did you want to add something?

BRIAN SHERON: Well, I would just point out, a lot of the research we do is confirmatory. Some of it, though, is, some may call it exploratory, as well, where we look to try and identify where problems may exist and, where we see there's issues, I mean, we would relay that information to NMSS and I would presume they would, then, alert the industry of, you know, "Here's an issue you're going to have to deal with." We normally don't do that, if we don't -- you, if it's merely speculation, but if we do have, you know, experimental evidence that there's an issue, that helps substantiate when we go to the industry and we say, "You have a problem," because a lot of times, they may push back a little bit and say, you know, "Why," why do you think we have a problem?" Well, if we have the experimental data, then, it's kind of hard to refute. So, for example, we're looking at, for example, the effects of salt corrosion on casks, any stress corrosion cracking, any other degradation mechanisms that we think might affect the integrity of casks or the fuel, and this is the type of information that we would forward to the industry.

COMMISSIONER MAGWOOD: Thank you. Thank you, Chairman.

CHAIRMAN MACFARLANE: All right. On to Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Chairman. Thank you all for your participation here today. Cathy, I thought your briefing was very helpful, thank you. I just want to make a comment real quick, in reaction to your comments on the waste confidence status. I wanted to express my thanks and

appreciation for quickly staffing up the Directorate, Cathy, you and your colleagues here, that's very important. I was pleased to hear of your confidence in the ability to move forward on the 24 month time period. I think I'll just say, I think probably all the Commissioners would join this statement, that if the staff needs any additional guidance or direction to amplify or supplement the SRM from early September I know we're happy to provide it; so I'll just throw that marker out there, but thank you for the efforts, here, to move forward quickly.

I'm going to stay with Cathy and Brian, I'd like to go to the topic of the expedited movement of spent fuel just for a moment or two. And there's a recent EPRI study that's come out, that I think we've all been briefed on the EPRI view points. And I'm just curious as to what the staff's viewpoints are on that study. And however you want to handle that question, Cathy, Brian?

BRIAN SHERON: Well, I haven't read through the whole study completely, but you know, my understanding is that they're reaching pretty much the same conclusions we are and I think they're also recognizing that it's a very extensive proposition to do that. From what we've looked at, and I think I have said this before at meetings, what we're seeing from expedited is that from a public health standpoint there's not a lot of benefit because of the amount of time that's available to effect an evacuation if there was an accident or something. And so from a public health standpoint there's really not a lot of difference.

It also -- we're looking right now -- we haven't really done it, is looking at the competing risks. Obviously, if you move a lot of fuel to dry casks and at some point have to move it back into to transportation canisters to some interim storage, that's a substantial amount of additional fuel-handling that would come with, obviously, certain risks, with either a dropped cask or dropped

assembly or something, and so we're trying to look at that and the human reliability aspects of it. So that's something that we're still looking at.

CATHY HANEY: And if I could add one thing onto it, in looking forward, if you were to move sooner, one of the things that we need to do is go back and look at the existing cask designs and what's been approved because we have certain basis that we approve our casks on the storage containers right now. If those assumptions were to change it could have a long-term impact on our program.

COMMISSIONER OSTENDORFF: Staying with this question, as a follow up to either or both of you -- Cathy, you had mentioned in your briefing the international cooperation of you and your team with counterparts elsewhere, is there anything else, are there any best practices or other approaches to be gleaned from you interactions with international counterparts on this topic of accelerated movement of spent fuel out of the pools?

CATHY HANEY: I'm aware that it's been discussed and we have had some discussion on it in the Radioactive Waste Management Committee and then on sidebar conversations with some of the countries. I would say at this point it's, from my perspective, it’s more something that we are staying aware of and listening for. But I am not aware that any have come to light.

COMMISSIONER OSTENDORFF: Okay. Thank you. Let me go on to a different topic. And Cathy, in your presentation, I think, Commissioner Magwood hit on this point as well, that, you know, in the spent fuel storage and transportation area, it's a very dynamic environment, and while it's important to be flexible given that we had not pinned down a national strategy, we also realize that it was difficult and challenging. So I wanted to ask a couple of questions in

this area. I think Commissioner Magwood's line of questions got into the need to repackage or not, that kind of question.

But let me talk just for a moment and ask a question on the central storage, interim storage facility. Because I think that's one where the Blue Ribbon Commission comes out strongly recommending that. There's been a lot of talk about this around the country. And I'm just curious, you know, if there are initial staff thoughts, pros and cons, of a centralized interim storage approach in the United States.

CATHY HANEY: I would say we have not had conversations on pros and cons. We haven't approached it from that topic.

COMMISSIONER OSTENDORFF: Or areas that require further evaluation.

CATHY HANEY: Right, so from that standpoint we have had conversations about it. We feel fairly confident the regulatory framework is in place for centralized storage because we were able to license Private Fuel Storage years ago. So from the standpoint of do our regulations, do our guidance documents support that approach, we do have that in place.

I think from the critical skill set that it would need, again, I have the staff either within the Office of Nuclear Material Safety and Safeguards or have access to it in other offices. We would, potentially -- we would get into competing priorities within the agency. In addressing that issue, obviously we would work that up through the Executive Director of Operations and as need be to the Commission. So from a resource standpoint, we would need to address resources to support that. But if you look at the technical skill set in the regs, we believe that we have what it would take to license a centralized storage facility.

Obviously we would need to do -- there would be a lot of outreach involved with that as we would do similarly with any other significant licensing action. But again, we're able to do that, and I think we have the skills to do it.

COMMISSIONER OSTENDORFF: Are there any particular, Cathy or Brian, any particular research areas that would need to be explored more fully than is currently documented to approach a centralized interim storage approach?

CATHY HANEY: I'm not aware of any.

BRIAN SHERON: No, I'm not. I mean, obviously, transportation questions would come up. We are doing testing in Germany on the impact of dropping casks and making sure we understand the structural integrity and that we can calculate that, but I'm not aware of anything else.

COMMISSIONER OSTENDORFF: Let me turn to Mr. Wiggins down there, other end of the table here. Jim, let's talk just for a moment if you can about the ISFSI security rule and if I can just ask a question as to what can you say about any areas of technical concern, or research, you know, and Brian can certainly join in here as appropriate with -- trying to understand what technical issues need to be resolved prior to reaching a position.

JIM WIGGINS: I could answer the easy part that certainly to pick up the more administrative natures of the security orders and memorialize them in rules so you don't have to issue orders to subsequent installations is certainly a necessary item to clean up the regulatory process. Beyond that, as you're aware, we're taking a look at casks more specifically from the security point of view. We do have some testing that we are planning to do, either later this month or in the next month, it's a start along the line of deciding things like --

what can I say about it -- timelines and the potential for success of some attack vectors at these things. I would offer, there's also a spin-off from this and hopefully we could get a reasonable answer when you're looking at reactors that you would have to say well if you had a centralized storage facility what you have is the same thing only larger? I mean, you would have to take another look at it. Part of what we're going to look for is not just at reactor storage but away from reactor type environment also, this central storage would become a large version of an away from reactor. So we would have to see where we end up in this and what, if any, additional requirements would be necessary to secure the facility or provide for a – let's say, a public response to a problem, like an EP emergency planning type level of response.

COMMISSIONER OSTENDORFF: Okay, and just one follow-up on that. What kind of feedback are you getting from any of our licensees on the project?

JIM WIGGINS: The positive side is that we -- on this test program we discussed, we made a decision to allow some cleared stakeholder observations of the process. Frankly, it's a survival move on our part. We expect we'll get a lot of comments to the contrary if these tests work out a certain way. We'll get a lot of pushback with regard to additional rules. We think it's better that they have a factual basis on the pushback, rather than just make general broad statements about how this would be so bad or whatever. So we've asked that and we're getting a response through NEI, from the industry. Not just the plants but also some vendors. We're more than happy to have them come observe and interact with us during the test, at least know what the test is and give some commentary on whether the test specimen is a good replica of what a cask would

be. Obviously, we don't have a cask to test, so we got a mock-up.

But I think frankly that I would be remiss not to say they're very concerned about the direction this could end up going depending on the results. There's a significant -- if the results work out a certain way there would be a significant increase in the amount of security necessary to protect the facility's and that's a pretty high bar for them. And it's a high bar for us too, we need to make sure that, as with anything, you put the right level of regulation on it not excess regulation. These tests were fairly important from that regard.

COMMISSIONER OSTENDORFF: Thank you. Thank you, Chairman.

CHAIRMAN MACFARLANE: Okay. All right, my turn. First of all let me say this is a really good discussion and especially because it's emphasized a number of these back end issues, which is actually a topic that many of you know is very near and dear to my heart, so I'm very excited about this discussion. And I appreciate all of your work on all of these issues because they are very important. And I want to pick up a little bit on one of Commissioner Magwood's questions on high burnup fuel, you know, and he asked what does it matter if the spent fuel falls apart or if the cladding falls apart; and it matters because you're going to put in a repository one day, and if you don't have that cladding, you've lost one of your engineered barriers. And so that really bears on your calculations, of radionuclide release and everything. So this becomes very important.

And so I'm wondering in terms of that, especially with the high burnup fuel issues, if you have been working with your international partners on this issue, and also in terms of performance of dry casks over the longer term,

you know, we're not the only ones with dry casks, we're not the only ones thinking about having high burnup fuels or moving toward high burnup fuels, what are -- what's France doing, what's Germany doing, what's South Korea doing, what are these, you know, -- they're all thinking about these issues too, how are we working with them?

CATHY HANEY: Well, I would ask Mark or Lawrence if they'd like to go to the podium to -- because they've been involved with a lot of activities with the international community. I can say yes, we have been doing that. And they can give you a better description of those activities.

MARK LOMBARD: Actually, a lot of the information that's coming out, the initial information that I talked about in response to Commissioner Magwood's question is coming out of the European and Japanese counterparts that we work with very closely. And we're looking hard at those studies. They are limited in nature because they're only looking at a very small cross-section of cladding materials and the information that is coming out of those studies hasn't been really validated or vetted by experts from around the world. Again, it very preliminary but we're working very closely with international partners on those issues.

CHAIRMAN MACFARLANE: Do we work with university folks on these issues, I mean, offering grants or whatever to -- yes? Mike is nodding.

MARK LOMBARD: My second lifeline.

CHAIRMAN MACFARLANE: Yeah, right. [laughs]

MARK LOMBARD: Yes, I'm not aware of the specifics of those, but Brian may.

[talking simultaneously]

RICHARD LEE: Richard Lee from the Office of Research. I want to follow up with what Commissioner Magwood and the Chairman asked about what the staff thinks about when the things degraded. It happens that between NMSS and us we are assessing the scenarios. Actually we are defining what you may end up with and what is the consequence, the consequence being the criticality, shielding, containment, retrievability, all of those things being assessed at this time, and sometime by middle of next year we'll have some answer on that.

CHAIRMAN MACFARLANE: Okay, good.

RICHARD LEE: So we don't know the answer to that. NMSS a long time ago, they did look at it but it was a very limited evaluation, was only on criticality; so at this time we're expanding the scope. About international what does the international arena do about transportation on casks. I did ask -- have the opportunity to discuss it with the French on one of my trip. It's that the French, because of reprocessing, they don't really have much dry cask storage, very limited.

CHAIRMAN MACFARLANE: But they have high burnup fuels.

RICHARD LEE: They have high burn-up fuel, but all their fuels go to reprocessing.

CHAIRMAN MACFARLANE: Yeah.

RICHARD LEE: So each year they have 4,000 transportations of it, which they monitor very closely and the emphasis on there is security of something attacking their transport casks.

CHAIRMAN MACFARLANE: They have spent MOX fuel that is not being reprocessed.

RICHARD LEE: Yes, right. But the processing the UO2 fuel they transporting to the Le Harve plant.

CHAIRMAN MACFARLANE: Right, understood.

RICHARD LEE: So they, in general, don't have dry casks, too many dry casks, that's what I was told. The reason I discussed with them because we interested in the aspect that -- because we're doing work for NSIR happened to be on the dry cask security rulemaking, so the Office of Research is doing work, Division of Engineering is looking at structure of the dry casks. My group is looking at the releases from the radionuclide point of view, suppose something happens to the cask.

CHAIRMAN MACFARLANE: Okay.

RICHARD LEE: So did I answer all the questions?

CHAIRMAN MACFARLANE: Okay, let me ask another couple of questions on totally different topics. First of all, in the background information I received there was discussion on the transportation packages, expired transportation packages. And it seems to me that the NRC staff has been more than generous in giving licensees time to purchase new packages. Eight years seems plenty. So at what point should we stop giving these extensions?

CATHY HANEY: Well, we have a -- we're coming up against, I guess a stop in the very near term. We do have a couple packages that have not been renewed, or other arrangements made for those packagings. It's a challenge for us because the ones that are outstanding support things like medical treatments, we may be close to that point with those cases where we have allowed them to go over the date, we made sure that there were compensatory measures in place for any shipments that would take place. And

we're very focused in trying to get that down to where there are no expired packages. It's been a challenge for us; we work closely with the industry. But there are some things that we need to consider, which when it comes to stopping medical shipments, it's fairly significant for us as well as anything that would support the defense programs. So there may be a time when we come to the Commission with regards that we have reached the time to say no, we can't continue. I'm not sure we're there yet but it's something that we were giving a lot of focused attention to.

CHAIRMAN MACFARLANE: Okay. And now for another completely different topic. So in following your point that you made really early on about being prepared, at what point do we consider starting a new Part 60 rulemaking to revise our generic standards for a geologic repository? What precursors are we looking for and do you see a multi-agency effort working with EPA and when would you see beginning such activities?

CATHY HANEY: Let me start with the last question. It definitely is across agency lines, we would need to work very closely with the Environmental Protection Agency on moving forward with a rulemaking in that area and again, the side benefits of being on some of these other international committees, there are other government agencies. For example, EPA has a representative on the Radioactive Waste Management Committee. So at these meetings you have the opportunities to have the side bar and just exchange information on where we are in regard to a Part 60 rulemaking. So at a very informal level, we've had those conversations. Both agencies are aware that we will need to work closely on a rulemaking such as that.

I would say the significant trigger for us would be direction from the

Commission to go forward. We did, several months ago provide the Commission with some information on what staff believes would be needed for budgeting to move forward with a Part 60 rulemaking. Currently I do not have the resources in the business line that are devoted to that. Of course if, as we see DOE's response to the recommendations from the Blue Ribbon Commission go forward and moving through Congress if there are some indications from external stakeholders that it would be time to move forward, staff could provide a recommendation to Commission or the Commission could direct us to move forward with the rulemaking.

CHAIRMAN MACFARLANE: Okay, and speaking of those external stakeholders in the spent fuel storage and transportation business line, which areas -- and so, this is just a broad question. Which areas receive the most attention from non-industry organizations and from the public, and then which areas receive the most attention from industry?

CATHY HANEY: I would say if I only had one to pick on each topic, I would say from the public it's the transportation of waste receives a lot of public interest, and because you're crossing state boundaries, you have material going through someone's back yard. So, you'd have that interest from there. I would say in the area from the industry, there's clearly a concern for where is the waste going, but that is not something that's within the NRC's decisionmaking, but I think on some of the technical issues that you've heard raised with the extended storage and transportation, and us looking into that a lot of the technical discussion that's gone on so far this morning is where there's a lot of the industry, once you get beyond the where is the waste going to go, and having to store it onsite, because it's a very -- there's a big expense.

CHAIRMAN MACFARLANE: Okay, great, thank you, Cathy. On to Commissioner Svinicki.

COMMISSIONER SVINICKI: Well, good morning, and thank you, Cathy, for your presentation. I think you have shown remarkable restraint in calling from the well, because if I had to give the whole presentation, I think after the break you're giving the whole prepared presentation as well. You'll have to think more liberally, be calling the very capable set of individuals behind you to the microphone. I would just like to follow up briefly on the Chairman's question about special authorizations for expired transportation packages. Now, this is an area that is regulated in concert with the Department of Transportation, is it not? And I'm less familiar with what the DOT does. In order for continued use of any of these packages, is it that both NRC and DOT would need to provide some sort of exemption or approval, or are some of the packages solely regulated by us, and is there someone -- maybe you want to call on someone to help you.

CATHY HANEY: Sure, I'm going to ask Mark to go back up there, and while he's moving up there, there is a special relationship between the Department of Transportation and NRC. The packages that NRC is focused on are the ones that we would certify, but yet in this whole process that we've been going through for several years now, we've been, in partnership with DOT and one agency has not been going out without talking to another agency. So, I'll leave it to Mark to go to the next level down.

COMMISSIONER SVINICKI: And could Mark also indicate what we know about DOT's willingness to look at any exemptions going forward?

MARK LOMBARD: Actually, it's interesting, because we're working very closely with DOT. It almost seems seamless; we've had meetings just in my

short tenure with SFST with licensees, like the University of Missouri came in for a request to extend their packages, and DOT was right there with us, and when they're not there in person, they are there by telecom, so we're working extremely closely with them. Typically, we would review the package request and provide the approval, and DOT would issue a special authorization. So, it's really hand-in-hand as we go forward on those. And I think -- Cathy I'm not sure if you spoke to -- there were 39 packages that were expired in 2008, we're down to, I think, three now. So, to go to Chairman Macfarlane's question, there is a lot of work that has gone on to limit the number of expired packages out there now, and we really do look at them on a case by case basis, and we -- if you were present at some of those meetings, especially since the beginning of my short tenure in SFST, we do give them -- we push back very hard on each one of those, and look very closely at their mitigating measures, the types of materials that are going to be shipped and what the end use is, and what the impact would be if not approving the extension. So, each one of those is really looked at very closely.

COMMISSIONER SVINICKI: Is there -- and, again, I think Cathy gave this in her response to Chairman Macfarlane, is that we will certainly be asked to balance the competing public goods here. Of course the safety of these packages, which is, as Cathy, you mentioned, where we've permitted use, we do have additional compensatory requirements that we've put in place, but also of course medical needs and things like that, and so I, again, I appreciate the level of coordination that you're doing. The progress that's been made to date, which is significant, I remember sitting at a similar meeting a few years ago where Chairman Jaczko was asking about how we can get to having none of these

expired packages in use, and I think that a lot of progress has been made along those lines. But I think that we will be asked to strike the right balance here and we're talking university users and others. Is it primarily cost, and I'm not saying per university, obviously that's not a trivial issue. Is it cost that is the thing that deprives them of these newer packages, and are there any ways for them to lease packages or do things that would be less expensive, that would allow them to have the updated packaging? Is that possible?

MARK LOMBARD: It's a combination of cost and timing, because it takes a long time to get a new package designed, certified, and built for use in --

COMMISSIONER SVINICKI: In some instances is there -- there's not an updated package that's approved for use? Is that true?

MARK LOMBARD: In some cases. There's not one on the market currently, yes. That's correct

COMMISSIONER SVINICKI: Okay, thank you.

MARK LOMBARD: Yes, it is cost, because I know in one case the individual we met with a few months ago actually were pursuing a package for I think two years. It wasn't coming in, in the timeframe that we needed to cancel their certification for the package. So, they actually spent a lot of money to go with another package vendor, and that's what they're pursuing now to help meet our timeframes.

COMMISSIONER SVINICKI: Okay, we appreciate those answers and it sounds like we're being sensitive to all of these competing needs as we can. So, I appreciate your work on that.

In the area of the spent fuel storage and transportation inspection, in the years past there have been questions asked about the consistency of the

inspection program, not as it's documented but as it's applied across the Regions, the NRC Regions. I know that this inspection enhancement initiative was undertaken. It is a very comprehensive set of, I think it's 12 recommendations that came out of that. A steering committee met, endorsed those recommendations, only one of which was stated that it should be reevaluated after the other recommendations are implemented, but if you were to give NRC a grade in terms of the consistency of the inspection program as applied across the Regions, prior to these recommendations, and then if you were giving a grade to that, will these set of recommendations, when fully implemented I think by the end of fiscal year 2013, would those bring us up to kind of an A grade in that area?

CATHY HANEY: Yes. Yes, they would. Clearly, when you have multiple individuals, multiple Regions going out and doing the same activity, you know, people's interest where they focus differs somewhat slightly, but in some ways I think we can capitalize that as a positive thing in the program, because we have fresh sets of eyes looking at different things.

With that being said, I think it's very important that we overlay that with the consistency across the Regions and across the inspectors. By improving our inspection procedures and by, you know, just as the training program that we had last week, bringing everyone to the same level, having dialogues with people to try to normalize in on key issues and things that we should look for. I think that's the strength of the program and that's why I think it was easy to give you a quick yes when we finish with all of this, and I think even if you look over the last year or so, that consistency has improved somewhat.

COMMISSIONER SVINICKI: Do you think this set of

recommendations when implemented will also get at any issues with issue resolution or potential findings and having them addressed and resolved? I know that that's always a pretty complex thing to do, is to make sure that we look at the issue generically, and then have a resolution that can be applied across inspection or enforcement space.

CATHY HANEY: Yes, I think it will add to it, but I also think that the increased engagement that we've had with the industry through NEI, and working towards a generic resolution of these key issues once they've been identified, whether it's through a licensing process or through an inspection process, bringing it into that dialogue where we can engage at the industry level helps with the generic nature. And I also think over the last several years, the NRC staff has become more sensitive to asking that question, is it a generic issue and do we need to treat it as a generic issue. So, I think just overall awareness of the need to consider things from a generic issue have improved, and will continue to improve on questions that we ask ourselves. Also, I think as we started looking, focusing in more on the operating experience, because there are items out of the operating experience program that we can use to ask yourselves the same questions. Is this specific to one facility or is it something we need to consider across the entire fleet?

COMMISSIONER SVINICKI: And I did note, I know your time is limited for your presentation, that there was also some additional information about the work you're doing and operating experience. I think that's really commendable when I think I fall prey to the same thing that many of us do a lot of the time, is that there's such a vibrant and mature program for operating experience in the reactor side that we forget that not every sector benefits from

that same level of a mature program. So, I appreciate what the staff is doing there, and the industry as well.

The last area that I wanted to touch on briefly, which does it no justice because it's been an area of such extensive staff activity over I'd say at least the last year, and that's the licensing program improvements the staff did, what I think were a commendable set of stakeholder meetings. I think a lot of them occurred in August and that's going to form some of the basis of you're going to go out for public comment on some other proposed improvements, but in looking at one of the presentations that was made in one of these stakeholder meetings, I think it was Dairyland Power on behalf of the decommissioning plant coalition. But this was interesting and I wanted to get your reaction to it. One of the potential impacts as identified by this external presenter of these efforts to relook at the storage and transportation regulatory framework was that -- this is their quote. They said, "We see increasing tendencies to apply issues raised regarding the 100 to 300 year period to regulatory tasks for the 20, 40, 60 year periods." So, that was their observation. Do you think that there is a danger of the NRC doing that and taking the issues from the 300 years, and applying them to our near term framework, and I don't know if you have anyone you want to call on who's in these workshops, maybe they can give another perspective on that?

CATHY HANEY: I guess let me say this. I'll respond at a high level and then I can get Mark or if someone from the staff wants to go to the microphone, that would be fine. When we're looking at our near term licensing issues as well as looking at the extended storage and transportation, as you heard me say, and Mark to a certain extent, there are some issues that it's very hard to say this is solely a near term issue, and therefore we don't consider it

under the extended time period, and vice versa. So, there is some overlap and I think we need to be considering these issues. We need to be thorough in our conversations with internal and external. With that being said, at the end of the day staff is very mindful that we regulate to the existing regulatory framework that we have, and that's what the final product that comes out, but yet, you know, we're going to be continually asking ourselves questions as we're going through the licensing process. And I don't -- when I say questions, I don't mean it in the form of formal request for information from licensees. I mean it as continually maintaining a questioning attitude that we pride ourselves on, but yet at the end of the day, we have the existing regulatory framework that we do license to.

COMMISSIONER SVINICKI: I appreciate that, and again I just raised the comment because I think it points out something that is very obvious, but it's not -- these materials exist now and they have to be safely regulated and managed right now. So, we can't take everything about 300 years or 500 years and apply that to the now. It may be that there will be additional measures needed in the future, but we also have to manage them now. So, thank you very much. Thank you, Chairman.

CHAIRMAN MACFARLANE: Okay, Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you. You just talked about operating experience with Commissioner Svinicki and you mentioned, Cathy, that when you see something or you find something, the question is whether this is indication of a generic problem or maybe something that happened at that facility. Can you give us a couple of examples of issues that you found recently, that you had to face that question?

CATHY HANEY: I think I'll call the lifeline on that one. So please,

Mark or Eric, if you would help me on that one.

ERIC BENNER: Eric Benner from spent fuel storage and transportation, and I'm going to start with a little preamble as to why we have some challenges in the spent fuel program, it's because we have what's called the general license process, and what happens is for spent fuel storage, we certify a cask, and then any reactor licensee can basically, you know, pick that cask off the shelf and use it at their facility. But, what that results in is for them to use that cask, they do an evaluation under part of the regulation called 72, 212, in the year of 72, 212 evaluations all the time. So, they do a lot of site specific evaluation and development of procedures and analysis, and then our inspection program looks at that. That's not a licensing review, but there's a lot of stuff in that evaluation that looks like licensing. So, we've essentially put the inspectors in a role that they're not used to being in. Usually they have a clear licensing basis and they go out and inspect to ensure that the facility is in compliance with the licensing basis. Here they're looking at information, licensing basis type stuff that the NRC has never reviewed. So, that's a little preamble. Some of the issues that have come up, they're a lot in the handling and loading activities, and vacuum drawing. Like, there are requirements for these systems and for thermal profiles to demonstrate that, because of the site specific wind conditions, they have to do an analysis.

One of the Regions identified that they had some questions as to how that analysis had been done, even though it had been done by the cask vendor. So, they came to us and we immediately articulated that, you know, this could potentially be a generic issue. So, we parched out that issue to say, "Okay," you know, because they were referencing what was done by another

licensee. So, we had three sets of questions. One was on what the initial licensee did. The second was what the second licensee did to say that that initial analysis was bounding for their site, and the third set of questions was for the vendor, who is really supposed to be for providing oversight to all of this. So, that was a recent example.

Another recent example would be one that I'm sure you're all familiar with, is what's called the stack up configuration for vertical storage systems. They have a transfer cask that they take out of the pool. Then they stack it on top of the storage over pack, and they lower the canister. Now, in this particular certificate, it said that that configuration wouldn't tip over, and we were finding that there is a period of time where that configuration is not on a crane, and not constrained in any way. So, we were looking at, you know, how are you demonstrating that that won't tip over, and that was identified at an individual site, and we had some issues with how we managed that, but we quickly got to a point where we determined there was generic applicability there, and there were differences in how the Regions were looking at that. But we put information out to all the Regions to say "Hey, here are the questions, you know, you should be asking on this configuration to get, you know, assurance that they are showing that this configuration won't tip over. So, well those are the two big examples recently.

COMMISSIONER APOSTOLAKIS: Thank you very much. Thank you. On Slide 13, Cathy, you mentioned harmonization with the IAEA. Is this harmonization a result of a practical need or is it because harmonization in general is deemed to be a good thing to do, or both?

CATHY HANEY: It's both. There's a practical need in that a lot of

the packages that we are certifying are used for international shipments, and if from the user's end point, if they know that it's a particular package could be used within the United States and also shipped internationally, that helps for the import/export requirements. So, there's a practical aspect from it. There's also a need from the standpoint of the IAEA group that is developing these standards. They're looking at -- it's a group of international experts that are coming together. There's ways that we can benchmark from those, using a benchmarking term. We can learn best practices from these other groups. We want to bring that back into the United States, into the regulations. Again, is that a harmonization or is that a practicality? It's kind of hard to judge the difference, but it's really a little bit of both.

COMMISSIONER APOSTOLAKIS: Thank you. Thank you, Madam Chairman

CHAIRMAN MACFARLANE: Okay, I want to thank the staff again. Thank you, Cathy, and the rest of the staff who contributed to the discussion. I think it was a very fruitful discussion. What we're going to do now is take a short five minute break and come back to it.

[break]

CHAIRMAN MACFARLANE: All right, folks, shall we get going? Okay, while everybody's taking their seats, we will press on so that we can all eat lunch in a timely fashion. Meals are important so I will turn it over now to Bill Borchardt.

BILL BORCHARDT: Cathy didn't have enough chance to talk in the earlier session. She's going to go right into it.

CATHY HANEY: Yes, I'd like to thank you for the opportunity to talk

this much.

[laughter]

Good morning, again. Now, I'd like to turn to our fuel facilities business line and the important work that's being done to assure the safety and security of the facilities addressed under this business line. I'm now joined at the table by Vic McCree who is the Region II Regional Administrator, and I'd also like to recognize John Kinneman, who is in the well; he is the division director in the Division of Fuel Cycle Safety and Safeguards, in the Office of Nuclear Material Safety and Safeguards, and John provides the day to day leadership of this business line.

In the previous briefing, I described our efforts in addressing spent fuel storage and transportation, which is near the end of the fuel cycle. As we turn to the fuel facilities, we're talking about work that is near the beginning of the fuel cycle. The fuel cycles play a role in taking the yellow cake from the mines and processing, enriching the raw material into forms that are useful as fuel for nuclear power plants.

The facilities that we regulate are diverse with technologies and processes that are different from one another. Some of these facilities have been operating for decades, but there are a few facilities we have recently licensed, and are now or soon will be under construction. Safety and security are significant elements of our regulatory program, with a large international component to these elements. In fiscal year 2013, our staff effort is 139 FTE in just over $7 million for contracts support. In fiscal year 2014, our staff effort increases to 144 FTE, and the contract dollars remain essentially the same. These resources support licensing and oversight of fuel cycle facilities, event

response, rulemaking and research and security and safeguards activities.

Moving to Slide 21, I will discuss our strategic goals and business line priorities, touch on selected product lines, and conclude by describing our focus going forward. With regards to strategic goals, we have four specific strategic goals that are critically important for success in the business line in future years. These goals are generally similar to the goals for the spent fuel storage and transportation business line. Ensuring regulatory effectiveness is always a goal we strive to achieve. Working toward that goal and the dynamic environment we have today brings about some significant challenges. The changing environment includes a number of factors such as the future reprocessing technologies for the back end of the fuel cycle. New licenses for enrichment facilities to meet the global demand for enriched uranium hexafluoride, changes in demand for fuel in response to the event at Fukushima Dai-ichi, an inadequate world supply of medical isotopes, and a need to license small amounts of special nuclear material to allow for testing of shipboard containers.

As we look to the future of non-light water reactor fuel designs, we believe our regulatory foundation is adequate to support the Office of New Reactors, as they conduct licensing reviews for these technologies. However, we anticipate significant implementation challenges, particularly in the material control and accounting area due to the possible new reactor design such as aqueous homogeneous, pebble bed and metal cooled reactors, and their fuel forms, and handling processes, and the potential mobility of small modular reactors. Being an effective regulator is critical to success in ensuring safety and security in this changing environment.

All supporting this business line are fully committed to supporting our national interests in limiting the proliferation of nuclear weapons. We established strong U.S. non-proliferation elements as a critical strategic goal for this business line. It is vitally important to ensure that our activities to secure special nuclear material and source material at domestic fuel facilities set the right example for the international community. We continue to be challenged by the large volume of export and import materials and goods, many with extremely short deadlines, the addition of new fuel cycle facilities and technologies, the implementation of our security, and material control and accounting, or MC&A requirements at domestic fuel cycle facilities, and maintaining accuracy and diligence in tracking of special nuclear materials with the national database. Meeting these challenges reinforces the need for us to be fully engaged with the Office of International Programs and other federal agencies.

I firmly believe that as a regulatory body, we are strengthened by having an open, and active dialogue with those parties outside the agency that have a vested interest in what we do. This includes our licensees, other members of the federal family, the international community, and the public. We have established as a critical strategic goal to continue outreach and engagement with stakeholders. This strategic goal directly impacts each of our business line products, and it's vitally successful to virtually everything that we do.

It is particularly challenging for the fuel cycle facilities, because so much information about them cannot be shared publically. Still, we do invest considerable thought and effort into our communication and public outreach. For example, at a recent Nuclear Fuel Services public meeting, we were able to

share our licensing decision regarding the renewal and environmental assessment, which did further public understanding of the decision and permitted a dialogue on the basis of our regulatory position.

As I noted in the earlier briefing, we do have a strong program, but we can always do better. That holds true for the fuel facilities business line. Some of the specific activities we have undertaken to support this include continuing improvements to our technical reviewer qualification process, ongoing training to maintain and improve our skills, training on new technologies and processes, improving communication with all of our partner offices, effective knowledge management, implementation of the fuel cycle regulatory framework, and stress a careful resource utilization in an austere environment. Slide 23.

I believe we have one overriding priority in all that we do, and that is to assure the safety and security for operating facilities. I take that as a given, and then look to the other work in the business line in terms of how each element best supports safety and security for the operating facilities. In that context, working with our partners in Region II, assuring the effective construction oversight of the new fuel facilities is critical to assuring their safety and security as they move from construction to operation. In pursuing our work for the fuel facilities, we have a very clear domestic focus. However, we must always address our international obligations. We regularly engage the international community and take leadership roles in the many groups that are relevant to the fuel cycle safety and safeguards. I think we have done the hard job of striking a good balance between a domestic focus and supporting our international obligations. In striking this balance, I believe we need to continue to support the International Atomic Energy Agency, or IAEA, and other countries in export and

import of source and special nuclear material and in safeguarding our domestic facilities. Slide 24.

To meet the business line priorities, we have structured our work around seven product lines depicted on this slide. The most significant resources are found in the oversight and licensing product lines. Oversight consumes 54 percent of our budgeted FTE and licensing consumes another 27 percent. I firmly believe that success in our business line demands significant interconnectivity and effective coordination and communication with our major partners in Region II, the Offices of Nuclear Security and Incident Response, Federal and State Materials and Environmental Management Programs, General Counsel, Nuclear Regulatory Research, and Office of International Programs. We also have interactions with the Office of Nuclear Reactor Regulation and the Office of New Reactors, and I would be remiss if I didn't mention the support that we received from the corporate offices. Slide 25.

Licensing of fuel facilities is critical to ensuring the safety and security of those facilities. During the last fiscal year, we completed and issued significant new licenses at two enrichment facilities, AREVEA-Eagle Rock, and GE-Hitachi. In support of the licensing process, we and our business line partners successfully supported mandatory hearings for both facilities.

In addition to licensing the enrichment facilities, we also issued a new license to authorize a de-conversion facility to turn depleted uranium hexafluoride into high purity fluoride compounds for commercial sale, and depleted uranium oxide for disposal. Over the last five years, we have received and completed an increasing number of routine licensing actions. However, during the last two years, it appears we are reaching a steady state of

approximately 120 actions a year, including license renewals, amendments, and terminations. I have been particularly focused on the changes we are making in our processes to ensure and improve regulatory effectiveness, and to strengthen our organizational excellence to meet this increasing workload demand. We continue to conduct lessons learned on each major licensing activity. Those lessons are and will be applied to enhancing our licensing process, just as we implemented improvement actions from a Lean Six Sigma review a few years ago. Some of the specific actions learned were to start drafting the safety evaluation report early in the licensing process, and to approve coordination within the licensing team.

Acting on the lessons learned ensures that we continue to conduct high quality safety reviews, focus our first priority on safety and security, and still meet our timeliness metrics for routine actions. We continue to look for and implement improvements in licensing guidance documents and licensing processes. We are engaging our licensees and the public to identify process improvements, as well as potential changes to the regulations that could address recurrent licensing amendment or exemption requests.

Part of our licensing process and budget activities include discussions with Region II on anticipated new construction activities, and modification of operating facilities. These discussions support allocating the necessary future inspection resources required for our oversight product line. Moving to slide 27, 26 please.

As I noted earlier, our oversight activities consume 54 percent of our annual budget. Our core inspection effort resulted in completing over 300 inspection modules last year. These are carried out primarily by Region II, with

smaller portions in the Division of Fuel Cycle Safety and Safeguards within the Office of Nuclear Material Safety and Safeguards, and within the Office of Nuclear Security and Incident Response. We continue to use administrative and management controls within the oversight program to assure that both inspection and licensee performance assessment activities are conducted in a timely fashion, and in a high quality manner.

Based on the results of our inspections which have included value added findings in the fuel cycle facility performance areas and our performance assessments, I'm pleased to tell you that we continue to implement an effective oversight program. This program allows us to determine whether fuel facilities are being operated safely and in accordance with NRC regulations. However, we continue to test ourselves on how to make it better.

One of our significant accomplishments under this product line was the completion of the post-Fukushima inspections at seven operating fuel cycle facilities. We identified unresolved items at the facilities. These items require further evaluation to determine if the facilities are in compliance with current regulatory requirements regarding accident sequences from certain natural phenomena events. At one of the facilities, it was found that the emergency plan was nonconservative as it related to a seismic induced event. We took prompt action by issuing a confirmatory action letter followed by a confirmatory order. These require specific licensee actions to address the safety significant issue. Working with our partners in Region II, I'm confident that we have taken appropriate actions to address this issue.

Recall that one of the priorities I noted for this business line is to manage the transition from construction to operation for new fuel facilities. We

have the benefit of a number of years of construction oversight. That experience has provided valuable insights into construction activities and the development of a construction inspection program that cuts across the fuel facility and new reactor business lines.

In the next five years, a number of new facilities such as the AREVA-Eagle Rock, GE-Hitachi Laser Enrichment, International Isotopes, and Shaw- Areva MOX facility will likely complete construction and begin operation. We are working with Region II to plan and be ready to implement the construction and operating inspection programs for these facilities. As we move forward, we need to carefully plan for the inspection resources and develop the skill sets that will be necessary during the transition from construction to operation. These skill sets include construction quality assurance, structural engineering, and broad systems operational readiness experience. We have developed and expect to implement the project plan for revising the fuel cycle oversight processes. As we implement the plan, we will provide the Commission with annual progress updates, and come back to the Commission for direction on certain key milestones.

In addition, we are strengthening the programmatic oversight of our inspection and licensing programs. This includes working with our partner offices to ensure clarity on our respective roles and responsibilities, and to conduct routine updates to our inspection and assessment program. These efforts are needed to ensure efficiency and effectiveness in our oversight of the safety and security of the operating fuel facilities, and the proper construction of new facilities. Most of the activities and decisions affecting this business line are within the staff's control. However, I want to note one upcoming policy issue

where we will seek Commission direction. Specifically, we plan to request Commission direction on the approach for sight access requirements at the MOX facility. A notation vote paper to address this issue will be forwarded to the Commission in early fiscal year 2013. We will continue to provide status updates on implementation of the revised fuel cycle oversight program project plan, and post Fukushima response actions highlighting those that might result in regulatory framework changes. Slide 28.

Turning now to rulemaking. We are pursuing two rulemakings related to fuel facilities and have made good progress. We completed the draft final rule on revisions to material control and accounting regulations found in Part 74. We will continue to work with external stakeholders on understanding the potential implications of the rule. Five guidance documents will accompany the rulemaking package for external stakeholder feedback. We have also been working on a change to Part 40, to incorporate integrated safety analysis requirements. We have provided a proposed rule to the Commission that adds these requirements for conversion and de-conversion facilities. Our ongoing activities in support of rulemaking also include research on different reprocessing technologies. We also are working to enhance security of fuel facilities in such areas as access control, fitness for duty, material characterization, and incorporation of past security orders.

Finally, we are working to enhance security by explicitly addressing cyber security. A road map was provided to the Commission earlier this year that described our approach for evaluating the need for cyber security at NRC regulated facilities. We are making progress consistent with the road map and are evaluating licensee initiated measures, and potential cyber security threats at

fuel facilities. As we move forward with these rulemaking activities, we will actively engage our stakeholders who include states, industry, and other interested parties. We expect to expand these interactions as we work toward our goal of outreach and engagement with stakeholders. Slide 29.

Our work addressing fuel facilities has a significant international component. We are emphasizing our work to support U.S. non-proliferation elements, and our international agreements in this area require close coordination with the Offices of International Programs and Nuclear Security and Incident Response. We have a leadership role in one interagency working group and participate in a number of others. We chair the interagency sub-group on IAEA safeguards in the U.S. and our members of the subcommittee on safeguards and international monitoring and the subgroup on safeguards technical support. These interagency groups were established in response to the U.S. IAEA additional protocol agreement. Slide 30, please.

As I mentioned earlier, the fuel facilities regulatory environment is diverse and dynamic, but our mission and our focus on safety and security is unwavering. As we move into the future, we will continue to stress the safety and security of our operating facilities, which means having licensing and inspection programs that are transparent, effective, and predictable in engaging staff that is well qualified to support all activities in this business line. We also will focus on the oversight of facilities under construction to ensure that they are constructed in accordance with their licensing basis, which will support their safe operation.

Finally, we will continue to support the U.S. government's nonproliferation activities and to meet our international obligations on securing and safeguarding source and special nuclear material. This concludes my

presentation and we are ready to take your questions.

CHAIRMAN MACFARLANE: Great, thank you very much, Cathy. Well, okay. Starting off again is Commissioner Magwood.

COMMISSIONER MAGWOOD: Thank you, Chairman, and Cathy, thank you again, a crisp, informative presentation, well done, thank you. Before starting, I wanted to echo something Commissioner Ostendorff said earlier in his remarks in the first round of discussion, and that related to waste confidence, and just thanking the staff for moving out so quickly to establish the framework to get that work done in a 24 month period. Just wanted to emphasize that's very important to us and we're watching it very closely. So, I appreciate your efforts in that.

Regarding fuel cycle facilities, you did mention the inspections that we implemented after Fukushima. One thing that I'd like to hear you talk about, maybe this is more philosophical. Obviously the Commission has not approved any changes to the regulatory framework based on Fukushima for fuel cycle facilities we have for reactors, not for fuel cycle facilities. In your view, how has -- what insights have you gained from Fukushima that impact how you look at these facilities and how the staff is assessing issues like the emergency planning issues that came out of the inspection you talked about earlier, or other issues related to fuel cycle facilities? How has Fukushima informed and altered your view of these facilities within the framework, not beyond the framework, within the framework?

CATHY HANEY: I'll make a few comments and then I think it would be great if Vic also commented, because he's from the inspection perspective where I would say it more from the licensing perspective. I would say when we --

from my involvement with the Fukushima steering committee, as that committee has moved forward and how they've been reacting to the event, I've been able to learn from that, and take it back to the office, and then take those lessons learned, and apply it to the fuel cycle area. So at a very high level, we have been really learning from what's been done in the reactor area. Most recently, NMSS staff, working with Region II, briefed the steering committee on a proposed path forward for looking at the fuel cycle facilities, and we approached it, from the standpoint of the results of the temporary instruction, and that really drove us more to looking at our current licensing basis versus something that, in the reactor world, would be referred to as a "beyond-licensing basis," but in the Part 70 and 40 world, we look at things a little bit differently. But with that, that's taken us to the current licensing basis, where we briefed the steering committee on looking at a generic letter to gather more information from the licensees, and that would allow us the time to look at our licensing guidance at the same time that we're proposing to go out to gather more information from the licensees. So I guess I can go back to your original question. It's caused us to look at -- where -- what we're currently doing. But then we've also, separate from that, stepped through all of the near-term task force recommendations and asked ourselves the question of, does this apply to us? There are some, clearly, that don't. Station blackout really doesn't have a meaningful role in fuel cycle facilities, because of multiple things that I won't take the time up right now. But some of the other items -- command and control, instrumentation, what's our knowledge base on external hazards such as seismic and tornado. So we're really -- we're learning, and we're going back and forth, but the focus is a lot on the current licensing basis versus something beyond that, and then Vic and, I guess,

actually, Jim is on the committee also, on the steering committee. You have some -- you guys can decide.

VIC MCCREE: Good morning. Just wanted to reiterate what Cathy indicated. The temporary instruction that we completed at the seven fuel cycle facilities was focused primarily on the current licensing basis and making sure that the strategies and the measures that were in place to mitigate emergencies that might result from a credible natural hazard were acceptable and that the plants were safe. And overall, what we found was that, in general, the strategies and measures were effective, that they would protect the plant, the facilities. There were a number of examples where the analytical basics that the documentation to support the structure systems and components that would be relied on in an emergency to mitigate the impact of it were not available, and the generic communication that Cathy referred to would be focused on gathering that information so that we can confirm that the performance requirements of those structure systems and components would be -- would be available and that the -- that the basis would be validated. So, in general, the TI was successful in that we did get information that confirmed the adequacy of the strategies and the measures at each of the facilities that we've evaluated.

JIM WIGGINS: And I just want to add on the one specific matter that you pointed out on the facility, and you characterized it as an EP issue. One of the things that we applied, and Cathy, Vic, and me, as also a member of the steering committee, is if you look at that confirmatory action letter, you'll see both -- you'll see actions that bear on prevention and actions that bear on mitigation and the actions that bear on EP. That's the defense in depth, although it's an unsettled issue in the task force, that's part of the recommendation one type

strategy, is to look at things as a defense in depth. And that's what we did in this matter. So Vic and Cathy knows this, whenever anyone refers to the NFS issue as an EP issue, that I tend to get alerted; it isn't an EP issue. It's -- EP is an element of it. It has to do with where the enforcement is coming down, but really, when you look at it, we're looking at -- you had degradation and the prevention or the presumed failure of the prevention piece, and you'll see that the licensee's corrective action works on prevention by strengthening the plan. It works on mitigation by handling the problem if the first level doesn't prevent it, and then EP comes in at its appropriate third-tier spot.

CATHY HANEY: Commissioner, could I add one more comment? What you've heard as described is a work in progress. We do have an IOU to go back to the steering committee and do plan to keep the Commission informed and -- as we make that next step, which will probably be after January of next year.

COMMISSIONER MAGWOOD: Appreciate that. Let me -- let me follow up a little on this, because I think that -- to summarize what I think I've heard is that while you're looking at the insights of Fukushima, that they haven't -- they have not changed the regulatory landscape for the facilities post-Fukushima from what it was before Fukushima. Basically, you're in the same place. And I have to say, it doesn't feel that way. It doesn't feel that the world hasn't shifted somewhat. For example, when you look at beyond-design-basis events, you look at accident sequences, because the conversation that Jim had, are you -- are you -- I just want to pin you down a bit. Are you saying the staff is not looking at those issues any differently today than they would have looked at two years ago?

VIC MCCREE: Commissioner, the -- if I could add on to my comment about Temporary Instruction 2600-15. It had three phases. The first phase was an in-office review for each of the seven facilities to confirm what the licensing basis requirements are for natural events. And once we had completed that, we began on-site visits at the seven facilities. That second phase focused on the ability within the current licensing basis for the licensee to mitigate a natural event like a seismic event or high winds. The third phase, which we gained valuable insights on, was the extent to which each of the facilities could handle a beyond-current-licensing-basis event. And what we discovered at many of the facilities, particularly Part 70 and 76 licensees, was that there is margin within the facility to handle beyond-design-basis events. What we did not find, again, was the detailed documentation, actually, to support that. And that's what we would need to, one, confirm their ability to withstand the current licensing basis, which, in general, we believe, based on the robustness of the facility and the processes and procedures, the training that they have in place, that they would be able to meet, so we do have confidence in that, but we do need the additional information to confirm that for both Part 2 and Part 3, which is the beyond the licensing basis aspect of the issue.

COMMISSIONER MAGWOOD: Can you elaborate, in the 18 seconds we have left? What is -- I mean, beyond-design-basis is beyond-design-basis. So when you're looking at the ability of a facility to respond to a beyond-design-basis event, what, from a regulatory standpoint, are you looking for?

VIC MCCREE: And that's a very good question in which we had a number of conversations on prior to the development of the TI. It's like, what is --

how do you define that? And there were interactions that we had with each facility, and between Region II and NMSS, to postulate, what would that be? Is it -- is 110 percent of the evaluation basis wind loading? Is it 110 percent of the seismic horizontal ground motion? What is that? And for each of the facilities, we had that information before we conducted the inspection, and we had confidence that in -- specifically for the Part 70 and 76 licensees, that there is margin available at those facilities.

JIM WIGGINS: I just need to revise my remarks I named the wrong facilities, it's not NFS. I got about 9,000 plans going through my head about other things.

COMMISSIONER MAGWOOD: Thank you, thank you very much. Thank you, Chairman.

CHAIRMAN MACFARLANE: Okay. Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Chairman. Thank you all for your presentation. I want to kind of pick up with where Commissioner Magwood was, because I think I share his view that perhaps the world has changed in the area of these fuel facilities with respect to how they're being looked at from Fukushima. And I'm where you are, and I'm not saying that's right or wrong, but I think it is different from where we were pre-Fukushima. Victor and I had a chance to visit earlier this month the Metropolis facility with you, and that was a very insightful visit, and just -- I continue to be struck whenever we go to one of these fuel facilities, much like many of the DOE facilities, how truly one-of-a-kind they are as far as the chemical processing, the materials, the hazardous materials, et cetera. Very, very different from our experience as a Commissioner visiting nuclear power plants. Tremendously

different. And so to kind of in line with Commissioner Magwood's question, at a very high level, I realize there's a lot of things specific to the Honeywell facility. I'm not going to try to explore that, necessarily, but it provides a context because of our visit there a couple of weeks ago. But how do we get to a point where we have some regulatory certainties, some predictability and stability in the fuel facility area for these one-of-a-kind facilities? And it's kind of a philosophical question, but it's very different from the reactors, so that's why I'm trying to -- you have a lot of experience, and so does Cathy and others at the table. I'd just appreciate any thoughts you have on that, because I am concerned about us being able as an agency to have some predictability as to what we are requiring. And I know you are as well.

VIC MCCREE: Well, the first thing I would say is that we are holding licensees accountable to the current licensing basis. There is no regulatory creep ongoing here. The temporary instruction was for the purpose of confirming facility compliance within the current licensing basis and gathering additional information that would allow us some insights on the abilities of facilities to prevent or mitigate emergencies if the event -- the natural event were beyond the licensing basis. Having said that, Cathy alluded to the discussions we've had recently with the Fukushima steering committee on a path forward, and the first step, I believe, we were successful in moving forward is, we need additional information. And from that, of course, we would engage the steering committee and the Commission on perhaps the need for any additional changes. But what I would like to do, if John is willing to provide some additional insights on that.

JOHN KINNEMAN: Sure. I'm John Kinneman. I guess the insight

I'd like to add is, as Vic said, we're very aware of regulatory creep at the existing facilities, but I'd like to turn for just a few seconds to the newer facilities. As Cathy mentioned earlier, we've licensed a number of facilities recently, and I think one of the things that struck me about that -- I've only been doing this particular job for about two years -- is how evolutionary the process has been, and I think that's one of the things that we're finding as we look at the Fukushima results. When we look at the licensing process for the more recent facilities, especially in the area of natural phenomenon, the staff was very engaged, very focused. If you read those SERs, there's a very clear assessment, which I won't go into now, just for time, and so I think the staff has a really clear regulatory basis there. When you look back at the existing facilities, the areas where the licensing basis is a little less clear and perhaps a little less uniform, some of that comes out of two things, as I see it. One is these facilities were built well before the ISA process and were, as you pointed out, Commissioner, very, very one-of-a-kind; and as we moved into the ISA process, which is in the decade of about 2000 to 2007 or 2008, there was a lot of focus on internal IROFS, the items relied upon for safety to prevent accidents inside of the facility, and I would say that the licensing process didn't get as much detail about natural phenomenon and didn't develop as clear a basis. I think, as Vic said, we're -- coming out of this process, we're going to have a better understanding of how the facilities will respond, and that will allow us to answer the question that you -- that was asked about where's the margin. When the facilities come back to us with a better understanding of how they'll respond to natural phenomena, then you can more easily see, well, what happens if you move it 10 percent or 20 percent more?

COMMISSIONER OSTENDORFF: Okay. Thank you, John. I

appreciate that. I'm going to stay on this theme for the one-of-a-kind facilities. And I don't want Mark Satorius to be here today and not have a chance to speak.

MARK SATORIUS: I'm ready to go.

[laughter]

COMMISSIONER OSTENDORFF: So I want to acknowledge and thank FSME for their significant role in conducting the rulemaking portion in concert with their partners in NMSS, because I think that's a real strength of the crosscutting interoffice relationships that you all have. I think that's just a very positive aspect. Mark, you've got a great background. You've been a Regional Administrator and spent a lot of time in the reactor business when you were out there in Lisle, Illinois, and I want to kind of maybe ask a similar question to you that I asked for Vic. Do you see anything different in our rulemaking in these one-of-a-kind facilities in fuel facilities, for instance, that causes us to -- should cause us to pause as to how we do business compared to your experience in the reactor area?

MARK SATORIUS: Well, yes, I do, and I -- and one of the features that I see is, when you conduct some of the environmental work associated with these one-of-a-kind, you get into a one-of-a-kind environmental assessment, so to speak, or an environmental impact statement, so sometimes you can use lessons learned from other environmental studies that you do when you're in the reactor side, you know, more of a pattern, so to speak. These one-of-a-kind do provide some challenges with respect to the environmental work that's necessary to conduct license reviews and other sort of regulatory activities.

COMMISSIONER OSTENDORFF: Okay. Thank you for that. And I guess that was just a comment on how much -- how important I think it is for

people to get out to visit these facilities. I know the UF6 process at Honeywell, which I was not very familiar with before I visited -- a PowerPoint presentation is not a substitute for a site visit there. And I really appreciate Vic hosting that. And just so important, because these things are very, very different. Jim, let me turn to you for a minute here. You know you're not going to get away without a cyber-security question. Certainly, the cyber-security topic has been very prominent in the U.S. news and world news here in the last few months, and successful cyber-attacks on banks. Secretary of Defense Panetta has made comments expressing his concern on the lack of a process to share information on cyber-security threats to affected entities as a national security threat. And I just wanted to ask in this forum, how is the NRC staff, how is NSIR addressing this issue as far as sharing of cyber-threat information with the fuel facilities?

JIM WIGGINS: Well, let me just say -- if I can start off by saying, as you know, we have what I would call a rather robust cyber program that applies to operating and new reactors, and through a paper that we sent to the Commission recently that we refer to as the roadmap, we're rolling that out to other types of licensees. First in line were the fuel facilities. And Cathy's staff did an outstanding job working. If you read that paper, you'll see they set the pattern for how you do the evaluation, as you try to address the question, what, if any, requirements need to be applied to these other instances? I won't sugarcoat it. It's a difficult issue to share the information with these folks. There's a -- there's a level of information that they can get that is the OUO -- official use only. We try to put that out on our protected web server. Right now that's a push exercise, we put it. We need to work harder to get the other side pulling. And I think as you work your way through the next stop on the roadmap, which is the fuel facilities,

and we'll be working with the Commission, sending to the Commission a proposal on how to approach that. That'll give us at least a beginning or a platform to start to get the industry interested in pulling that information that's provided.

COMMISSIONER OSTENDORFF: Let me, if I can, because I'm going to run out of time here, but I want to make a point and ask you to agree or disagree with this. It's my sense that industry, perhaps the fuel facilities -- I'm using that in the context for this question -- needs to perhaps elevate in their organizations the importance of more senior management paying attention to this and understanding the threats. Is that a fair statement?

JIM WIGGINS: Yeah, but I wouldn't single them out. I have similar concerns on the operating reactor side. We've been launched on an endeavor here with NSIR, NRR, and others in the Regions to try to raise the level of cyber-sensitivity at the facilities. This is part of an evolution and maturation process, and if anything, like I said, the operating reactors are further ahead than anyone else, but if you look at what's happening there, the cyber protections that are being installed are being done as projects and being managed classically like a project. It's typically a group. That's different from the site organization comes in and puts it together and turns it over to the site. We've been working to get the site more interested in it. I presume, and assume that it will certainly play out at fuel facilities the same way. We're currently working with the fuel facilities in convincing them that it's necessary at this point. That's what we're working on now, is making sure they see why we see that there's something that's necessary. Not the operating reactor full-fledged program, but it kind -- I keep calling it a consequence-driven decision process that needs to be applied to fuel

facilities. The difference between the two, between a reactor and a fuel facility, is the fuel facility has to deal with information security, material control and accountability, criticality controls, along with system security and EP, where the others don't. But what they get in terms of additional scope, they can get back in terms of looking at what the real consequences are. There's not a lot of consequences that come out of system issues that you would see, say, similarly on a reactor.

COMMISSIONER OSTENDORFF: Thank you. Thank you, Chairman.

CHAIRMAN MACFARLANE: Okay. Just a comment, first, on some of the discussion that we've been having, and then some questions, and my comment is that -- just a reminder that our understanding of natural phenomenon is constantly evolving, and as you've all pointed out in this discussion, some of these facilities that we're talking about here are very old. In fact, they were -- some of them were constructed long, long before the geosciences experienced a paradigm shift towards the understanding of plate tectonics and how earthquakes, et cetera, evolve, so it seems to me that we need to ensure that we're using the most up-to-date information in our licensing basis to assure that these facilities are safe. And these facilities need to be able to withstand what we know they could experience. This, to me, is one of the most significant lessons from Fukushima. So just a point on that.

So, you know, I'm going to sort of bring both parts of this morning's discussions together in this question, because you did mention the MOX fuel facility, and it seems to me that -- I just sort of was thinking about spent MOX fuel from previous discussion and wondering if there's any work that has been done

on spent MOX fuel. So this is probably just a question for you, Cathy. And, you know, are we -- are we prepared to deal with it? Are we going to understand its behavior in dry casks, et cetera?

CATHY HANEY: And I think I'll go to either Mark or John, whichever wants to take that question. Nobody?

[laughter]

MIKE WEBER: Neither.

[laughter]

LAWRENCE KOKAJKO: I don't have a good answer. Oh, excuse me. Lawrence Kokajko, director of Spent Fuel Alternative Strategies. I don't have a good answer for you on that yet. This is an area that's still evolving for us, and we have been engaged with our partners both in fuel cycle as well as in spent fuel storage and transportation. This is an area that I think we're going to see a little bit more of in the future. We feel that, in terms of the cask designs, that it will remain more or less the same. However, you know, we are open to any number of new technical challenges that may arise, and we're very sensitive to that, and I think Mark did a good discussion on some of the stuff that's on the more traditional understanding of the fuel systems.

CHAIRMAN MACFARLANE: Okay. All right. Thanks. It just seems -- it's clearly coming down the pike, and we need to be prepared for it. All right. On a completely different topic now. So you guys recently issued a license for International Isotopes Fluorine Products for a new de-conversion facility, and I wondered if you could talk a little bit about plans for the uranium oxide waste stream. Where is it going to go?

MARK SATORIUS: Well, I can start with that, Chairman. First of

all, depleted uranium, which will be an outflow from that, along with fluorine gas, which is going to be commercially marketed by the company, that will have to go to a licensed facility that can accept that type of waste, which is Class A waste in this case. Not presuming to say whether it will go to WCS in Texas. If they -- if the state of Texas who licenses that facility would permit that waste to come there because it's involved in a compact, as you know.

CHAIRMAN MACFARLANE: [affirmative]

MARK SATORIUS: Or it would have to go to Energy Solutions or somewhere else, but that would be -- that would be the flow that that waste stream would go to, is to a facility that's licensed for that type of waste.

CHAIRMAN MACFARLANE: So just to -- for my understanding, so looking at the waste stream and planning ahead for that waste stream was not part of the license evaluation or anything.

MARK SATORIUS: I can't answer that piece, ma'am.

JOHN KINNEMAN: Chairman, in the licensing process and the environmental impact process, there was an assessment that there -- in trying to keep our -- remember our separation from the actual process, we looked at whether there was a place for it to go and whether there is a regulatory, what I'll call, opening for it, and I think we've concluded in both the environmental impact and the license that there's storage on-site that's adequate to manage the output of the plant as they go forward, and that there are places, as Mark said, that it can go, and that they will have adequate financial assurance for whatever they have on the site. So those are the elements that we looked at. How they actually manage the waste within those parameters of storage until they choose a disposal site, and as long as they maintain within their financial assurance for

the eventual disposal of it, those will be our focuses. Where it actually goes in the context of some of the rulemaking that's going on and some of the decisions that have to be made by other regulators, it's really a decision that we believe there's adequate -- each of the areas is adequately covered.

CHAIRMAN MACFARLANE: Okay. All right. Another completely different question, for Jim. So I understand that you guys have issued -- or maybe for Cathy -- you guys have issued a security advisory to some of the licensees as a result of the Y12 incident, and maybe you could talk about which licensees received this advisory and why, and whether there would be a benefit of sending it to all the licensees.

JIM WIGGINS: Well, essentially, Chairman, we sent the advisories to a fairly broad distribution. We need to work out some details in Mark's organization, his area in the materials community -- and who gets it there -- but anything that you would construct as a facility, or view as a facility got it – operating reactors, reactors under construction, research and test reactors, Cat-1, Cat-3s, GDPs, we sent it to the --

CHAIRMAN MACFARLANE: What are GDPs?

JIM WIGGINS: Gaseous diffusion plants. Independent spent fuel storage installations.

[laughter]

Sent it out to the Agreement States, gave it through the Regional State Liaison Officers. We made a rather broad distribution of the security advisory and a subset of that group. We did a separate kind of an informal distribution of a DOE -- Department of Energy's Inspector General's report came out earlier, so we got it out, and Cathy's people got it out too, and immediately

impacted people, which are basically the fuel facilities.

CHAIRMAN MACFARLANE: Okay, great. Great. That's good news. All right. Maybe for Cathy, or whoever -- or maybe Vic. You spoke about the importance of the staff's transition from licensing work to inspection work, and you mentioned gaining experience from some of the perspectives in some of the Regional offices. So I wondered if you'd considered other sources of experience outside of NRC, either international or other industries, et cetera.

VIC MCCREE: Well, I guess the short answer is yes, and we need to do more. In the process of training and orienting our inspectors that are involved in the construction oversight, fuel cycle facilities, for example, we sent several inspectors to the Amalo facility in the Netherlands to get a better appreciation for centrifuge technology. Of course, as part of the general proficiency training, all of our inspectors have to complete the uranium -- conversion, uranium enrichment qualification course, so they receive that basic training and qualification, but -- so augmented that knowledge that they gain. We also sent inspectors to the MELOX facility in France associated with the mixed-oxide conversion, construction, inspection activities. One of the challenges that we have and we're already working on is building and operating an inspector training module, if you would, or factoring that into our qualification process so that those inspectors who will be the resident inspectors, and the Region-based inspectors, inspecting at MOX and ultimately in Wilmington at the facility there, as well as International Isotopes, have that difference training that they need to be effective.

CHAIRMAN MACFARLANE: Okay. Great. All right. I will stop there and turn it over to Commissioner Apostolakis. Sorry, Svinicki.

COMMISSIONER SVINICKI: Thank you. Cathy, thank you for your second presentation. Victor, welcome. Thank you for your responses to the questions of my colleagues that represent the important work that the Region is doing to support these programmatic areas. And since this is a program brief, indulge me. I am going to be programmatic for a moment and think about program execution here. Cathy, you had a statistic. It was 54 percent of the budget goes to oversight of existing licensees, 27 percent to licensing. Was that just from the fuel cycle activities? And did you -- I couldn't find a similar metric for the spent fuel storage and transportation. Would it be about the same split, do you think, like approximately half or a little bit more for oversight and maybe a quarter for licensing?

CATHY HANEY: If you give me a second I can -- I think I can tell you. I would -- I guess the best thing is for me rather than to take a quick look at my notes here -- is to get back to you on the exact percentages, but I will tell you that there is a larger amount for oversight in the fuel cycle area than there is in the spent fuel storage and transportation.

COMMISSIONER SVINICKI: Oh, okay. No, that's good. I just -- yeah, I just needed kind of a rule of thumb there.

CATHY HANEY: I can get you an exact number.

CHAIRMAN MACFARLANE: Well, we can look it up as well in the budgetary documents in my office, but you had also talked about -- I thought it was a good insight early in your presentation. You said that the budget in these areas of the program is executed stressing careful resource utilization in an austere environment. So, you know, stepping back and looking at the diversity of the activities that we've talked about this morning and the presentations, the two

presentations that you've given -- well, I'll begin by saying, you know, let me state for the record that I am a strong proponent of the United States' selection of a Commission structure for regulating the complex topics of nuclear safety and security, but one of the outgrowths of that kind of Commission decisionmaking is that we're asked to decide a lot of matters one by one, you know, like do you want to proceed with this activity? Do you think that the following things should be undertaken by the agency? And I would say with the exception of our vote on the budget, we don't have an opportunity to look at the breadth of activities and, you know, not all of which can have the same level of priority.

So, do you feel that you have the ability, if at some point you were assessing and then to use your word, an austere environment, or if there were further budget reductions for the agency, would you feel that you could propose on your own activities that you felt in that budget level didn't add as much value? And I would point as a positive example the Office of New Reactors, it might've been as long as a year ago now, sent a paper to the Commission and they proposed a certain periodic report, some things were maybe not adding value or the information could be received by the Commission in some other way, and they proposed that some things be discontinued. Do you ever think about doing that given this big diversity of activities? Are there any historic types of reports and things that you have to do that, you know, as busy as you are you probably don't have time to sit and think about things that maybe aren't adding as much value anymore? But I would just say I thought that was a very productive thing for new reactors to have done, and I think as an agency as we get into this kind of fiscal environment, it might be the kind of thing that more programs need to think about. Mr. Borchardt, you seem eager to say something.

BILL BORCHARDT: Yeah. I'm going to jump in front of Cathy just for a second. We're doing this agency-wide, so all the offices, all the programs have been asked to look at all recurring reports that we prepare for the Commission and even outside the agency and challenge as to whether or not they still fulfill the original intent and purpose.

COMMISSIONER SVINICKI: And I think Commissioner Ostendorff would recall this as well, but when I was Armed Services Committee staff in the Senate, the Pentagon, I think nearly annually when we were doing their authorization bill, would submit a list of recurring reports and activities that they would respectfully request that the Congress maybe think about discontinuing. So I don't think there's anything particularly bold about this type of activity.

BILL BORCHARDT: Yeah. We made a few revisions recently, but we're doing it agency-wide, so we'll be interacting with the Commission on that. And then I think I heard early on in your statement some thinking about reprioritizing work within these products or within these business lines as it compares to the work done in other business lines throughout the agency. And within the last year what we've started doing is our quarterly performance reviews are now done on an agency-wide basis. We pull all of the business line owners, in fact, all the Office Directors together. We dedicate a day to go through all of the agency metrics and performance across all business lines so that we can do just that kind of thing. So if there's a pressure point in one business line that we can make an informed decision of whether or not we'd want to shift resources from an entirely different business line if the skill sets match up. Of course, you have a lot of, you know, restrictions, but -- so that we can do that on an agency-wide basis. And that's, I think, going to prove to be a very effective way of doing

business.

COMMISSIONER SVINICKI: And you were correct in that that was another prong of what I mentioned. Again, I think it's a little bit more difficult to address, and I do think that the Commission's deliberative process and deliberative decisionmaking adds a lot of value on the topics of nuclear safety and security; however, it does mean that we are making our decisions generally topic by topic, and we don't have as many opportunities to look across the agency. So, as you and your leadership team are doing that I think that a consideration of some of those things could be helpful to us. I mean, I don't think of it in any more sophisticated way than if I told you you had $100 to go out to dinner. You might pick certain restaurants -- you'd look at -- if I told you you only had $20 you'd probably -- you might pick a completely different set of restaurants, and so you know, it does make -- the Commission makes these decisions, but yet if resources are constrained then it would, I think, influence -- we need that feedback to know yeah, I think in isolation this is an important task, but what if it competes with three or four other tasks. So, I thank you for doing that and for addressing that. I just had a couple of other comments that I wanted to make. You can respond, any of you, if you'd like, but you don't have to.

There was a very, very passing reference to -- that the staff plans to request Commission direction on use of the NNSA's human reliability process in regards to MOX, and I'm not going to say a lot about this. I think I'm singularly on the side of the table someone who has had this come before me already as a member of the Commission. It has come before previous Commissions and I've studied their consideration of it, and I think it's always useful, again, to relook at things and present new circumstances and situations, but I will say that the

Commission historically, in my study of the issue, has guarded very zealously, of course, our independence, and it's hard to say that subjecting NRC staff, you know, submitting them to access or reliability programs of other agencies, it's hard to look at that and say that that does not impinge on our independence. And so I think it's nothing to do with whether or not we have staff that can pass this program. Of course we do. But when we start saying that we're -- in order to carry out our regulatory authorities and responsibilities we're going to submit to something over which we have no control. Again, I don't know the right answer. If you come to the Commission again I will assess that within the four corners of what you submit, but I appreciate and know the staff is also acquainted with the long history of the Commission's consideration. That being said, it's very complex and very tricky, and I understand that as well.

The other thing that I'm going to make a comment on, just because this is such a convenient time to kind of alert you to this is that we mentioned the MC&A proposed rule. The Commission looked at that, approved its publication in the Federal Register, but did request that a number of areas be supplemented and revised. We also asked that that come to the Commission for five days prior to being submitted to the Federal Register. I am, as I'm sure all my colleagues are, looking closely at the staff's responsiveness to the Commission's direction, and I just want to say in one instance the staff is indicating that the Commission's direction is not applicable, and you know, again, I'm all for differences of opinion and will look closely at what the staff puts forward here, but in my view the time for the staff to indicate that the Commission's direction on supplementing the rule was not applicable would've been when the staff has an opportunity to review the draft staff requirements memorandum. That's a key time when we look for that

input of whether or not our direction is going to be relevant to what we're putting forward. So it may be that I'll be asking for a supplemental briefing on the response to the Commission's direction on this particular rule. It is a very, very complex matter and I just want to understand fully what the staff has done. But I am concerned that in one instance the staff is indicating that they're -- that the Commission's direction was irrelevant. So, thank you, Mr. Chairman.

CHAIRMAN MACFARLANE: Now, finally, Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thanks.

CHAIRMAN MACFARLANE: Apologies, again.

COMMISSIONER APOSTOLAKIS: Cathy, you mentioned that a strategic goal of your office is to support U.S. nonproliferation elements. That's something that's not very clear in my mind. What exactly is the NRC's role in nonproliferation activities? Because that's obviously an issue of national importance. You have higher ups who worry about it. So, what exactly do we do here? How do we support the effort?

CATHY HANEY: We support it in many ways. I'll touch on one or two and then ask either John or Tom Grice, who is most active in that area to come to the microphone. One of the areas is -- ways is that we are a good liaison with our licensees in that some of our regulations, some of the requirements of our regulations actually support the nonproliferation that has -- primarily with information security making sure that the licensees are protecting information of national security.

Another way is through the interfaces that we have with the IAEA as far as recognizing some of the facilities that are eligible. We're working with

Department of Energy on the database that's used to track material through the United States and imports and exports, and that information is going -- it helps us meet treaty obligations -- the U.S. government treaty obligations beyond NRC. So those are a couple of really quick hits, and then I would leave it to Tom if he would give you a little bit more of an answer.

THOMAS GRICE: Tom Grice, I'm a team leader for the International Safeguards Team within the office of NMSS. We play kind of an interesting role in a broad scope. We support the U.S. nonproliferation efforts through a myriad of various avenues. One of the most significant is our domestic physical security program. The establishment of those programs, which the IAEA referred to as the state system of accounting and control, that sets the international standard for other countries to try and match. We participate in the establishment of international standards, representatives from the Office of Nuclear Security and Safety Response. Just a couple of years ago we were involved in a major revision to INFO Circ 225, which addresses the physical protection of [unintelligible] materials. We have a gentleman in our branch that has served on a consultancy, Mr. Thomas Pham, on establishing international standards for domestic material control and accounting programs. There's probably an IAEA working group on the interaction between MC&A standards, physical security protection standards, and the safety standards to see how those three -- they refer to it as the three Ss, how those three Ss integrate, and how they complement one another.

COMMISSIONER APOSTOLAKIS: Well, in the safety arena, for example, in the case of reactors, people do all these things. They participate in meetings and work with other groups, but then there is also -- there are also

requirements when the license is issued, and I can go to a particular chapter of the safety evaluation report and read about, you know, what requirements they have met.

THOMAS GRICE: Certainly.

COMMISSIONER APOSTOLAKIS: Is there such a thing here? I mean, do you have a separate section when you issue a license that addresses proliferation issues?

THOMAS GRICE: There are. And again, it's not something that will be clear and crisp, but what you'll find is that in the agreements that we have with the international community, both with the Atomic Energy Agency through our safeguards agreement, and through the123 Agreements for Peaceful Cooperation with other countries. Australia and Canada are two very good examples. Those agreements require us to track their material while it's in the United States, and to get assurances before it's retransferred outside of the United States. So, in order to meet those commitments, again, we tie that with our domestic safeguards program. So, if a facility such as Westinghouse or GE receives material that has -- that's come from Australia. Let's make the assumption that yellow cake comes from Australia and that material has what we refer to as obligations on it to Australia. Australia requires us to track that material especially for them because of our agreement with the Australian country. That material is recorded domestically because of our domestic MC&A programs to a national database, and we use that same information to extract the information that we need to send back to Australia so we meet our international obligations and support the assurance that that material is used strictly for peaceful purposes in combination with our domestic material control and

accounting program.

COMMISSIONER APOSTOLAKIS: Thank you. I've heard over the years there are many human errors in fuel cycle facilities, not of great significance, but first of all, is that true? Do you find that human error is prevalent or it depends on what you call human error, but let's say --

VIC MCCREE: Commissioner, thank you for your question. I would need to -- the short answer is not to my knowledge. Having said that, there is an operating experience element to the fuel cycle facility oversight process just as there is in the reactor area and new construction area, and we provide that feedback. In our inspection program, particularly where we have resident inspectors, we are very alert to human performance, operational performance issues, and provide that feedback to licensees, and even for those facilities where we don't have resident inspectors, that's a component of our inspection program as well. Cathy mentioned that we conducted over 300 inspections just last year, so that is a component of it. But we've not seen a trend that's noteworthy in the area of human performance.

COMMISSIONER APOSTOLAKIS: The issue of ISA. I noticed in general and again, that may be the wrong impression, but there is this apparently prevailing view in the industry that nothing's broken, so why do anything? Why, for example, worry about the standard for ISAs and I'm wondering what your views are on that. Do we do things only when things break down? Or do we try to improve on things? Of course these are subjective judgments sometimes whether an improvement is a real improvement, but I've heard that many times. So, I'd like to know -- I mean, we talked about strengthening organizational excellence, more generally strengthening excellence -- if you can strengthen

excellence -- but what are your views on that? Why -- I was surprised that the industry said oh, we don't need to do that. We don't need a standard, when in the reactor side we are forcing everybody to issue standards.

CATHY HANEY: A couple of comments, and then if John would like to complement my comments that would be fine. The -- I think first to take on the no we want to be proactive in -- whether it's in trying to do the best thing that we can do to improve our program. I think from the standpoint of the ISAs and the fuel cycle facilities, I mean it's been challenging over the years. We've been working with ISAs for awhile now. Part of the challenge is there is, again, the diversity between facilities, so we can -- well, we can conceptually agree on an approach, how you apply that at the different facilities is something that we need to basically look at each one individually.

From the standpoint of the industry commenting on do they need the guidance? Do they not need the guidance? If you look at our facilities right now, with the exception of a small number, they all have ISAs in place now, and the effort -- it takes resources to work on developing standards for ISAs. It would be industry resources that would be used to do it. And there would be also some resources from NRC that would go towards that. And to reflect back, I think Commission Svinicki had pointed, there's a lot going on in the fuel cycle area right now, and I think across the board the licensees, as well as on a day-to-day basis I look at it, my management teams look at it. Where can we get the best, you know – put in on a return on investment type of approach to looking at things. So there's a concern about, you know, is this the right place that collectively we should all be putting our resources? And, I've heard that from the fuel cycle industry that's not a comment from my side of the table. It's more from

what I've heard. I think that given that we have the direction from the Commission to move forward on developing the standard for ISAs we have reached out to the American Nuclear Society. So we're going forward with doing that. We'll keep the Commission informed as we make progress on doing that, but we are set down the path of that.

COMMISSIONER APOSTOLAKIS: One last question. I will ask now the question I asked Mr. Satorius when he was here defending his business line. Do you have a protocol that determines when you are going to the Advisory Committee on Reactor Safeguards? I mean, you used to have the ACNW, of course, which was exclusively yours. Now you don't. I remember reading the first document on the ROP for fuel cycle facilities, which was fairly technical, and then I found out that the ACRS had not reviewed it. I understand afterwards we did go to them. Is there a process that you follow to decide what issue deserves or what document deserves to go to that committee so they can write a letter to us? Or is it an ad hoc process where, you know, somebody decides yeah it's a good idea to have here and there.

CATHY HANEY: Let me answer that question from the standpoint of both business lines. I think the high ranking document is really the charter for the ACRS where it identifies what areas of the regulations that they would be interested in addressing. So with that as our highest procedure the items under -- the parts of the regulations that pertain to both business lines actually fall within the purview of the ACRS. So, from that document, that level, we have routine interfaces with ACRS staff. In fact, every Monday morning I have a management meeting and one of the members of the ACRS staff comes over and sits through that meeting and is hearing firsthand the products that we're working on, and

then we'll use that to go back to the committee and say, for example, NMSS is working on this aspect, or FSME is working on this rule for NMSS, is this something that you would want to be interested in in hearing?

Over the last I would say probably two to three years we've started some specific outreach on topics that we know would be of interest to ACRS, so I think we're actually going beyond what the charter is where my division directors will go over and meet with the subcommittee on an informal basis and raise this topic. So our level of interaction with the ACRS has actually increased over the last several years. So, we have the formal process of the charter, but then we also have the informal interactions that we have on a weekly basis with them.

COMMISSIONER APOSTOLAKIS: Glad to hear it. Thank you.

CHAIRMAN MACFARLANE: Okay. So let me check with my colleagues and see if anybody has additional questions or comments. No? Okay. Well, then I will thank you again. Thank you, Cathy, for being here the whole time and talking the whole time. Much appreciated. And thanks to all the rest of the staff for all their answers and discussion. It was very informative. So, I think that's about it and at this moment we'll adjourn. Thank you.

[whereupon, the proceedings were concluded]