UNITED STATES

NUCLEAR REGULATORY COMMISSION

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BRIEFING ON STRATEGIC PROGRAMMATIC OVERVIEW OF THE DECOMMISSIONING AND LOW-LEVEL WASTE AND SPENT FUEL STORAGE AND TRANSPORTATION BUSINESS LINES

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TUESDAY,

OCTOBER 18, 2016

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ROCKVILLE, MARYLAND

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The Commission met in the Commissioners' Hearing Room at the Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, at 9:30 a.m., Stephen G. Burns, Chairman, presiding.

COMMISSION MEMBERS:

STEPHEN G. BURNS, Chairman

KRISTINE L. SVINICKI, Commissioner

JEFF BARAN, Commissioner

ALSO PRESENT:

ANNETTE VIETTI-COOK, Secretary of the Commission

MARGARET M. DOANE, General Counsel

NRC STAFF:

VICTOR McCREE, Executive Director for Operations

MARC DAPAS, Director, Office of Nuclear Material
Safety and Safeguards (NMSS)

CHRISTINE LIPA, Deputy Director, Division of Nuclear
Materials Safety, Region II

MARK LOMBARD, Director, Division of Spent Fuel
Management, NMSS

JOHN McKIRGAN, Chief, Spent Fuel Licensing Branch

RAYMOND POWELL, Chief, Decommissioning and Technical
Support Branch, Region I

GREGORY SUBER, Chief, Low-Level Waste Branch, NMSS

JOHN TAPPERT, Director, Division of Decommissioning,
Uranium Recovery, and Waste Programs, NMSS

P R O C E E D I N G S

9:31 a.m.

CHAIRMAN BURNS: Good morning everyone. Call the meeting to order. The purpose of today's briefing is to provide the Commission with a discussion of strategic considerations associated with the NRC's Decommissioning and Low Level Waste Business Line, and the Spent Fuel Storage and Transportation Business Line.

We'll hear this morning from the staff panel consisting of the EDO as well as representatives from the Office of Nuclear Materials Safety and Safeguards, Region I office outside of Philadelphia, and our Region III office in Illinois. We'll conduct the meeting as two panels.

The first panel will provide a briefing on Decommissioning and the Low Level Waste business line, followed by questions and answers from the Commission or a session with the Commission. Then the second panel will move on to the Spent Fuel Storage and Transportation business line.

I look forward to today's discussion. I want to welcome everyone from the staff, the public who may be here in the room or listening in. Before we begin, do my colleagues have anything? Very good. Vic, I'll let you start the presentation and the introductions of the staff panel.

MR. McCREE: Good morning Mr. Chairman, Commissioner Svinicki and Commissioner Baran. We appreciate the opportunity to provide you with an update today on the current activities, priorities, emerging focus area,s and future of the decommissioning and low level waste and spent fuel storage and transportation business lines, which primarily reside within the Office of Nuclear Material Safety and Safeguards, NMSS.

We'll provide you today's briefing with two panels, as you mentioned Mr. Chairman, beginning with the Decommissioning and Low Level Waste business line. The Decommissioning and Low Level Waste business line involves significant stakeholder engagement and complex issues. The business line had some recent successes and is also addressing a number of challenges, in particular reactor decommissioning.

This area remains a particularly dynamic area, and a potential near-term growth area as you know due to a number of known permanent reactor shutdowns. To address this increase, we're proactively planning and prioritizing our activities to respond to an uncertain environment.

While today's presentation on the Decommissioning and Low Level Waste business line will focus on the majority of activities in that business line, I do note that the management of licensing and the oversight of activities for operating uranium recovery facilities will not be discussed in the context of this briefing. Instead, uranium recovery will be discussed in the Commission meeting next month.

Next slide, please. The NRC staff and management from the Decommissioning and Low Level Waste business line who are here with me today will focus on their presentations on the following topics. We'll begin today's presentation with Marc Dapas, the NMSS office director who will discuss licensing and oversight successes and challenges.

Following Marc's presentation, we'll hear from John Tappert, who's the director of the Division of Decommissioning Uranium Recovery and Waste Programs. John will discuss the current decommissioning environment during his remarks, and after John Greg Suber, to my left, chief of the Low Level Waste Branch, will discuss the current low level waste environment.

Rounding out the Decommissioning and Low Level Waste business line, we'll

then hear remarks from Ray Powell, the chief of the Decommissioning and Tactical Support Branch in Region I on the accomplishments and challenges in the decommissioning inspection area. I'll now turn the presentation over to Marc Dapas. Marc. Next slide.

MR. DAPAS: Thank you, Vic. Good morning Chairman, Commissioner Svinicki, Commissioner Baran. As Vic noted in his remarks, I'll begin with an overview of the Decommissioning and Low Level Waste business line.

Next slide, please. As you can see from the topics on this slide, this business line encompasses a broad range of activities. Given the dynamic nature of the work associated with this business line, we remain focused on our top priorities, and that is safety and security through our licensing and oversight activities.

We continue to collaborate with our business line partners to ensure that we have the flexibility in both headquarters and the regions, to adjust our resources as necessary to support our safety and security mission. Our response to the increase in the reactor decommissioning workload is but one example that demonstrates our agility to shift resources between business lines, namely the operating reactor business line to the decommissioning and low level waste business line.

While the resources that are required for licensing and oversight of an operating reactor include the resources required for the same functions with respect to a shutdown reactor, the resources need to be shifted between these business lines. We have demonstrated organizational agility by ensuring that the appropriate resources are available, meaning right staff with the right skill sets to support decommissioning work.

As Ray Powell will address in his presentation, we are adjusting our qualification programs to ensure that our staff possesses the knowledge necessary to provide oversight for

upcoming decommissioning activities.

As you will hear from Greg Suber during his presentation, we are also working to respond to the changing landscape in the area of low level waste management by evaluating and adjusting, as necessary, the regulatory framework.

Recently, we completed an assessment of low level waste activities and we used that analysis to inform our priorities, which are identified in the latest update of the low level waste programmatic assessment, which I understand has been provided to the Commission. Gregory will also discuss our continued efforts to ensure safety through the NRC's assessment of the Department of Energy's Waste Incidental to Reprocessing determinations per the Ronald Reagan National Defense Authorization Act of 2005.

Next slide, please. The decommissioning and low level waste business line has realized significant successes over the past year. This is due in part to our continued coordination efforts with our federal and state partners. In the decommissioning programs, some of the major accomplishments over the past year include the completion of decommissioning license terminations at Stepan, Mallinckrodt and the Veterans Affairs Omaha Research and Test Reactor.

Stepan and Mallinckrodt license terminations represent the culmination of decades of decommissioning activities. Veterans Affairs Omaha is also a notable accomplishment that involved the resolution of allegations and oversight of licensee decommissioning activities under challenging time constraints.

Completion of these terminations required close coordination between the regions and the headquarters. Through extensive coordination and calibration with our federal partners at the Department of Defense, we successfully completed and implemented a

memorandum of understanding regarding oversight of military sites with radium contamination.

This accomplishment is the culmination of a five-year effort between the NRC, the Department of Defense, the Air Force, the Navy, and the Army. Finally, in the low level waste program we recently completed the Part 61 low level waste rulemaking proposal, which has been provided to the Commission for your consideration.

You will hear more about each of these accomplishments from the other NRC speakers during their respective presentations.

Next slide, please. Within the Decommissioning and Low Level Waste business line, we are also working to address several multi-faceted and complex issues, each presenting its own unique set of challenges. For example in the Material Decommissioning Program, we are working to implement appropriate regulatory oversight activities for non-military radium sites in a timely manner.

After identifying sites with suspected historic radium use, we coordinated with state and local governments to gather information about any past remediation activities. We also plan to conduct site visits to support subsequent scoping surveys, to determine the extent of any potential radium contamination at these sites.

Additionally, as directed by the Commission, we are proceeding with the development of a regulatory basis defining the appropriate criteria for disposal of greater than Class C low level waste through means other than deep geologic disposal. Our analysis will include whether disposal of greater than Class C waste presents a hazard, such as that the NRC should retain authority over its disposal.

If as a result of our analysis we determine that some or all greater than Class C waste is potentially suitable for near surface disposal, we will proceed with a development of a

proposed rule to include criteria for licensing the disposal of such waste under Part 61.

John and Gregory will provide more details about our efforts to overcome challenges associated with these issues in their remarks. I'll now turn the presentation over to John Tappert. Thank you. Next slide, please.

MR. TAPPERT: Thank you, Mark. Good morning Chairman, Commissioners. My presentation today will focus on the current decommissioning environment, which continues to support a number of priorities involving a broad range of stakeholders and licensees. I'll also highlight several ongoing activities, accomplishments and challenges within the Reactor Materials Decommissioning Programs.

Would you put the slide back up, the other slide? So I don't have a lot of pictures in my presentation, but this slide has pictures of Maine Yankee during operation decommissioning and after license termination, and kind of provides a nice visual summation of the decommissioning process.

Next slide, please. As the focal point for implementing the NRC's decommissioning program, the business line continues to focus on several priorities. Among the priorities are licensing and oversight activities for the decommissioning of complex material sites.

By complex, we mean those sites where the scope and nature of the decommissioning activities require substantial technical and administrative efforts. Examples of complex material sites include sites with groundwater contamination, sites containing significant soil contamination, and sites on which the owners are in bankruptcy.

We also oversee decommissioning of uranium sites on the Uranium Mill Tailings Radiation Control Act. Additional priorities are licensing and oversight at decommissioning reactor sites. Currently, we have project management responsibilities for 19 permanently shut

down power reactor units. This includes six power reactors in active decommissioning.

In addition, we provide oversight of decommissioning activities involving four research and test reactors. Finally, we are implementing actions to address the oversight of radium at both military and non-military sites.

The 2005 Energy Policy Act, NRC's 2007 Naturally-Occurring and Accelerator-Produced Radioactive Material or NARM rule, provide for NRC jurisdiction over discrete sources of radium and its contamination.

We continue to develop and implement a program to provide oversight of these sites. I will provide more details about this program later in my presentation.

Next slide, please. Let me spend a few minutes highlighting several ongoing decommissioning activities at material sites, and this figure depicts the wide geographic diversity at these sites. As Vic mentioned, uranium recovery oversight and licensing activities will be addressed in a Commission meeting next month.

However, responsibility for oversight of the nation's uranium mill tailings resides in our decommissioning program. One notable element with respect to oversight of uranium mill tailings is that it involves extensive consultation with the Department of Energy and other federal partners to address uranium contamination as part of the Navajo five-year plan.

Beginning in 2007, several agencies including the Department of Energy, the Environmental Protection Agency, the Bureau of Indian Affairs, the Agency for Toxic Substances and Disease Registry, and the Indian Health Service partnered to develop a coordinated five-year plan that outlines a strategy to gain a better understanding of the scope of the uranium contamination and associated risk on the Navajo land.

The NRC's role is to provide continued oversight of the uranium mill tailings

disposal sites on the Navajo Nation that have been transferred to the Department of Energy. In this capacity, the NRC reviews and provides comments on any documents governing Department of Energy activities at the sites, such as groundwater compliance action plans or long-term surveillance plans.

I would also note that through our licensing and oversight activities, we have continued to make progress toward the decommissioning of legacy sites. For example, there has been substantial progress towards the cleanup of the Hematite Facility near St. Louis. We are currently reviewing the groundwater remediation plan for the previously bankrupt Cimarron site.

Another unique activities in the materials decommissioning program is our involvement in the West Valley Demonstration Project. The West Valley site contains the first and only commercial reprocessing facility to operate in the United States. From 1966 to 1972, Nuclear Fuel Services reprocessed 640 metric tons of spent fuel under an Atomic Energy Commission license.

In 1980, Congress enacted the West Valley Demonstration Project Act, and under that Act the Department of Energy assumed exclusive possession of a 200 acre portion of the site, which includes the former reprocessing facility. In our regulatory role, we monitor site remediation activities to ensure that when remediation is completed, we can take actions to terminate the license as appropriate.

Next slide, please. There have been a number of accomplishments within the materials decommissioning program since we last discussed it before the Commission. Examples include issuance of an amendment to license for the U.S. Army Installation Management Command, to possess depleted uranium from Davy Crockett M101 spotting rounds

used in training through the 1960's among 16 Army installations in 14 states.

The license was unique in that we used a programmatic approach to include all these sites under one license. As Mark already mentioned, we completed license termination activities for the source materials licenses at the Mallinckrodt site near St. Louis, Missouri and the Stepan facility in Maywood, New Jersey. These were significant accomplishments that were the result of several decades of effort to oversee the safe and effective cleanup of these complex sites.

Finally, we completed activities associated with the AAR Corporation site, which had its license terminated by the Atomic Energy Commission in May 1971. In 1994 after reviewing the previously terminated license, we concluded that it did not meet our decommissioning criteria. We then worked with the new unlicensed owner to remediate the site, such that it could be released for unrestricted use last year.

Next slide, please. We are currently addressing some challenges involving groundwater issues and financial resources for site cleanup. For example, with respect to groundwater at uranium mill tailing sites. At the Homestake site in New Mexico we are providing oversight of the licensee's corrective actions to address groundwater contaminant concentrations that exceed the levels established in the license.

At the Split Rock and Umetco Gas Hills East sites in Wyoming, we are working to resolve groundwater modeling issues. With respect to limited financial resources, we are continuing to develop and implement unique arrangements that balance the need for cleanup with limited financial means.

A recent example is our work to develop and implement such an agreement at the Fansteel site, which has been in place for the last several years. However, these sites all

have unique circumstances, which are the subject of change, as we learned last month when Fansteel filed for bankruptcy.

We are adapting to these changed circumstances by working with our partners at the Department of Justice and the state of Oklahoma, to understand the implications of the filing with a focus on maintaining security of the site and advancing the remediation.

Next slide, please. Turning to ongoing activities and reactor decommissioning program, our principle focus is to provide effective project management support for the current inventory of reactor decommissioning sites. As I mentioned earlier, there are 19 power reactors in decommissioning of which six are undergoing active decommissioning. The remaining 13 reactors are in SAFSTOR.

I would also note that ten power reactor licenses have been terminated upon meeting the NRC's criteria for unrestricted use. In addition, six reactors have announced that they are shutting down the next three years, and this includes Fort Calhoun in Nebraska, which will be permanently shutting down later this month.

Finally with uncertainties in the U.S. energy markets, it is plausible that there may be additional plants permanently ceasing operation before the end of their licenses.

Next slide, please. Similar to the materials decommissioning program, there have been several accomplishments within the reactor decommissioning program since we last discussed this with the Commission.

As Marc mentioned earlier, we completed the license termination for the Veteran Affairs Omaha research and test reactor in a timely manner. We also authorized partial site releases at Zion and GE Vallecitos.

In coordination with the Office of Nuclear Reactor Regulation and the Office of

Nuclear Security and Incident Response, we completed the reactor decommissioning transition lessons learned report, which will help improve efficiency of future licensing activities, as well as help inform our efforts on the integrated decommissioning rulemaking.

Finally, we recently completed an evaluation to determine whether a rule regarding proper remediation of contamination during licensed operation of nuclear reactors and material facilities as warranted, and our recommendation was very recently provided to the Commission for consideration.

Next slide, please. As for challenges in the reactor decommissioning program, we are working to ensure the timely planning and coordination of resources to support reactor decommissioning transitions. Resource needs for decommissioning licensing and oversight are less than those for operating reactor licensing and oversight.

So a premature reactor shutdown does not represent an agency resource challenge per se, but we are working to ensure good communications between the business lines to respond to changed circumstances in a natural manner.

While the Operating Reactor business line has the lead for the integrated decommissioning rulemaking, we are actively supporting the Office of Nuclear Reactor Regulation in evaluating the complex policy matters associated with that rulemaking activity. This includes evaluating what the role should be for state and local governments, as well as non-government organizations, determining whether the NRC should affirmatively approve post-shutdown decommissioning activity reports, and evaluating whether the three existing decommissioning options, namely DECON, SAFSTOR, and ENTOMB should be retained and whether the 60-year decommissioning period is still appropriate.

And as we continue to implement the program, we are likely to receive first of a

kind requests. For example, we have a request from a licensee to extend the decommissioning period for a reactor beyond 60 years, in order to decommission all the facilities on the site in an integrated manner. There may be additional requests of this kind as there are several shutdown first generation reactors that are co-located with operating reactors, some of which the licensee may pursue subsequent license renewal.

Next slide, please. Finally, I would like to discuss some of our activities to address our radium oversight responsibilities. First by way of background, the NRC was given the authority to regulate radium in the Energy Policy Act of 2005, which expanded the definition of byproduct material to include certain discrete sources of radium-226.

In order to implement the radium provisions of the Energy Policy Act, the NRC developed the naturally occurring and accelerator produced reactor material or NARM rule. The NARM rule does not apply to radium under the control of the Department of Defense or DoD, that is being used or available for use for military operations.

However, it does apply to DoD and other applications such as the use of radium and medical or research activities, or in a manner similar to a commercial activity. We worked with DoD for several years on the implementation of the NARM rule. As Marc mentioned, just this past year we completed a Memorandum of Understanding or MOU with DoD regarding the cleanup of sites with radium contamination.

The MOU addresses sites undergoing remediation of unlicensed contamination under the Comprehensive Environment Response Compensation and Liability Act known as CERCLA or Superfund, and more specifically the purpose of the MOU is to identify roles and responsibilities, as well as minimize the potential for dual regulation between EPA and NRC.

The MOU outlines a graded approach, whereby the NRC is kept informed of

EPA oversight activities to avoid the potential for dual regulatory oversight. The NRC has a more active monitoring role if EPA is not involved.

After resolving policy issues related to NRC's oversight role with respect to military radium, we have focused our activities on aspects of non-military radium. We have been in dialogue with the National Park Service in EPA Region II, to coordinate oversight of radium contamination at Great Kills Park, a former landfill that is now a national park. The National Park Service is in the process of characterizing the site for subsurface radiological and chemical contamination.

We've also been in dialogue with EPA Region I regarding coordination of our oversight role for portions of the Waterbury Clock Factory currently under EPA's Brownfields program. Based on these examples of sites with historic radium contamination, we commissioned a study of public records to determine what other sites may have potentially used radium.

Next slide, please. Our contractor identified a little over two dozen sites in non-agreement states where radium may historically have been used. We conducted an outreach campaign to share the information we developed regarding these sites with the relevant states. We have also gathered supplemental information from the states regarding these sites.

In addition, we have issued a letter to all the states at the beginning of this month communicating our path forward. Specifically, we're in the process of reaching out to property owners to obtain additional information. Our goal is to conduct an initial site visit at all properties within the next six months to conduct an initial assessment. Then we intend to conduct follow-on scoping surveys to further characterize the extent of any potential contamination.

In parallel, we have been thinking through some potential policy issues that may

arise, depending on what we find through our information-gathering activities. Issues such as how we might work with EPA to address remediation if necessary, when we might want to consider licensing, and how should Part 170 fees be considered are all topics that we are evaluating and plan to present with recommendations to the Commission for their consideration in the near future.

And finally, we are focused on the initial implementation of the Memorandum of Understanding with DoD, to ensure that the program is off to a successful start. Specifically, the NRC promulgated a regulatory issue summary, RIS 2016-06, NRC regulation of radium-226 under military control to provide information about the MOU to stakeholders.

Additionally, we had our initial visit last month to the Navy's Treasure Island site in California, and that visit serves as an effective means for sharing site history and status information, which will inform further implementation of the MOU. We will continue to engage DoD on implementation of the MOU, to clarify jurisdictional boundaries for dual regulation, clarify the regulatory approach for remediation, and provide oversight consistent with the MOU.

That completes my prepared remarks. I'll turn the presentation over to Greg Suber.

MR. SUBER: Thank you, John.

MR. TAPPERT: Next slide, please.

MR. SUBER: Good morning Chairman Burns and Commissioners. As Vic and John noted during their remarks, I will discuss the current low level waste environment, as well as our efforts to overcome challenges associated with issues that we are working to address in the low level waste program.

Next slide, please. I'll begin my presentation today with the low level waste

mission-related areas of focus, some arising ongoing activities, and recent accomplishments, and focusing -- excuse me and closing with challenges that we are currently addressing.

Next slide, please. Similar to our approach with the decommissioning program, we are continuing our efforts to support a number of priorities involving a spectrum of stakeholders and licensees. Within the low level waste program, we are focusing on the following: Assessing the National Low Level Waste Regulatory Framework, to determine the appropriate strategic activities given the changing environment; providing oversight and support to the Agreement States, with respect to their regulatory oversight of low level waste disposal facilities; monitoring certain DOE disposal actions in accordance with the Ronald Reagan National Defense Authorization Act of 2005, and conducting extensive external outreach on low level waste policy and technical matters.

Next slide, please. As mentioned earlier by Marc, we are currently addressing several technical and policy issues. The first issue I will discuss is associated with the disposal of greater-than-Class C or GTCC and transuranic waste. On January 30th of 2015, the Texas Commission on Environmental Quality submitted a letter to the NRC requesting clarification on the ability of an Agreement State to license and to provide oversight for GTCC and transuranic waste disposal facility.

This request raised policy issues regarding whether an Agreement State can regulate this waste. In addition, it raised a question of whether this waste could be disposed of in the near surface. In response to these policy issues, the Commission directed the staff to respond to the letter from the Texas Commission on Environmental Quality, and develop a regulatory basis for the disposal of GTCC waste following the publication of the Part 61 rule.

We responded to the January 30th letter from the Texas Commission on

Environmental Quality. In that response, we noted that the regulatory basis for a possible rulemaking to address the disposal requirements for GTCC and transuranic waste would analyze whether the disposal of this waste presents a hazard such that the NRC should retain authority over its disposal.

We continue to coordinate with the Texas Agreement State regulators and the Department of Energy regarding the disposal of this waste. As directed by the Commission, we are developing a regulatory basis to define criteria for the disposal of this waste. We plan to complete this activity within six months of the Part 61 rule being published.

We have already begun a technical analysis to support the regulatory basis, and plan to conduct public workshops on this issue in early 2017. We are continuing our efforts to address long-standing issues related to financial assurance for the disposal of Category 1 and 2 sources. This issue is of high interest to the states and other agencies, in terms of providing viable pathways to disposition disused sources in a timely manner.

Concerns have been raised about the long-term viability of orphan source recovery programs and the need for users to be accountable for the cost of disposal of disused sources. Similarly, the need for financial assurance to facilitate timely disposal was raised by several sources, including the President's Radiation Source Protection and Security Task Force, and the low level radioactive waste forum Disused Sources Working Group report.

I would also note that the NRC regulations in Part 30.35, Financial Assurance and Recordkeeping for Decommissioning, do not require decommissioning financial assurance for a majority of Category 1 and 2 radioactive sealed sources. In response to these concerns and as directed by the Commission, we conducted a scoping study and submitted an information paper to the Commission earlier this year, providing the results of the byproduct material financial

study and recommendations for next steps.

In September of this year, we provided a rulemaking plan SECY paper to the Commission to further evaluate potential changes to Part 30.35. In the rulemaking plan, we recommend further analysis to develop a regulatory basis. We continue to coordinate activities internally and with external stakeholders, including DOE, National Nuclear Security Administration, the Organization of Agreement States and the Conference of Radiation Control Program Directors.

The last ongoing activity I would like to highlight is the work with the Department of Energy in the remediation and disposal of waste incidental to reprocessing or WIR at the Savannah River site and the Idaho National Lab. Under the Ronald Reagan National Defense Authorization Act or NDAA, the DOE is instructed to consult with the NRC on its WIR determinations and the NRC is responsible for assessing compliance of the DOE disposal actions with the performance objectives in Part 61.

We are performing reviews as requested by DOE at other sites that are not a part of NDAA. Under NDAA, we have completed the consultation phase for two DOE tank farms at the Savannah River site, and are currently monitoring disposal activities through onsite observations and technical reviews. We are also continuing to monitor DOE disposal of salt waste and the salt waste disposal facility.

In 2012, we issued a Type 4 letter of concern to DOE, indicating that the NRC no longer had reasonable assurance that the salt disposal facility will meet the Part 61 performance objectives pertaining to offsite dose.

In response to our concerns, DOE has performed field scale research to address the underlying technical considerations related to offsite dose due to technetium. The

NRC and DOE continue to work in a monitoring process to resolve all outstanding concerns that led to issuance of the NRC Type 4 letter of concern.

Next slide, please. Through the program activities, we have realized several accomplishments. Specifically, we published a Part 61 proposed rule and draft guidance NUREG-2175 in the *Federal Register* on March 26, 2015. During the comment period, we conducted seven public meetings and webinars to facilitate stakeholders' understanding and development of their comments on the proposed rule.

We received over 2,400 comment letters with over 800 individual comments. The number of public comments was substantive. After considering the public comments, we propose the following changes. Change the time of compliance from the three tier to a two tier approach.

Change the compatibility of the time of compliance from Category B to Category C, to provide greater flexibility to states, and revise the criteria for the intruder assessment to be consistent with activities at the time of the analysis, as opposed to expected activities at the time of closure.

As mentioned previously by Marc, we submitted the Part 61 draft final rule to the Commission in September. The rule represents the culmination of several years of work and reflects an extensive and comprehensive outreach effort. We also completed and issued the Branch Technical Position on concentration averaging and encapsulation.

In this position paper, we were able to clarify constraints around concentration averaging in Part 61.55(a)(8) to be more risk-informed. As we will discuss later, implementation of the concentration averaging, BTP, will optimize disposal of low level waste in existing facilities.

Next slide, please. As pointed out by Marc, we are also working to respond to

the changing landscape in the area of low level waste management, by evaluating and adjusting as necessary the regulatory framework. We are responding to this challenge by proactively projecting future work, and ensuring our priorities address the changing external environment.

We reviewed the first programmatic assessment of the low level waste program that was completed in 2007. That assessment was developed to proactively project future work, and ensure our priorities addressed the changing external environment. Recent developments in the National Program for Low Level Waste Management and Disposal, along with an evolving environment have led to new challenges and prompted the need for an update to the 2007 assessment.

We started a new assessment in 2014, which included a series of public meetings and webinars to gather input regarding current and emerging issues. We also interfaced with Agreement States and other federal partners to gather input. We have recently finalized the updated assessment, which considers changes in priority of some of the tasks identified in the previous assessment, as well as identification of new tasks.

With respect to current tasks, the assessment reinforced the importance of the implementation of the concentrating averaging and encapsulation branch technical position. The revised constraints in the new branch technical position allow higher activity sources to be disposed of in currently operating disposal facilities.

This work is successfully addressing safety concerns related to disused radioactive sealed sources. We are working with regional and Agreement State inspectors to ensure consistent use nationwide. With respect to new tasks, we identified the need to conduct a low activity waste scoping study, to evaluate disposal options for the anticipated increase in low level waste due to an increase in reactor decommissioning.

This increase caused us to question whether some very low activity waste could be disposed of in conditions other than near surface disposal facilities. The study would define the conditions under which low activity waste could be disposed of, as well as the appropriate level of regulatory review and approval needed for such disposal.

As work progresses, policy issues identified will be raised to the Commission as appropriate. In conclusion, the low level waste program continues to support the agency's mission, by ensuring the safe disposal of low level radioactive waste while protecting people and the environment. We are committed to ensure that the program is effective in fulfilling its safety and security mission, and efficient in the use of agency resources.

We continue our commitment to engage external stakeholders, and to proactively engage the Commission as potential policy issues are identified. That concludes my portion of the presentation. I will now turn it over to Ray Powell. Next slide, please.

MR. POWELL: Thank you, Greg. Good morning Chairman Burns, Commissioners. This morning I would like speak briefly on the regional component of reactor decommissioning and complex materials site decommissioning. I will close by discussing two current regional challenges and how we intend to meet them.

Next slide, please. On this slide are photos of Zion, which demonstrates how our oversight process has continued to contribute to safe and secure licensing performance. Our oversight develops as the site continues through the decommissioning process. Zion was the first two unit decommissioning project of a Westinghouse four loop plant.

Following the permanent cessation of operations, the site entered a period of SAFSTOR for approximately 13 years, and the NRC inspection effort was reduced commensurate with the activities performed on site. When active decommissioning commenced in 2011, the

inspection effort increased to approximately one inspection per month through the major decommissioning activities period.

Additional inspections were performed in this period to provide oversight of the licensee's transfer of fuel from the spent fuel pool to drive fuel storage casks. Now that the major decommissioning activities are complete and a significant amount of the radiological source term has been removed, the inspection effort is focusing on ensuring the radiological release criteria for license termination is met.

These inspections performed by Region III inspectors and contractors from Oak Ridge Associated Universities, ensure the licensee is performing the final status surveys in accordance with the license termination plan and provides an opportunity for the NRC to obtain independent samples to confirm the licensee's survey results.

Next slide, please. The NRC's power reactor decommissioning program plays a key role in ensuring the safe and secure decommissioning of former power reactor facilities. The NRC has a clear focus on safety and security, as it implements the inspection manual chapter for IMC 2561 inspection program for decommissioning power reactor facilities.

We normally would not discuss manual chapters in a forum such as this, but there are changes to the manual chapter that I would like to highlight. As part of the response to the efficiency goals associated with Project Aim, the regions work collaboratively with the program office to enhance inspection efficiency, without adversely affecting effectiveness, and my slide is a picture of a co-located decommissioning reactor site, Millstone 1, and a picture of a stand-alone decommissioning site, Vermont Yankee.

The soon to be revised IMC 2561 will account for whether the decommissioning unit is co-located with an operating reactor, as well as other additional considerations such as

whether spent fuel is still in the spent fuel pool. When the unit is co-located, it is possible and prudent to leverage inspection insights from the operating power reactor inspection program, such as corrective action reviews to reduce the scope of decommissioning onsite inspections.

Next slide, please. With respect to complex material decommissioning sites, the NRC inspection program addresses all phases of decommissioning. That is, inspections before dismantlement, inspections during dismantlement and remediation, and inspections after remediation.

On this slide are three pictures from the former United Nuclear Corporation's New Haven fuel fabrication facility. The United Nuclear Corporation is one of the 15 complex sites identified in the 2015 status of the decommissioning program manual report. Currently, UNC is undergoing a supplemental characterization survey in the one remaining building, to identify the final required remediation activities.

UNC is just one example of a site where the regions and headquarters worked collaboratively to make progress at decommissioning complex sites. At UNC, once the final characterization is complete, regional inspectors will observe a sample of the additional remediation work, perform confirmatory surveys with personnel from Oak Ridge Associated Universities, and work with headquarters personnel in reviewing final status surveys.

Since the last Commission briefing on the decommissioning program, the regions have completed oversight activities which ultimately led to the termination of licenses at Mallinckrodt and Stepan.

Next slide, please. On this slide is a photo from the Hematite facility in Festus, Missouri. In exercising its oversight role, the Region III office provided an independent assessment of license actions to ensure public health and safety.

On September 2nd, 2015, the NRC was conducting confirmatory surveys with Oak Ridge Associated Universities in a land survey area that had previously been released for unrestricted use and was ready for backfill.

From the confirmatory surveys, 15 items were identified on the surface of the soil that were radiologically contaminated. An analysis identified the items were contaminated with uranium-235. The licensee stated that on or about August 30th, 2015, the facility had a rain event which produced significant quantities of storm water and transported the 15 contaminated items from the land survey unit area that was still undergoing radiological remediation to a land survey area that had been previously final status surveyed.

The significance of this finding is that the licensee had failed to prevent licensed material from entering a land survey area that had already been released for unrestricted use and was ready for backfill.

Without the NRC finding, that radioactive material would have been covered by several feet of soil and as such that material could not have been detected via a radiological surface scan.

As a result of the finding, the licensee procedures were revised to ensure a walkover survey was performed within 72 hours prior to beginning backfill operations.

Next slide, please. Before closing, I would like to briefly mention a couple of challenges the regions are addressing. The first regional challenge is the need to train and develop future decommissioning health physics inspectors. As the workload in decommissioning is likely to remain constant or increase, our need to staff these positions is clear.

While many of the skills required for this type of position overlap with the more traditional health physics positions, there are training and skills which are unique to the position.

I have identified just a few of those on this slide, licensing and license termination being one example, as well as some computer codes such as MARSAME and RESRAD, which are frequently used by licensees.

Next slide, please. And we are taking actions to address this issue. The decommissioning health physics position was subject to the Office of Chief Human Capital Officer's pilot core competency modeling project, which involved assembling the more experienced inspectors from headquarters and the regions to define the specific key functions of the position.

This project, still in progress, will provide a tool for individuals moving into these positions, to self-assess their specific training needs and create individual development plans. The project proceeded in parallel with an effort by the program office to upgrade the applicable qualification journal. I have two inspectors in my branch who recently transferred over from the reactor program and they are already benefitting from the improved qualification journal.

The two new inspectors are shown on this slide being mentored by senior decommissioning health physics inspectors, one at Millstone Unit 1 and one at Vermont Yankee.

Next slide, please. The last topic I want to mention is the non-military radium project, which John spoke about. Shown here are two former clock companies, company facilities. I'll point out that in Region I and Region III there are a high number of initial site visits and subsequent scoping surveys that will need to be accomplished.

The regions and headquarters are prepared to address the increasing workload in this area. We will certainly keep the program office, the EDO and the Commission informed of our progress and results. This concludes my remarks. I'll turn the presentation back to Mr. McCree.

MR. McCREE: Thanks Ray. This completes staff's presentation of the Decommissioning of Low Level Waste business line. I appreciation your attention. As you noted, there's quite a bit of work ongoing in this business line, and there's been a significant amount of public outreach and participation as well. We remain focused on our safety and security mission. I hope that came through in the presentation as well.

At this point, we'd be pleased to take any questions you have.

CHAIRMAN BURNS: Thank you and Commissioner Baran, I'll call on him first to lead the questioning.

COMMISSIONER BARAN: Thanks, Mr. Chairman. Thanks for the presentations. I want to start by asking about NRC's efforts to address historic radium contamination at non-military sites.

The staff has taken some good first steps in this area, with outreach or beginning outreach to states with potentially contaminated sites and site owners. What kind of response are we getting so far from states and site owners?

MR. TAPPERT: Thank you, Commissioner. So as I mentioned in my presentation, we just began outreaching to the site owners themselves. Those letters went out about a week ago. We've gotten about a dozen or more calls back from them. So far, it's been very positive. They're interested in working with us and inviting us to their properties to look at their facilities.

It continues to be a work in progress, so if there are any challenges, it will probably go in the other tail distribution. So the people who will respond quickly are probably not going to be the problem. So we'll continue to work through that. So we're kind of in early days right now.

COMMISSIONER BARAN: Uh-huh. Well one reason -- oh sorry, go ahead Marc.

MR. DAPAS: Just one thing to add. In our engagement with the Agreement States regarding sites that the Agreement States have exercised regulatory authority and been involved in decontamination, what was communicated to us is the site owners are generally cooperative because they want to understand the extent of any contamination, and then what's the appropriate action to remediate.

So we're hoping that those sites in the non-Agreement States, the site owners will similarly be cooperative and work with us.

COMMISSIONER BARAN: Okay, good. I mean one of the things that I think that makes this issue tough is that for a lot of these sites at least, the list of potentially contaminated sites is based on historical records, and for some of the sites, no one's been out there yet to take readings or actually survey the sites.

Of course that's a very important step, because we need to know if there are sites where the contamination is high enough to pose a health risk. John, you said that the goal was to conduct initial site visits in the next six months.

How quickly are you aiming to complete more detailed scoping surveys for the sites that require them?

MR. TAPPERT: It will be as soon as we can of course, and it will sort of depend on what we found in the initial site visits. But the program was sort of scoped out for about two to three years right now. So you know, it's kind of a methodical step-wise approach right, and as you indicated, we don't have confirmation that these sites are contaminated at all, right.

All we do is we have a contractor look at historical records, to see where

manufacturing of various radium items was done, and now we're taking the next step to investigate that.

MR. DAPAS: I'd just add one comment. We're looking at a graded approach. So depending on the extent of any contamination that is identified as a result of these scoping surveys, we'd engage. For example, where less than 25 millirem, which is consistent with our unrestricted site release criteria, there may be no action is required.

That could range, depending on the extent of contamination to the needs to potentially license or working with our federal partners, EPA, in terms of cleanup. So it really is a function of what is the extent of any contamination that we might identify at these sites.

COMMISSIONER BARAN: Well thank you for your efforts. I think it's really important that we've gotten, you know, active in this area. It's an important initiative. Let me turn to the staff's rulemaking for requiring financial assurance for the disposal of Category 1 and 2 radioactive sealed sources.

Under our current regulations, many Category 1 and 2 sealed sources aren't required to provide financial assurance for decommissionings. They don't have to submit a decommissioning funding plan or have a financial instrument to cover the even disposal costs. That's because the regulatory threshold for this requirement is very high.

For example, one of the most commonly used radionuclides is cesium-137. 27 curies of cesium-137 is the cutoff for it to be a Category 2 quantity, which subjects you to various requirements, including physical security and source tracking. But a licensee isn't required to meet financial assurance requirements unless it possesses 100,000 curies of cesium-137, and that's a much, much higher threshold than 27.

And this is, I guess, a question for anyone. Do you know what the original

thinking was behind this really big discrepancy in our regulations? Was it an affirmative choice that was made at some point, or did it just happen over time as different regulations evolved?

MR. SUBER: No, I'm not certain exactly why the thresholds were created the way they are, and we can get back to you on that. But one thing I would like to reiterate is that the passage of the issuance of the branch technical position on concentration averaging will address and minimize the expense or lessen the expense for cesium sources lower than 130 curies.

So we are addressing some of the issue with the branch technical position on concentration averaging, which would make the cost for those sources a little bit more certain. I mean there's a level of uncertainty for higher level sources. But for that category of sources below 130 curies, there's now a disposal pathway for it number one, and more certainty associated with the cost.

COMMISSIONER BARAN: The various task forces that have examined this issue recommend addressing it, because the regulations don't provide incentive to promptly dispose of sealed sources that are no longer in use. Basically, if a licensee hasn't set money aside or planned financially for disposal, it may not have the funds to dispose of the sealed source.

That increases the risk that it will sit there year after year and eventually be abandoned. The staff mentions one case where the Department of Energy ended up footing the $581,000 bill for disposing of sources that had accumulated at a bankrupt firm in Pennsylvania.

Are there other examples where licensees didn't end up bearing the cost of disposal and the state or the federal government had to pay for it? How large of a problem is this?

MR. SUBER: I'm sure there are other examples. I can't, I can't cite them to

you specifically. But there are two programs. There's a SCATR program run by CRCPD, that's picking up these sources and also of course the DOE has an orphan source recovery program that is addressing the exact concern that you're talking about.

The challenge that we have is that the funding for these programs are decreasing, and DOE has made it known that it doesn't believe that it will be able to fund these programs in perpetuity. So the urgency of trying to get some kind of mechanism to ensure that the people who are using these sources and benefitting from these sources are saving the money to dispose of these sources when they're done is paramount and the baton has been handed to the NRC.

COMMISSIONER BARAN: Well, it seems like the existence of these programs, the state program, the DOE program to go around and collect the orphan sources suggest that what we have right now in our regulations isn't creating an incentive really for the licensees themselves to dispose of them promptly, right, because we've got taxpayer funded programs going around picking these up because they've been there for who knows how many years and haven't been --

MR. SUBER: Correct, and that's part of the purpose of the rulemaking, is that the people who actually gained the benefit from utilizing these sources bear the cost for disposing of these sources, as opposed to transferring that burden on the U.S. taxpayers.

COMMISSIONER BARAN: Currently our regulations don't require a licensee to declare a source disused, or to dispose of a disused source within a certain time frame, and some stakeholders recommend that we require that.

Is the staff considering a requirement to declare a source that's used, and tying that declaration to an obligation to dispose of the source within a specific time frame? Is that

something you're looking at?

MR. DAPAS: Okay. So we're doing the rulemaking. We're constructing a rulemaking plan, and we can consider that in a rulemaking plan. The one thing we don't want to do is create the perception that long term storage of sealed sources is in any way unsafe. We do not believe that there is any problem with our regulations dealing with the long-term storage of radioactive sealed sources.

We don't want to create the illusion that they are by suggesting that we need to impose on the industry at this time a particular time frame in which a source has to be disposed of, because there's a safety or security issue associated with it.

MR. TAPPERT: Yes, and if I could add to that. So that -- and then we got some feedback on that through this process as well, that you want to be cautious about what you consider a disused source, because a source may be used infrequently, but it still may have future utility. You certainly wouldn't want to drive that to a disposal situation when it could be used for productive uses in the future. So this could be a balancing task if we go through with this process.

COMMISSIONER BARAN: So it sounds like that's part of the reason you focused more on this rulemaking plan, you know, for a potential rulemaking on the financial assurance side, rather than having a set time frame in which, you know, a disused source would need to be disposed of.

Okay. In 2010, a multi-agency working group recommended that NRC establish financial assurance requirements for all Category 1, 2 and 3 sealed sources. A working group with broader membership including Agreement States and industry made the same recommendation in 2014. Should we consider including Category 3 sources in this potential rulemaking?

MR. TAPPERT: And I think if the Commission approves the staff's proposal, as part of that process you're going to be exploring various options and getting feedback, and then certainly the level of sources that you would involve in this will be part of that dialogue.

COMMISSIONER BARAN: Okay. The way -- oh sorry.

MR. DAPAS: Just one question to add. I think as you recognized, the proposed rulemaking plan was a function of fairly extensive stakeholder outreach, you know, engagement with DOE that has Orphan Source program, Conference of Radiation Control Program Directors that oversee the program that Greg referenced, etcetera, views that the individuals that own the sources there should be some accountability in terms of cost for disposal.

So the rulemaking plan reflects, if you will, a compilation of those stakeholder views. Then I would offer if we went forward with rulemaking, as you know there would be additional opportunity for public stakeholders to engage in what should be the staff's approach, and potentially address Category 3. It may be something that's suggested from the stakeholders and then we would need to evaluate that.

COMMISSIONER BARAN: Okay. So if the rulemaking plan's approved, you envision that as part of that rulemaking effort, the staff would look at, explore the issue of whether you should go to Category 3 to financial assurance.

MR. DAPAS: I would expect it to be included within the scope of the rulemaking. What the staff's recommendation would be would be a function of the analysis.

COMMISSIONER BARAN: Thank you.

CHAIRMAN BURNS: Thank you, Commissioner. I'm going to focus on a lot of my regulatory history sort of flew before my eyes, places like Stepan, Stepan Chemical, United Nuclear Corporation, Mallinckrodt. We didn't mention Kerr-McGee West Chicago. But it goes

to -- it goes to a point, we talk about complex sites which I think in many ways also get the tag legacy sites.

One of the things, I think the observation in this area, that this is an area, I think particularly within NMSS, where we have what I will call non-traditional licensing, where we have sort of the normal expectation of a licensee gets an authorization for material. It manages that material. It's supposed to deal with it in a certain way.

It may or may not be requirements for its ultimate disposition. But much of what you -- I know what John was talking about and others have talked about this morning are really things that go way back or we assumed responsibility, for example, in the radium area about ten years.

I think in fact I remember working on a Kerr-McGee site outside West Chicago basically, an old tailings pile, and we could blame that on the Kaiser is what I was always told. Kaiser Wilhelm, before Germany fell apart at the end of World War I is because, with the outbreak of World War I, thorium exports from Germany were cutoff.

There was a need for thorium for gas mantles and things like that. It was available, so you started running around with rare earths piles, which eventually got to Kerr-McGee. But my point, let me come to after this digression, let me come to my point, is that when you talk a lot about these complex and legacy sites, with respect -- what confidence do I have with our current regulatory framework that we don't in effect create those same situations?

What's better about how we address the licensing aspects and the control aspects in the environment that we are in now, so that we don't have -- obviously things like radium were before the AEC and things like that? Before I know, for example, places like, and I'm not sure whether Stepan was one of them, but we have the old sites that the AEC cleared and

then we decided later weren't there. So I'll leave it open to anybody there that might want to address that.

MR. DAPAS: I'll just offer one perspective, and I'm sure John has some thoughts. But one of the things we're looking at is I know was there a requirement for remediation during operations, say an operating reactor. If you had a spill, you know, what is the licensee doing to address that during the operating phase, such that it doesn't become a challenge in trying to characterize any residual contamination that would exist?

What we've learned through the operating experience is that licensees are being very proactive in addressing that aspect. So I think that's an example of where the industry is taking actions to address some of the learnings regarding these complex sites. I spoke as an example with operating reactors. But in terms of materials sites, John may have some views on that in that regard.

MR. TAPPERT: Yes. So I would point to, I think we've strengthened our financial assurance regulation. So and I think our current licensees, I think we have good oversight to make sure that they're going to have the resources necessary to decommission or remediate the sites.

The ones, the inventory, the ones that we're kind of working our way through, pre-date those requirements, and that's where we have these financial challenges.

CHAIRMAN BURNS: All right, okay. Yes, and it seems to me again, and apart from, you know, financial requirements, but just so the framework of expectations of what's permitted. You know, we understand what's permitted. As Marc, I think, noted, this is what where we -- where there are problems, potential contamination and things like that, that they're identified, we understand it and that we have a framework under which we, you know, we have

robust criteria and the like to move through it.

I think that's important, because as you said, you know, and I applaud the staff on this, because these are extraordinarily complex circumstances. Stepan Chemical, actually there's -- I won't go into it, but there's a connection. Kim Howell here, there's a connection about the creation of OI in the Stepan Chemical site in the early 1980's, because of an unknown site and suddenly the place is discovered that had tailings under it and it says it takes -- it's about three decades since its rediscovery.

So it's important, I think that my point is it's important just to maintain the vigilance on this, and the vigilance is really about the robustness of the regulatory framework we have now, to assure that, you know, we're accomplishing what we're supposed to do in terms of our public -- our oversight in assuring public safety and the like.

Let me go on to a couple of other things. In terms of one of the transitions that I think you have to focus on in the reactor decommissioning is this transition between NRR and NMSS. John and Marc, you can speak to this. In terms of are you satisfied that the guidance or the clarity about that transition, the handing off the baton if you will, is clear, that the NMSS staff are prepared to take it and what things are you looking at or maybe looking at or thinking about in terms of improving that transition?

MR. TAPPERT: Yes. I'd say we're certainly satisfied with working with our operating reactor partners on that. As you're aware, you know, we had those five shutdowns the last -- the premature shutdowns over the last few years. We did a lessons learned report to kind of, you know, see what we could do to kind of improve that process.

A lot of it's going to help the licensing efficiency with the exemptions and also the handoff. So I think we have a checklist. We have procedures in both offices to articulate

when that chop over occurs and to my knowledge, I mean to my experience it's working well.

MR. DAPAS: Okay, and the other things I would just point out, as we indicated in the presentation, you know, it's not a resource challenge in terms of when you look at it overall as an agency. It's just a matter of shifting the work to others that have the skill set for the decommissioning, that formerly, you know, those resources were vested in say the operating reactors for operational oversight.

But from a resource standpoint, we're in a good place. Then as Ray mentioned, you know, the ongoing training and evaluation to ensure staff have the skill set.

So I think it's working well, and my experience in the two and a half months that I've been in NMSS, and in talking with John and company and getting briefed on the lessons learned that John referenced, I think we're working well to transition the experience from operating reactors to NMSS and the decommissioning oversight.

CHAIRMAN BURNS: Okay, thanks. Ray, I want to ask you a couple of questions. Can you help me out, maybe give me some examples where you think there's improvements to the management directives, in terms of co-located versus the single sites, where you see efficiencies being gained?

Maybe giving a couple more specific examples in terms of the observations you've seen.

MR. POWELL: Certainly sir. One example I didn't mention, I'll start with that one, the corrective action reviews. The reality is the resident inspectors are very diligent. Everything that goes on at the site they frequently will send to my staff condition reports or issue reports that they come across during their daily review.

So when we go out to the site, even though the program allotment maybe 10 or

12 hours for corrective action reviews, we don't need that amount of time and it's best to have the guidance reflect that, especially as we transition to all new inspectors. Someone that's been doing it for a prolonged period of time probably already has that in the back of their mind. But we need the guidance to be accurate for the next generation of inspectors.

Other areas, some of the radiological programs are shared. Some of the -- with very few exceptions, some of the maintenance activities are shared. So unless there's a known problem or something very specific to the decommissioning unit, I think we are going in the right direction. We're shaping the manual chapter guidance.

CHAIRMAN BURNS: Okay, and the other thing you mentioned was in terms of getting the skill sets that we need. Let me expand that. Is this something in terms of the particular health physics type discipline that you see or that any of you see in terms of it being also an industry challenge with respect to, as we go through the decommissioning process?

MR. McCREE: So in this area of human resources, the health physics has come up before within various industry circles as an area that they need to invest, that is needed to be invested in, and they are across the board, both for the operating fleet as well as for decommissioning.

I've not heard of any specific unique challenges in the decommissioning area, but the fact is it is health physics in general is an area that industry's investing in. Again, across the board.

CHAIRMAN BURNS: Is this something that our, the university grants program can help us address, or I mean I don't know some of the specific programs that we are --

MR. McCREE: I think it could, you know. You're talking about an area that, you know, we can target. I don't know if we have, so I'd need to get back to you on that. But

it's certainly an area that those resources could be used for.

CHAIRMAN BURNS: Okay, all right.

MR. DAPAS: Just a quick comment. From my time in Region IV when I had the opportunity to visit San Onofre, I recall it wasn't so much a function of the possession of the skill sets. It's needing more individuals that have the skill sets.

The size of the workforce, given the decommissioning, because the radiation protection staff that's on-site for an operating reactor certainly is a much smaller scope than you would need for the decommissioning process, decontamination, remediation and you know, you can use contractor workforce as well.

But my recollection from talking to site leadership was, you know, having to look at having the appropriate numbers and then of course providing the contractor oversight.

CHAIRMAN BURNS: Okay, thanks Marc. Commissioner Svinicki.

COMMISSIONER SVINICKI: Well good morning, and thank you all for your presentations. There is quite a basket of activities that we've talked about this morning. I think I'll best approach this by sharing some of my observations or reactions to the status that you've provided, and I'll leave some time at the end for you to provide any sort of response that you'd like to to those observations.

First of all, I want to note that it's very commendable that for all of you who presented today, reflected in your presentation was a focus on continuous improvement of agency processes, of being NRC as a continuous learning organization. This is things like the low level waste programmatic assessment, which was initially done years ago. But that basket of issues has been looked at and relooked at.

We also have other rulemaking activities, where we're I think looking to better

risk-inform some of our activities, and I think that that's also part of NRC's continual learning here, is that we receive risk insights as say a complex decommissioning on the material side is completed. We learn from that. The person carrying out the decommissioning learns from it.

But we go back and try to reincorporate that into our regulatory framework. I think that there has been good mention this morning of risk-informing various activities. The revision to the branch technical position on concentration averaging, the kind of tentacles of that issue into other regulatory areas, I think, is a good, again evolution of our risk-informed process.

There are though cautions to keep in mind, one of which is that even if an activity is maybe the highest hazard of the activities within the business line, that does not make it in an absolute sense a high hazard activity. So I think for this particular set of activities that this panel has addressed, there is a need to be constantly focused on reasonable assurance of adequate protection and our overall mandate to be thinking about getting to adequate levels of protection.

Specifically I'll note there's been mention of the scoping study that was done on financial planning requirements for Category 1 and 2 sources. Also, to a certain degree, although I haven't really begun a detailed review of it, there is the staff's look at potential requirements for prompt remediation at reactor sites of releases that go on there.

I think that risk-informing really comes to the forefront on both of those issues. I was heartened when I got to page 37 of the 40 page scoping study to see that there was some discussion of the beneficial uses of radioactive material and the financial assurance scoping study.

It goes on here to say that offsetting the potential benefits of additional financial planning requirements are the possible negative effects on the beneficial uses of radioactive material. Information provided indicates that the cost of disposition of unwanted sources if a

pathway is even available can range of hundreds of dollars to hundreds of thousands of dollars per source.

And these costs for some licensees may be daunting and in some cases prohibitive. So it is absolutely imperative that we think about a couple of things here, one of which is are -- the commentary we have received in my view is dominated by our federal partners at DOE, NNSA, and with our all noting of their professionalism, I would state that the metric of success for the global threat reduction program is the removal of nuclear materials from all economic and commerce-related activities.

So the other strong voice in the commentary of the scoping study were disposal sites. I would note that if we impose a mandatory time of unused, disuse of a source, beyond which it has to be disposed of, I don't mean to sound cynical but disposal sites have a potential financial windfall there.

So you know, NNSA provided some specific examples of costs, and whether or not they desire to continue to request money from Congress for the collection of abandoned and orphaned sources. I might suggest that they may have to continue to do that. They have certain national security missions that are not optional for them.

They gave one example of a source in New Mexico that it was expensive for them to collect and dispose of. I haven't checked lately, but the people of New Mexico are among the most medically underserved people in the United States, and therefore the consequence of what we put in place to the availability and affordability of health care is part of the public interest that we have to balance when we look at something like this.

We may or may not receive comment or have individual U.S. citizens showing up at our public meetings on these topics. But their interest is our obligation to balance. So I

think that there are potential consequences to putting these types of requirements into place that I don't think are reflected in the scoping study beyond the three paragraphs that were there on the page.

I think that your obligation as NRC's experts on this topic is going to be to balance this public interest that may or may not be spoken to in the kind of written comments that we receive. So I think on that element -- the other thing that the staff concludes with in the scoping study is the NRC has regulatory requirements in place to ensure the safe and secure management of these sources.

I appreciate that in response to Commissioner Baran's very thoughtful questions, I think it was Mr. Tappert mentioned that we don't want to give any implication that the management of these materials is somehow -- that we're not confident in the management of them right now.

The staff goes on to say the staff recognizes that these financial planning requirements would be a best management practice. The imposition of best management practices, whether it be this one or prompt remediation at an operating facility is not our statutory mandate.

Our statutory mandate is reasonable assurance of adequate protection and best management practices, while a good idea, while virtuous, that can't be a basis for a regulatory requirement. So I think we've got more work to do, and I think there's a lot of interest to be balanced that may or may not be the people who show up the public meetings that we hold. But it doesn't absolve us of this broader obligation.

So you know, more to come on that. It's not really the topic of today's meeting. I should let you respond to that. Go ahead.

MR. DAPAS: I just would offer one response. I very much appreciate the perspective you offered. I think when you go through the rulemaking process, you are afforded the opportunity to clearly obtain input from the stakeholders. You did mention that we may not receive comments regarding some of the areas you mentioned.

I think that, you know, we need to look at that proactively and try to obtain insights from those that would be most affected by any type of financial assurance requirements, so that we can make the most informed decision. I appreciate your comment about reasonable assurance of adequate protection and ensuring the beneficial uses.

I think we need to balance that with, you know, is there a gap, is there a challenge, is there a problem with unused sources for which there's not financial assurance, and then collectively propose what we would offer would be the best solution via the rulemaking process.

COMMISSIONER SVINICKI: Have you evaluated whether or not there would be a kind of a massive turn-in of things, I mean, or perhaps a spike in orphan sources upon the imposition of this type of requirement? I also want to note that likely to assess that, you would need to also have made the determination about this notion of 24 months or some other period that something is disused and you would mandate the disposal of it.

I will tell you, you can go into any cabinet in my kitchen and ask me if I've used that particular serving bowl or platter, and if you told me if you haven't used it in 24 months, the government's going to take it from you? You know, there's a reason I think that Americans get frustrated with the general reasonableness of government.

So I know we've been offered cautions about when something is disused. But if we set an arbitrary date, I think there would be a wholesale spike in disposal, a spike in orphan

sources. So DOE better, in that instance, have requested a huge uptick in their budget for those programs. Is that the kind of coordination that we would be doing?

MR. SUBER: Okay though. Let me first say that examining whether there would be a spike in the sources was beyond the scope of what we looked at in this particular study. But are still coordinating very closely with DOE and I assume that if we -- if the Commission were to approve us to go and do the rulemaking, that specifically looking at whether we should -- whether it's prudent to try to dictate to our licensees, who are now currently safely storing these materials, that there is some arbitrary date on which they have to declare the source disuse would be part of what we do.

I think John Tappert raised that point, that you know, we did not have in mind to go out and to say hey, at this particular point the source is disused unless that is part of the scope that we're going to look at.

COMMISSIONER SVINICKI: And I think, you know, I think it's just part of the social engineering of people's behavior, that when we get to this point, my comfort with any proposal deteriorates rapidly.

The notion that -- because again, let's remember that while these people have these sources, we can inspect. They are inventorying. It's not as if there's no burden on them to have these things, but just to decide when it is they can no longer have something that they have, and that we want to incentivize behavior to get rid of something.

I don't know. We're into a kind of a psychological control of people's behavior that I don't even know what kind of basis we have for that.

MR. SUBER: Well, part of what we found out when we were doing our public outreach is that, you know, in a free market system, people come up with creative ideas, and part

of what we got was that the reuse and the recycle of some sources, a disused source to one particular licensee may be a viable source to another licensee.

So doing, in collecting information for this report, we saw a number of things emerge and a number of things that were considered that may have not been -- that may have not made it into the report because it was outside of the scope of what we said, of what we were trying to accomplish with the rulemaking plan.

But we did hear a lot from the public and we can consider that information in addition to other information that we collect as we move forward if the Commission approves the rulemaking plan.

MR. TAPPERT: So Commissioner if I could, you raise a lot of very valid points that we have to consider if we move forward. I would say that, you know, before we use the force and power of the state to impose new requirements, it needs to be consistent with our mission and we need to be convinced that it is not going to have any unintended consequences.

But we do have this body of work out there with these interagency task forces that have been looking at this issue over the past many years, and they've all advised the NRC to look at this issue in greater depth.

That's really what I think the proposal, the staff proposal to the Commission is, to let's take the next step to do the regulatory analysis, to look at this deeper, to explore what those unintended consequences might be and see if they are countervailing to a new requirement.

Or if there is a new requirement, how would you phase it in to not have any adverse impact? So certainly this is a -- this is not a slam dunk in my mind. But I think it's worthy of the next step of analysis, which is really what we're proposing.

COMMISSIONER SVINICKI: Well that's very well spoken, and I'd be wise to

let that be that last word, but I won't be wise. I'll just state that I appreciate that.

I've asked some really tough questions here, and please don't think that I haven't considered the other side of the question. I will say that this nation used to have a tire disposal problem with tires for vehicles, and now when you buy tires, you pay a fee and you know, I understand that.

So there may be -- so other sectors have dealt with this from maybe the more mundane like tires to this has some complexity, because these materials are used in various applications. The notion that you might pay some up-front costs when you purchase something. Maybe some of it is -- it gets really difficult when it's the retrospective look of all the materials in commerce right now in addition to new sources you might buy.

I think we'd have to widen the aperture substantially and think about innovative ways that this has been addressed, or maybe even just begin by addressing it on a going-forward basis as opposed to a current basis. But again John, you've stated it well, that there would be a lot more to come and a lot of thinking that would have to be done. With that, I thank you Mr. Chairman.

CHAIRMAN BURNS: Thank you. We'll take a five minute break and then we'll come -- we'll come back at eleven, and then we'll proceed with the second panel. Thanks.

(Whereupon, the above-entitled matter went off the record at 10:55 a.m. and resumed at 11:01 a.m.)

CHAIRMAN BURNS: I'll call the meeting back to order, and we'll have our second panel now on the Spent Fuel Storage and Transportation business line. Again Vic, I'll let you start the second panel presentation.

MR. McCREE: Thank you, Mr. Chairman. Good morning again. The staff

will now discuss the Spent Fuel Storage and Transportation business line.

As mentioned earlier, the workload for the Spent Fuel Storage and Transportation business line has the potential to grow, given the fact of life changes, including reactors that decommission before or at the expiration of the operating license, as well as the receipt of consolidated interim storage facility license applications.

One application for consolidated interim storage facility was submitted by Waste Control Specialists in April of this year, and another application is expected from Holtec International in March of next year.

This work is in addition to the steady baseline of work for this business line, which is expected to continue into the future. There's also an increasing level of internal and external stakeholder interests regarding consolidated interim storage facility reviews, as well as other business line activities.

In an environment of decreasing resources, we are continuing to focus on leveraging our creativity and demonstrating our agility by identifying and implementing process changes that will increase the efficient of business line activities, while still maintaining in our effectiveness in meeting our safety and security mission.

Next slide, please. With me at the table again is Marc Dapas, who will provide an overview of the business line's successes and challenges. He'll be followed by the NRC staff here with me today, Mark Lombard. To Mark's right, the director of the Division of Spent Fuel Management in NMSS will discuss the current spent fuel environment and changes to improve the licensing function.

Then John McKirgan to my left, the branch chief of the Spent Fuel Licensing Branch within NMSS will discuss current licensing activities for consolidated interim storage

facilities or CISF, reviews and dry cask storage system renewals. Christine Lipa, to John's left, the deputy director of the Region III Division of Nuclear Material Safety, will discuss oversight of independent spent fuel storage insulation or ISFSIs.

So with that brief introduction, I'll turn the presentation over to Marc Dapas. Next slide, please.

MR. DAPAS: Thank you, Vic. Good morning again Commissioners. As Vic indicated, we're now turning our attention to the Spent Fuel Storage and Transportation or SFST business line, and I'll provide a brief overview of the breadth and scope of this business line. My colleagues will then get into more specifics within their individual presentations.

Next slide, please. The scope of the SFST business line activities is diverse. It includes licensing the safe storage and transportation of spent nuclear fuel. It includes certification of radioactive material transportation packages, as well as preparation for future potential licensing with respect to alternative strategies for disposal and reprocessing.

There are more than three million shipments of radioactive material each year, and approximately a third of our licensing resources are used to certify the transportation packages used for these shipments. Our goal is to ensure that this business line is being well-managed and ready to handle the current workload, as well as prepare for future potential challenges.

We completed planned program activities and licensing process initiatives during fiscal year 2016, through optimizing available resources and collaboration with other offices. One example of the licensing process initiatives and consequent improvements to the program is the issuance of divisional instructions related to work prioritization, operational strategies and management expectations.

Another example is the continued progress made on the revised renewal regulatory framework for certificate of compliance and spent fuel storage sites, and then during his presentation, Mark Lombard will touch on examples of licensing process improvements that were completed in this last year.

As Vic noted, we received an application from waste control specialists or WCS for a consolidated interim storage facility or a CISF license. We are currently evaluating that application to determine if it is acceptable for NRC docketing and the associated safety review.

John McKirgan will provide more details of this important licensing review during his presentation, along with an update on the revised renewal regulatory framework activities previously discussed with the Commission.

The SFST business line also includes oversight of independent spent fuel storage installations or ISFSI operations. These operations include loading of spent fuel, transfer of the storage systems to the storage pad and inspections of the systems while in storage.

Christine Lipa will provide a regional perspective on our regulatory oversight program involving inspection activities. Let me now turn it over to Mark Lombard, who's going to provide an overview of the current spent fuel environment. Next slide, please.

MR. LOMBARD: Thank you, Mark. Good morning Chairman Burns and Commissioners. Shown on the slide are pictures of activities we regulate in the business line, including spent fuel storage systems and sites on the left, spent fuel transportation packages in the middle, and well logging source transportation packages on the right.

Today, I will give a brief overview of the spent fuel environment, including external factors and uncertainties.

Next slide, please. As Marc said, we have a diverse scope of activities in the

business line. As you can see in the slide, our spent fuel storage work spans from coast to coast. We have a solid baseline of spent fuel storage and transportation work for the foreseeable future, with a potential increase in workload involving CISF application reviews.

The surge in storage system and site renewal reviews, which John McKirgan will discuss in a few minutes, represents a significant increase in workload, as the associated certificates of compliance and licenses expire in coming years. As Vic and Marc mentioned, we received one application for a CISF license from WCS. This application is in the acceptance review phase.

If a CISF comes to fruition, we expect to see an increase in spent fuel transportation package application submittals to support the future transportation campaign. Holtec International expressed its intent to submit an application for a CISF license in the March 2017 time frame.

Should we receive the Holtec application and determine it is acceptable for review, we could have two applications under review at the same time. Note we are only budgeted for one CISF review this fiscal year.

Next slide, please. If we do have two CISF applications under review this fiscal year, we would address this increasing workload by deferring some other work based on previously established priorities. In addition, in the vein of continuous improvement, we regularly conduct internal assessments and gather stakeholder feedback.

As a result of these assessments and feedback, we are modifying internal processes to be more efficient, while maintaining an appropriate level of effectiveness.

For example, we issued Division Instruction SFM 25, titled, "Review of an Application for a License for a Consolidated Interim Storage Facility for Spent Fuel and Greater-

than-Class C Waste," to describe an effective for conducting and managing review of a CISF application.

We issued Division Instruction SFM 26, titled "Operational Strategies and Management Expectations to Better Define Business Line Work Priorities," as well as expectations for key aspects of our operations.

This enables us to continue to implement pre- and post-Aim initiatives and optimize available resources, while maintaining development of high quality work products and ensuring safety and security requirements are met.

As part of SFM 26, we increased our attention on emerging issues, to resolve them quickly without impacting due dates. To meet this goal, we instituted what we call a prompt issue resolution process. John McKirgan will discuss this process in more detail.

Both SFM 25 and SFM 26 are publicly available, and we will be discussing them at our Spent Fuel Regulatory Conference in December. We began an initiative to risk-inform the dry cask storage regulatory framework, informed by probabilistic risk assessments or PRAs conducted by industry and the NRC in 2004 and 2006, respectively.

As we engage with stakeholders, use of the term "risk" inadvertently created an expectation for a quantitative, that is PRA basis for the approach. We had envisioned a qualitative approach that would not require licensees or certificate holders to conduct additional PRAs, due to the general relatively low risk of dry cask storage.

Consequently, we determined a better strategy is to develop a graded approach based on safety functions and defense in depth features of dry cask storage systems and sites. This process is currently underway, and we are collaboration with the Nuclear Energy Institute under their regulatory issue resolution protocol process, to gather information that we will use to

develop the draft regulatory framework and pick a pilot project to test drive the framework.

We will use lessons learned from the pilot to finalize the framework, document the approach and expand its implementation to all dry cask storage regulatory activities. We continue close coordination with the Office of Nuclear Security and Incident Response, to ensure the safety security interface is maintained, including utilizing them as an important partner in the review of the WCS application.

Next slide, please. The spent fuel world continues to have a lot of moving parts, with external factors and uncertainties influencing us today and into the future. These influences could result in increases in future workload, with the level of uncertainty as to the time frame and magnitude.

For example, as the National High Level Waste Management Strategy evolves, new activities may be initiated, such as a spent fuel transportation campaign. As mentioned previously, this action could result in an increase in business line workload to review new transportation package applications.

We continue to monitor these activities closely, and maintain our flexibility to adjust our strategies as necessary. There's a continued high level of public interest in spent fuel activities, with associated increased proactive outreach efforts, as well as significant industry interest in the time frames to complete licensing and certification safety and security reviews.

We embrace this interest through public meetings, to educate the general public, as well as industry, of our regulatory processes and any associated changes we implement in the context of efficiency and effectiveness. We expect a peak in independent spent fuel storage installation and storage certificate of compliance renewals in 2020.

The revised renewal regulatory framework, built over the last three years, not

only provides for increased efficiency in how the NRC conducts these reviews, but also enables the industry to focus on the most important elements of the associated applications, due to the pre-approved aging managing plans for systems required to be submitted for renewal.

This revised regulatory framework would not have been possible without extensive work conducted by a small team of NRC experts, as well as broad public stakeholder collaboration. I will now turn it over to John McKirgan, who will go into more detail on some of the topics I introduced.

MR. McKIRGAN: Thank you, Mark. Next slide. Good morning Chairman Burns, Commissioners. This is an outline of what I'll be speaking to today. First, I'll discuss our activities in preparation for the receipt of the WCS application for a CISF, as well as provide an update on the current review activities with respect to the subject application.

Second, I'll discuss the anticipated surge of storage renewal applications and our activities to be more efficient, effective and agile in conducting the reviews of those applications, while maintaining our focus on safety and security.

Next slide, please. In advance of receiving the application for a CISF from WCS, the staff initiated a number of efforts to ensure we have a rigorous, consistent and predictable process for reviewing these types of applications. These include the issuance of a division instruction which describes expectations and best practices, such as conducting pre-application meetings with applicants, to provide a clear understanding of NRC requirements on the content and level of detail in the application.

These meetings can also enhance the NRC staff's understanding of the applicant's licensing request. The division instruction discusses the process for receipt of the application and the acceptance review process, including the request for supplemental

information phase of the acceptance review.

In addition, the subject division instruction provides high level guidance on requests for additional information, safety evaluation reports and the environmental review. As Mark said earlier, another important division instruction we issued is SFM 26. This document provides a prioritization framework for the ongoing activities in the SFST business line.

It is expected to play an important role should our workload exceed the capacity of the available resources. In documenting this prioritization framework and making it available to staff and stakeholders as a public comment, we are proactively communicating to enhance awareness of potential impacts, including deferring or suspending work on specific applications.

The division instruction also documents our prompt issue resolution or PIR process. The objective of the process is to ensure staff has a forum to engage management and obtain a decision regarding elements of the review, so issues can be resolved more quickly, thereby facilitating a more efficient review.

The PIR process has already been used successfully in a number of instances. These division instructions enable the staff to focus on their safety reviews, enhance communications with applicants, and to forward opportunities for prompt resolution of technical issues to enhance our efficiency.

Next slide, please. With respect to engagement with internal and external stakeholders, we use the full spectrum of regulatory tools to communicate guidance and expectations.

I'll speak to some of those items when I talk about the status of the WCS license application in a minute, but first I'd like to mention the staff's presentation at last year's Regulatory Information Conference, where we held a session on the licensing process for consolidated

interim storage facilities, and I'll also mention our Division of Spent Fuel Management Regulatory Conference, where we engage stakeholders on our process.

Graphics like the one show on this slide were used during these presentations, and have been very helpful in explaining the licensing process to our external stakeholders. In addition, we held a number of public meetings throughout the year to promote understanding of other aspects of our licensing process.

Next slide, please. Let me spend a couple of minutes discussing the current status of our review activities with respect to the CISF applications where we are employing our revised guidance. As I mentioned earlier, we used a number of communication tools in advance of receipt of an application.

Specifically with respect to WCS, we held four public pre-application meetings with the applicant, and conducted a pre-application readiness audit prior to the application being submitted.

Pre-application meetings and audits can be very helpful for the applicants and the NRC. The meetings provide a forum for the staff to communicate the requirements and expectations for the application in terms of content and level of detail. The pre-application readiness audit allows the staff to see the application in advance of its submittal, and provide feedback to the applicant regarding any issues identified.

In the case of the WCS application, the staff provided specific feedback on application quality and completeness, including the need for a clearly defined licensing basis. The audit was conducted on the date requested by the applicant that was only six weeks prior to their planned submittal date.

The applicant decided they would not delay their submittal date to allow

substantive changes to be made to resolve staff feedback. As a result, several NRC requests for supplemental information or RSIs were necessary.

The lesson learned for industry is to schedule pre-application audits early enough in their application development process, such that the NRC observations can be resolved in the application prior to submittal, potentially avoiding the need for RSIs.

WCS submitted their application on April 28th, 2016. The staff conducted an acceptance review and determined that additional information was needed before the application could be docketed. Following our process, the staff issued RSIs on June 2nd, 2016. In its response, WCS indicated it would need about four months to completely respond to the staff's requests, and proposed to submit the responses in four sets, with the final set originally expected on October 31st, 2016.

In a letter dated October 7th transmitting the third batch of responses, WCS indicated that they would take additional time to incorporate staff feedback, and proposed to revise the schedule, with the final sets of RSIs being scheduled for November 16th and December 9th of 2016. Separately, WCS sent a letter on July 21st, 2016 requesting the staff proceed with the environmental review.

We replied on October 7th, 2016, stating that we would begin the review. In making this decision, the staff considered the important interactions with external stakeholders that need to occur as part of the environmental review. There were two RSIs on the environmental report.

Those RSIs were responded to adequately in the first batch of responses, enabling the staff to proceed. In proceeding with the environmental review, we're seeking to expand the time available for the public and other external stakeholders to engage on this

important topic.

In addition, as noted earlier, we received a letter from Holtec on September 20th, 2016, indicating their intent to submit an application for a site-specific CISF license by March 31st of 2017. We held two pre-application meetings with Holtec and will continue our engagement with them to share staff insights and encourage a more efficient process.

Next slide, please. So I'd like to update you on our activities associated with renewal of independent spent fuel storage installation licenses and dry cask storage system certificates of compliance.

Sorry, I'm on Slide 45. Next slide, please. Thank you. At last year's business line briefing, we updated you on our implementation of an operations-focused renewal and aging management approach in which inspection programs are adjusted over time as we learn from the associated inspections and pertinent operating experience.

We leveraged a great deal of the work and thinking that went into the operating reactor license renewal framework, and tailored it to fit our application and spent fuel management. In this portion of my presentation, I'd like to update you on our preparation for the anticipated surge in renewal activities, summarize the status of our implementation plan, and talk about the next steps we'll be taking in the near term.

Next slide, please. This slide depicts the number of renewal applications we have received to date or anticipate receiving in the coming years, both as specific licenses in dark blue and the renewals for certificates of compliance or COCs in light blue are depicted. At the bottom of the light blue bar for the certificate of compliance renewals, there is an indication of how many sites are impacted by the COC renewals in that year.

As you can see, there is a peak of activity in the 2020 time frame. We are

taking actions to address the surge in applications and increased workload this represents. These actions include completing the remaining pieces of the renewal regulatory framework, and continuing to seek process efficiencies challenging ourselves to enhance our efficiency while maintaining our safety focus.

Regular interactions with licensees and applicants help us estimate the future workload, as well as gain a better understanding of licensee and vendor design and operations, and the challenges they face with regard to dry cask storage system operations.

This supports continued compliance with our safety and security requirements, while integrating new aging management program requirements into existing licensee inspection and operating programs. We expect this work to pay dividends in the future and not require changes in business line resources, to handle the renewal surge through efficiency of the regulatory process.

Our early experience with the first few renewals showed us that while we were ensuring the safety and security of these systems, there were efficiencies that could be used to streamline the process.

Subsequent renewals reviews are showing, are already showing the positive effects of the new regulatory framework, as evidenced by the reduction in the number of license or certificate conditions, and a reduction in the number of requests for additional information.

Next slide, please. We are implementing a renewal framework that is stable, predictable and efficient at regulating age-related degradation. The approach is designed to ensure expectations for aging management are transparent and reliable, and it should be familiar to our licensees, since it was founded on reactor license renewal concepts.

The aging management programs also have a learning component which

ensures new information is factored into the process. As a result, the framework is sustainable into the foreseeable future without requiring changes to regulations. The framework is engineered to address the known age-related degradation mechanisms, and ensure an inspection and operating experience program is in place to detect and assess unforeseen mechanisms before they challenge safety functions.

Licensees and COC holders are expected to review operating experience and revise their aging management programs as needed. All of these activities are subject to the robust oversight of our inspection program. Later, Christine Lipa will provide a general overview of our current oversight activities.

Next slide, please. Let me discuss two key documents that support our renewal regulatory framework, NUREG-1927, the standard review plan for storage and renewals, and the Managing Aging Processes in Storage or MAPS report. We recently issued Revision 1 of NUREG-1927, which provides clear guidance to the staff on key elements of renewal applications to guide their reviews.

The staff has also prepared to issue for public comment the MAPS report. This report is analogous to the Generic Aging Lessons Learned report for the renewal of reactor licenses. The NRC staff leveraged lessons learned and key information from the reactor renewal process to create a framework that easily integrates into existing licensee programs.

The report was presented to the Advisory Committee on Reactor Safeguards Subcommittee on Metallurgy and Reactor Fuels on September 20th. The next step will be for the document to be issued for public comment.

While elements of the MAPS report have been the subject of a number of public meetings, this will be the first time our external stakeholders will have an opportunity to provide

their comments and we're looking forward to their feedback.

Next slide, please. While those are significant accomplishments, we're not through yet. We will be working with the regions to develop the procedures to guide inspection of licensee aging management activities. We are also reviewing NEI-1403 format, content and implementation guidance for dry cask storage operations based aging management, for potential endorsement in a future regulatory guide.

By documenting acceptable approaches to meeting the regulatory requirements relative to aging management, we are confident we can greatly enhance the efficiency of our reviews for COC and license renewals. An associated and important related activity is the development and use of consensus standards as they apply to aging management.

The staff has represented on committees performing important work, such as the development of ASME Section 11 Code Case N-860, “Examination Requirements and Acceptance Standards for Spent Nuclear Fuel Storage and Transportation Containment Systems.”

We anticipate development of these consensus standards will improve efficiency and predictability of the regulatory process if they are endorsed by the NRC and properly utilized by the applicants. So in closing, we think the revised regulatory process provides for a predictable, stable and efficient renewal process. This is evident in how the North Anna ISFSI application renewal is proceeding.

Thank you and at this point I'll turn it over to Christina Lipa. Next slide, please.

MS. LIPA: Thanks, John. Good morning Chairman Burns and Commissioners. I'm planning to discuss the regulatory oversight in independent spent fuel storage installations or ISFSIs, including cask vendor inspection, safety and security inspections,

pre-operational inspections and ongoing oversight of ISFSIs into the future.

Next slide, please. The ISFSI inspection program is implemented primarily by the regions with NMSS support, and is designed to ensure safety and security of spent fuels through independent verification of compliance with requirements contained in the NRC's regulations, the cask vendor certificate of compliance, technical specifications and license conditions.

NMSS inspectors perform vendor inspections related to design and fabrication of the cask systems. The ISFSI inspection program interfaces well with inspection programs in other business lines, such as wet spent fuel storage at operating reactors and at decommissioning reactors.

My presentation today will focus on how inspectors verify that spent fuel is safely moved from the spent fuel pool to the dry cask storage system, and that the loaded canister is safely processed and prepared for transfer to the ISFSI storage pad.

Another inspection area is ISFSI security, where the regional inspectors, with support from the Office of Nuclear Security and Incident Response, verify that the required security plan is in place and ready for implementation prior to storing fuel on the ISFSI storage pad.

Next slide, please. The ISFSI inspection program covers a wide range of activities, including pre-operational activities, then the actual loading of the licensee's first canister, and finally ongoing periodic inspections of ISFSI operations.

The pre-operational inspections are substantial, approximately 600 total hours of inspection, and include a review of selected aspects of a licensee's heavy loads program, the analysis and construction of the ISFSI storage pad, multiple specialized procedures for activities

such as fuel selection, dose monitoring, welding and backfilling with helium, and finally license dry runs of these procedures to demonstrate readiness to begin the site's initial loading campaign.

The regional inspectors are also on-site to observe the first canister that is loaded, processed and transported out to the ISFSI pad. Periodic safety inspections of approximately 100 hours are performed on-site every two to three years, depending on the timing of licensee's subsequent loading campaigns. Regional inspectors also complete ISFSI security inspections of approximately 40 hours every two to three years to verify compliance with the physical security plan and security regulations. These inspections will continue for as long as the fuel is stored at the ISFSI.

Next slide, please. Next, I will discuss three issues identified by the inspectors during recent ISFSI loading campaigns. At one operator reactor site, an NRC inspector was observing a non-destructive examination test of confinement welds on a dry cask storage system, and noted that the time it took for the quality control inspector to perform the test seemed unusually short.

After the licensee investigated, it concluded the NRC inspector was correct, which called into question the integrity of the confinement welds of six previously loaded casks. The six casks loaded with spent fuel were declared inoperable, requiring the licensee to perform additional testing and evaluation, to address continued storage while seeking NRC approval for use at the ISFSI.

The cause of this issue is that the licensee did not provide close contractor oversight of these activities. This situation was resolved by the licensee submitting an exemption request, including a detailed safety analysis, extensive NRC staff interactions and eventual approval of an exemption.

The NRC issued a non-cited violation for the licensee failing to conduct proper non-destructive examination tests on all the loaded canisters. At a decommissioning site, an NRC inspector was observing a licensee heavy loads demonstration dry run involving lowering and then removing an empty spent fuel canister from the storage overpack, when the licensee encountered difficulty during the lift of the empty canister back out of the storage overpack.

As a result, the inspector reviewed the design and licensing requirements for the lifting devices in use, and identified that a device did not meet the plant's licensing basis for the control of heavy loads. Specifically, the lifting device in use was not single failure proof as required per the plant's Part 50 license.

As such, the licensee could not preclude the possibility of a cask drop accident, an accident that was previously not considered credible in its licensing basis. The cask loading campaign is on hold until this issue is resolved. This highlights the importance for the licensee to fully understand the site's licensing basis when undertaking new activities. A non-cited violation was issued and the licensee has submitted a license amendment request to modify the licensing basis.

At another operating reactor site, an NRC inspector identified that the transport vehicle used to move spent fuel storage casks to and from the ISFSI pad and transfer a loaded canister of fuel between casks in the stack up configuration was not being inspected per design requirements.

Specifically, the licensee failed to perform the code required frequent and annual inspections for the transport vehicle, which is categorized as important to safety. Four casks were loaded with the performance of these required inspections.

Once identified, the licensee completed the necessary inspections prior to lifting

additional casks. This highlights the importance of contractor oversight in fully evaluating the licensing basis regarding the heavy loads program. This issue resulted in a non-cited violation, and the licensee promptly corrected the issue. The three findings I mentioned were all of very low safety significance.

Next slide, please. As operating reactors continue to offload spent fuel from the reactor, and spent fuel storage pools consequently become more full, the need for dry cask storage capacity increases. Sites originally had spent fuel pools designed with limited capacity and since then, most have already maximized storage in the pools through re-racking.

The ISFSI inspection area is growing as a result of more reactor sites moving to dry cask storage, and even those that already have an ISFSI in some cases change into a different cask system. This results in new heavy loads analyses, new procedures and other activities that create a need for a new set of pre-operational and initial loading inspections.

In addition, the licensees for some of the recent decommissioning sites have decided to expedite transfer of the spent fuel from the pool to the ISFSI, and in some cases have changed to a different cask system, resulting in additional inspections. Any increases in ISFSI inspection resources would be managed through adjustments in the business line.

As was mentioned earlier, if the NRC does approve a licensee to construct and operate a consolidated interim storage facility, CISF, NRC inspections will be required. These inspections would focus on pre-operation and operation of the CISF, canister inspections before transport and security of the facility.

Our inspection program for a CISF is under development, and is expected to be quite similar to existing inspection procedures for ISFSIs.

Next slide, please. Highly trained inspection staff provide oversight of ISFSIs.

The qualification programs require broad knowledge in areas such as spent fuel characteristics, welding, heavy loads, cask system design and processing, fire protection, external events and security. Flexibility with scheduling inspections is needed due to the actual licensee schedule of activities changing frequently and unforeseen delays.

The ISFSI inspection area is a small program within each region, and the regions and NMSS work together well to support each other when licensee schedules change. In addition, the regions have found it much easier to remain flexible if they have additional inspectors cross-trained in ISFSI inspection, as well as other areas such as decommissioning and operating reactors.

The regions have been successful in cross-training additional staff to provide for that flexibility. This way, we can make sure the inspector with the right experience and qualifications is available at the right time to do the necessary inspection. Thank you, and with that, I'll turn it back to Vic. Next slide, please.

MR. McCREE: Thanks, Christine. Mr. Chairman, Commissioners, that completes our presentation. As I listened to the presentations once again, I was impressed by the important work that's ongoing in this business line as well, and as I contemplate Project Aim and as you know one of the features or ethos of Project Aim we talk about agility, being able to anticipate, project, plan for new work and in this business line, we do anticipate an increased workload.

I'm impressed by the positive proactive steps that are being taken to prepare for that increased workload, and applying lessons learned from NRR, from the operating reactor business line in terms of license renewal is certainly a way to prepare for that as well.

Finally, as Christine mentioned, preparing people, you know, the flexibility and

cross-training is essential to us being a more agile agency in all areas, but certainly in this one. So with that, we'd be happy to answer any of your questions.

CHAIRMAN BURNS: Okay, thank you. Again, we'll start with Commissioner Baran.

COMMISSIONER BARAN: Thanks. Thanks for the presentations. I have some questions on consolidated interim spent fuel storage, and you all should just collectively decide whoever wants to answer any individual question. I won't direct them to any of you in particular. I want to start off with the waste control specialist application for a facility in Texas.

The NRC staff has started the environmental review, but hasn't yet decided whether to accept the overall WCS application for docketing, is that right?

MR. LOMBARD: That's correct.

COMMISSIONER BARAN: Okay. Does proceeding with the environmental review now imply that the staff anticipates accepting the application for docketing?

MR. DAPAS: I'll offer a perspective and Mark can chime in. No, it does not Commissioner. We will conduct a thorough review of the application once we receive all response for supplemental information and determine whether the application should be docketed for the safety review.

When you're looking at a licensing action of this scope, one of the longer term items is the environmental review process. You go through the scoping meetings that you have, obtaining stakeholder comments. There could potentially be some consultation activities associated with any Indian tribes that are affected and request consultation.

So the staff's view was it was important to begin that, and in proceeding with the environmental review, it does not mean a foregone conclusion regarding the safety review.

Quite frankly, and the licensee recognizes this, they proceed at their own risk.

They will continue to be charged hourly fees associated with the staff's resources used to conduct the environmental review, and if we subsequently conclude that the application is not suitable for docketing, that review work would still have been charged to the licensee.

We do think, in talking with Waste Control Specialists, they've spent a lot of effort on this and we do think they are committed ultimately to provide a complete response to the request for supplemental information, such that we can proceed with docketing, and I don't know if you wanted to add anything Mark.

MR. LOMBARD: Just a small piece to that, it's also we're taking lessons learned from the Crow Butte decision by the board, and one of their observations was that we didn't -- maybe we could have done a better job at consultation. So we want to have enough time for consultation. We want to do a complete job of that as we do the environmental review.

At the same time, we'd like to have a little kick start, get ahead of the safety review by a bit if we can, because we do know the environmental review typically takes a longer amount of time than safety review. So we wanted to make sure that once or if we do, not once but if we do decide to accept the application for review, we're able to complete it in three years.

MR. DAPAS: The only thing I'll add Commissioner is we did look at spending resources on that environmental review does not come at the expense of not conducting other work within the branch that needs to be conducted. So it wasn't that we're precluding ourselves from engaging in other activities in order to spend time on this environmental review. It was really a function of wanting to begin that public outreach and engagement process.

COMMISSIONER BARAN: And if the staff ultimately decided not to accept the

application for docketing, what would happen to the environmental review work that the staff had performed?

MR. LOMBARD: It would -- well, we would expect, where we've seen other applications, although we don't, have not received one of this magnitude for some time since Private Fuel Storage about 20 years ago. But we -- what typically happens, as Mark said, we have a strong indication that WCS is very committed to this application essentially going forward, in our conversations with DOE and other entities about deploying a CISF there in Texas.

Sometimes what we see is that entities will withdraw an application, take it back, get the quality up to the level that we would expect to see and hopefully that we would accept and then come back in and resubmit later on. So that work would not be for naught. It would still be -- we'd just hold onto it and then reengage later on.

MR. DAPAS: I was recently at the site, just last week, and the licensee, on more than one occasion, communicated their commitment to provide high-quality responses. The reason that they requested some additional time from the, you know, original last batch of responses being provided at the end of October until the December 9th time frame was because they recognized they need to devote some additional time and attention to providing complete responses to the staff's questions, and you did hypothetically -- clearly, if we did not accept the application to conduct the safety review, we would look at what work that we did relative to the environmental review, and is there any lessons learned from a programmatic aspect. But, you know, that would be ultimately a sunk cost by the licensee.

MR. LOMBARD: Yes. And note, the communities are very close. They are right across the -- when you look at the Holtec potentially submitting an application in March of 2017, the communities are very close, so work that you do really does potentially apply to both

sites.

COMMISSIONER BARAN: And based on your pre-application discussions with Holtec, what is your sense about the likelihood of Holtec submitting its application by the end of March for the site in New Mexico?

MR. LOMBARD: We get the same feeling in our discussions with Holtec, that they are very serious about moving forward. We know that they have an effort ongoing now that -- and they do engage in phone calls for this periodically to ask questions. We also have a strong sense that they are following WCS's process very closely and are monitoring RSIs and their responses as they develop their application, and are taking those lessons learned into account.

COMMISSIONER BARAN: And have -- have we gotten a letter from an organization expressing interest in submitting an application for a site in South Carolina? What is the status of that?

MR. LOMBARD: The SFR Group did send us a letter expressing some intent to submit an application in the future. They also talked about re-processing and maybe some other activities in that letter. We sent them a letter back that I am sure you are aware of that we said we're ready to engage in pre-application meetings with you when you're ready. We may have some resource implications, obviously, going forward, if they do decide and prepare an application and submit it, but we are ready to engage in pre-application meetings with them to understand exactly what their intentions are and that they can understand what our expectations are.

COMMISSIONER BARAN: So far, have there been any substantive conversations?

MR. LOMBARD: Not at all, no.

MR. DAPAS: I'll just mention in the context of should we receive a Holtec application, as was mentioned during the presentations by the staff, we have a prioritization for any work, and we would be looking at, you know, what work is of sufficient priority in order to be able to continue with potentially reviewing that second CISF application because we're currently not budgeted for two in this fiscal year.

COMMISSIONER BARAN: I wanted to ask about that. Thanks for bringing that up. So we're budgeted for one review in fiscal year 2017. We're budgeted for two in fiscal year 2018. Based on what you know about the WCS application and those that may follow -- it sounds like primarily Holtec -- do you think you will have adequate resources to perform timely and effective reviews of all applications that are submitted? It sounds like that is the prioritization process you are talking about.

MR. LOMBARD: "All" is kind of open-ended, so I wouldn't say we're ready for any or all, but we are certainly ready to re-prioritize and shuffle resources to look at a Holtec application, should it be received in a March 17 time frame.

We -- we have looked at that. We have a prioritization scheme that you have probably seen in SFM-26, because we knew, we saw this coming down the pipe, the potential of increasing workload with the static resources that we have, or the level of resources that we have going forward, so we wanted to make sure that it was communicated. That's why we made SFM-25 and SFM-26 both publicly available, so vendors that would be submitting applications in the future would not be surprised if, all of a sudden, we tell them I am sorry, we're not going to do any work on your application because Holtec and WCS are a higher priority.

COMMISSIONER BARAN: Yes, well, so let's say Holtec does submit their application next spring. The plan would be, given the prioritization, re-prioritization of resources,

the staff would review both of those applications at the same time? Is that --

MR. DAPAS: That is correct, and I would just offer my understanding of the prioritization framework. It does not mean that you completely suspend activities on something that you are currently reviewing. It might take a longer time frame to complete that licensing action so that we devote resources, let's say, to that second CISF application from Holtec, but we do think that prioritization framework would allow us to expend effort in reviewing the Holtec CISF application as well as continue with some of the other licensing activities, although there may be an impact on the time frame for completing the other activities, or what we're able to complete in the 2017 time frame before we have the additional resource budgeting in 2018.

COMMISSIONER BARAN: Well, let me just ask a clarifying question on that. Do you anticipate having to make decisions about prioritizing staff resources among the two applications for consolidated interim storage facilities?

MR. LOMBARD: So one thing we did when we put together the review team for the WCS application is the primary reviewer on WCS is the backup reviewer for Holtec, and the backup -- and vice versa, so they are learning a little bit, although we are not having to be -- not two people full time on each technical area, but they are learning about the process and the expectations and the mechanics of the application to help us get a little jumpstart if Holtec or another entity would submit an application in the future.

So we expect that we're not going to be robbing Peter to pay Paul going forward. We have a good strategy going forward, and also SFM-26 -- or, I am sorry, SFM-25 has the overall process of the licensing process that we would use, including RAI process and pre-application meetings and the rest of the process to help us be more effective in that going forward.

MR. DAPAS: I would just leave you, Commissioner, with the key point from

my perspective is that we would continue to engage in review of the WCS application, assuming of course it is accepted for docketing in the safety review, and we would be able to conduct work relative to the Holtec application, and it would not come at the expense of completing other high priority activities, so it is -- again, the message is not we'd have to wait until 2018 until we're budgeted resources to do anything with the Holtec application.

MR. LOMBARD: The beauty, as I was going to say earlier, the beauty of this is that -- or even in TN -- I'm sorry, or even in NAC are the primary partners in the WCS application. Holtec is the main partner in their application for Eddy Lea. Those are the three main vendors that are marketing and deploying storage systems around the country, so when you say to them, well, which do you want us to do -- and actually SFM-26 has a piece of it that has some of their input fall into and help us prioritize their work, so they can tell us.

Do you want to do WCS? Do you want to do another application? You know, tell us as we go forward --

COMMISSIONER BARAN: Thank you.

MR. LOMBARD: -- they have skin in the game, so to speak.

COMMISSIONER BARAN: Okay. Appreciate it, thanks.

CHAIRMAN BURNS: Thanks, Commissioner. Let me follow up a little bit. I am just trying to understand our process with respect to the reviewer acceptance of application. We talk about, at this point, with respect to -- and I understand the conservative response that Marc gave, we don't -- that Marc Dapas gave that with respect to pending further supplementation of information from the -- the applicant, WCS, that we are -- you know, we don't know whether we will accept the application or not.

What I think has emerged over the year, and I am not being critical of it, is that

we have perhaps a more in-depth application acceptance review than, let's say, 20 years ago, maybe 10 years ago, so we -- we have a dichotomy between now we have two acronyms, RSIs and RAIs, okay.

So what I am trying to understand is have -- help me understand, have we moved in effect -- moved the gate, so to speak, or moved the target in terms of when you get in the door? Because at this point, you know, I understand, an application needs to address all of the things that are -- that are expressed and set as standards, which is our obligation to do as regulators, standards for making an application. Acceptance of an application is not a guarantee of the granting of an application, but you hope you don't have people coming in the door either wasting their time or our time with respect to it. But, you know, their regulatory issues are going to come out.

So what I am trying to -- and my question really is do we really -- what is it the nature of what our RSIs have gone to with respect to the WCS application? Is it really a question of gaps in what should have been in the application to begin with, or is it really questions about ultimately whether such an application would be approved or not, which at some point is really a question for the consideration of the application?

And what I am trying to understand from the staff, because I don't look, obviously, at the individual applications and the details, I am trying to understand where that line is. And it is -- it is a question not I think only for NMSS, obviously, and I am not expecting you to answer NRR or NRO, but there's a similar question that comes up. And I -- let's just talk about in this circumstance here today.

MR. McKIRGAN: So if I could? Thank you, Chairman, I appreciate that question. It is one we discuss a great deal internally, and the fundamental difference between

RSIs and RAIs really stems to the finding the staff has to make.

In the case of RSIs, you are trying to get supplemental information to docket the application, so these are gaps of information that is not present in the application. RAIs, of course, you are trying to make a safety finding. And so there is a matter of judgment that -- that falls, and the staff does -- is trying to look forward in the event that it is docketed, so you will see some of those items discussed during our internal deliberations about RSIs, but we have a process whereby we screen those. We do ensure that the RSIs are really focused on the information necessary for docketability and not for the safety finding.

And really just to put a slightly finer point on it, if information is present that the staff disagrees with, that is not an acceptable RSI. That is clearly an item that we would discuss, hopefully through a public meeting and exchanges through RAIs, and so that is a very important distinction.

I would also offer that I don't believe the bar is changing. I think what the staff is trying to do is to enhance our efficiency. We are looking to ensure that the applications are complete and of high quality so that we don't have to go through multiple rounds of RAIs should we docket the application, and then that can take a protracted amount of time and resources on both our part and their part, and this is where I am very appreciative of the pre-application meetings we have with applicants so that the content and quality of the application is clearly understood.

In the case of WCS, for example, there is not a rich history of multiple CISF applications. We've had one historically. It has been some time since that has occurred. So it did not surprise us overly that the application would have some issues that the staff would seek to work through, so the RSIs were a valuable process in terms of getting the application to a point

where we would be able to, if we were to docket it, conduct an efficient review. Does that get to some of what you were asking about?

COMMISSIONER BARAN: Yes, go ahead, Marc.

MR. DAPAS: Yes, just one quick point. I think it was mentioned in John's presentation. You know, the renewal -- or the CISF framework, we talk about a pre-application meeting and a pre-application audit. We conducted a pre-application audit with WCS. We communicated the results. There were concerns about the description of the licensing basis, if I recall correctly. WCS chose to request that audit six weeks before they submitted their application and made a business decision, a decision to go ahead and submit the application without having in my view fully addressed the comments that were provided as part of that pre-licensing audit, so that does --

CHAIRMAN BURNS: Okay.

MR. DAPAS: -- result in some additional RSIs that potentially the need for that could have been obviated had they decided to spend more time incorporating the results of the pre-application audit.

MR. McCREE: Chairman, I think you noted in your question, which is very timely, that your question affects other business lines as well, and I think John's response, if you were to ask anyone in the Operating Reactor or New Reactor Business Line, you would have gotten a very similar response in terms of the standard, the expectation being applied to both pre-docketed applications in terms of use of RSIs as well as RAIs.

MR. LOMBARD: If I could provide clarification, examples, a couple of examples where an analysis is referred to in the application but not provided, so we don't have the opportunity to review it, that's an RSI. Another example is receipt of the inspection building,

the receipt of the inspection facility is extremely important to us as these systems, these canisters come off of transportation and they're going to get ready to go into storage again, the 72-71-72 process, that we want -- we are placing a lot of attention on the receipt of the inspection facility.

We have the description that there's a facility provided. We don't have the size of the facility, we don't have a description of the detailed operations going on there or construction details of the facility itself. That's an RSI because, again, you start the review of that knowing how big it is.

CHAIRMAN BURNS: Okay. And I guess that actually -- Marc, you may have anticipated another question I have, which is so what's so different about a consolidated storage site? Is it those facilities -- because you've licensed 15 independent spent fuel storage facilities --

MR. LOMBARD: Very good question.

CHAIRMAN BURNS: And I'm not being facetious. I mean, what is the big deal from the standpoint other than capacity, or is it essentially you have more handling-type facilities, et cetera, and some of the ISFSIs under Part 72, we now have our orphans up in the northeast and other places, some of which may -- I don't remember what they're licensed under, but is that the primary difference between, say, one of the CISs and the ISFSIs that we have already licensed under Part 72?

MR. LOMBARD: If your application is put together in the right manner, you're taking systems that are already approved by the NRC.

CHAIRMAN BURNS: Yes.

MR. LOMBARD: That's the licensing basis of the --

CHAIRMAN BURNS: Yes.

MR. LOMBARD: -- systems to be stored. That is -- WCS had more of an open-ended licensing basis in the application --

CHAIRMAN BURNS: Okay.

MR. LOMBARD: -- they submitted to us, so it wasn't clear that they were only systems that we had previously approved and were sitting on the ground.

CHAIRMAN BURNS: Yes.

MR. LOMBARD: If you do that, then it becomes more simple.

CHAIRMAN BURNS: Okay.

MR. LOMBARD: Not --

CHAIRMAN BURNS: Okay.

MR. LOMBARD: -- completely simple, but more simple, and then it is just the transfer operations from transportation packages to the storage, the hauler that moves it out to the site. That is where the highest risk of spent fuel storage is seen when you look at the older PRAs from 2004, 2006, so that is -- we really are focused on that, plus also looking at what is the most important things you have to do putting it back into storage? You have to meet the COC, so what are you doing to make sure you meet the COC, the storage COC, before you put it back into storage?

CHAIRMAN BURNS: Okay. Well one of the -- let me focus a couple questions on the environmental review. I don't recall, maybe just inform me in terms of is there any other environmental review that has been done for this site in a federal EIS? Because it would not have been us, I don't think.

MR. LOMBARD: That I --

CHAIRMAN BURNS: Are they building off of any prior --

MR. LOMBARD: They are building off of the environmental work that they did for the low-level waste storage facility, yes --

CHAIRMAN BURNS: Okay.

MR. LOMBARD: -- and that is --

CHAIRMAN BURNS: Okay.

MR. LOMBARD: -- part of the environmental reports --

CHAIRMAN BURNS: So one of my question then goes to we decided to proceed with the environmental review, and it goes off I think a question Commissioner Baran had: at some point these things come together, and at some point, I would say that where you are in the safety review is going to inform the environmental review. What have you done to assure that that comes together appropriately? Because I don't think you're going to get out there and frankly finish your environmental review before you are far along on the safety review.

MR. LOMBARD: And we have a detailed schedule. John, do you want to talk about that?

MR. McKIRGAN: If I could, yes. There are points where the two schedules have to come back into alignment before we can complete them, and as we worked through the process for developing an environmental schedule, and as we thought through the potential for should we docket the safety review and proceed with the overall application, the two schedules that we worked do have some commonalities that will have to cross.

But you are absolutely right. We cannot complete the environmental review absent the safety review.

CHAIRMAN BURNS: Or at least sufficient process on the safety review?

MR. McKIRGAN: Yes --

CHAIRMAN BURNS: Okay.

MR. McKIRGAN: -- yes.

CHAIRMAN BURNS: If I could, one last question. I wanted to get into the renewal thing. John, if you could say, what have you -- could you give me some examples of what you think efficiencies you've gained in terms of the renewal process from the examination? Again, maybe a little more granularity in terms of what you think you've achieved.

MR. McKIRGAN: If I could, I think there are a couple of very key points in this framework, and I really need to take you back a few years to the very first renewals that were done, and there, there was a very broad scope of potential issues that the staff was trying to disposition, and there was not a common understanding between us and industry on what the significant mechanisms were and how to appropriately address them in terms of aging management.

So it was extremely open, and it led to rounds after rounds of RAIs to make sure that the staff had a basis. Now, with the framework and the guidance documents, including the MAPS report and the SRP, the NEI document, those things are now coming together so that there is a common understanding between the staff and industry on what is necessary to be submitted in the application, and the review can proceed.

And as an example of the success, I will tell you the North Anna application was submitted with zero RSIs, so I think that is really the hallmark of success in terms of efficiencies. I think that should be our goal across the board, but it is very gratifying to see that in this instance.

CHAIRMAN BURNS: Okay.

MR. LOMBARD: If you look at the two -- not the first four that I think John was referring to, but you look at Calvert Cliffs and Prairie Island, and you look at the license conditions

that were applied to each one of those as we completed the review and approved their renewal, Calvert Cliffs had a lot of license conditions. I think Prairie Island maybe had in the 80 percent range of license conditions because we were learning as we went and we were building this framework as we went, and the industry was working with us very closely in a collaborative manner to make sure we were all learning as we went forward.

So the application for Prairie Island was a little bit better. VSC-24 is the first COC to be renewed, and it was also a learning experience, and it ended up with fewer license -- fewer certificate conditions than what even Prairie Island had, so we're learning a lot with North Anna. We are looking to get that done in a much faster time frame than we did the first three, the first two ISFSIs and the first COC.

CHAIRMAN BURNS: Okay. Thanks very much. Commissioner Svinicki?

COMMISSIONER SVINICKI: Well thank you all again for your presentations. John, I might just also add to your answer to the Chairman's question that your discussion of the development and use of consensus standards is another improvement, in addition to the framework and the guidance and the NEI documents that have been developed. I -- I think that gets glossed over or passed over as maybe a kind of mundane activity, but that can be a tremendous efficiency, and I know it is why many of NRC's experts participate on standard setting committees, and it's a very very important backbone to the technical work we do, and also to some of our process improvement that we undertake as an agency.

Just in general, I would like to again compliment the staff on the topics presented on this panel. I just hear a very consistent reintegration of lessons learned, growing operating experience with various licensing processes, the feeding back into the process of lessons learned.

It is my view that only -- excuse me -- only high-performing organizations really have a consistent focus on that kind of continual learning and improvement, so I compliment you all, as I noted with the previous panel, for adding that. And it is a smart thing to do because it helps you kind of occasionally get ahead of the curve. Otherwise, you are just constantly dealing with the growing inbox, so I know we do it somewhat of necessity, but I still think it is something that we should take some measure of pride in as -- as an efficient and effective organization.

And here also, through Christine's comments about cross-training inspectors, it is interesting, when Victor wrapped up the panel and he said I want to stop on that point and note that an aspect of Aim is agility, I had just written on my little card here "Inspectors cross-trained, benefits for agency agility," and then Victor went on to say that as I was finishing writing that down, so I agree. Agility is supposed to be a big part of Aim because we just don't, again, want to constantly be in a reactive mode. We want to be able to move qualified individuals in the NRC organization to where the work manifests, and I see us -- you know, it's -- it's a continual process, but I see us really instituting some measures there, and I want to compliment the staff on that.

Even with something like the request for supplemental information versus the request for additional information, the Chairman mentioned our growing body of acronyms, but I see that, again, as us being adaptive, which I think is difficult often for government agencies to exhibit that behavior. There was attention in Congress during this Congress, which was this year and last year, to having greater visibility on some of these regulatory reviews, how long they are taking, creating government-wide dashboards. An element of that before it was enacted was discussion of maybe we should just make regulatory agencies decide matters by a certain, you get 12 months, and you just decide it.

And in informal conversation with a colleague on the Hill, I was asked for a

reaction to that, and I said you can absolutely have that. What you will get is just disapprovals of everything at 12 months because we have to have the time to meet the other statutes which say you're going to make certain safety findings, you're going to make certain environmental findings under NEPA, so I said there is just a fundamental tension between those two.

So I -- I am always pleased when I see that we adapt a process like request for supplemental information. I think what we're doing there is, well, we could just keep throwing applications over the transom, and we could keep rejecting things, but I think that is not terribly gratifying, I think, at the end of the day, either to NRC or to the applicants. I think through pre-application engagement and then the ability to adapt as you did with the WCS process, which you're in kind of a novel thing right now, I view that as us wanting to, you know, serve our public mission, be reasonable, be practical about things, and I think, you know, that is all to the good, and we'll see where we end up on that when it has a ways to go.

I do worry a little bit. I think we talk a lot about projected time frames for centralized interim storage facilities that we say absent any public intervention. I just don't see that as a high probability outcome. I think we ought to talk about the time frames that include anticipated public intervention, which I think is likely.

And then the one question I had, and I think this was for John, this was your Chart 46 with the peak, so I have complimented you, and the Chairman asked quite a bit about adaptive processes that have allowed us to really maybe learn from operating reactor license renewal and have a more safety-focused risk-informed review, but even if you can shave that peak, that's a heck of a peak. Is there any -- has there been any exploration of things, like could some of the package certificate holders come in early, or is there any kind of shaving or load leveling that could be done?

And I would note that we continue, whether it be on the financial assurance for radiological sources or anything else, we always receive public comment about the limited availability of certified packaging, and so could you talk a little bit about how that level of availability is going?

MR. McKIRGAN: Gladly, Commissioner, thank you for the question, yes. So we are now moving to that stage where we do want to start to engage with the -- the new renewals that are coming in and talk about the timing in greater detail. We wanted to focus on the framework first and getting those efficiencies in place. We do want to move to that.

There are certain regulatory requirements that must be met with respect to the submittal dates in order for them to be in timely renewal, and so we will of course encourage the applicants to adhere to those requirements, but in terms of the subsequent review that occurs once they are in timely renewal, there is significant room for discussion, and that's where we want to engage with them going forward.

MR. LOMBARD: So I will say that Rancho Seco has been in for lease two pre-application meetings, and they are probably going to submit early. TMI-2 came in two years ago, and I think they expired in 2018, so we are engaging them early, and they do -- the two that we've talked to, two or three we've talked to, do plan to submit before they have to --

COMMISSIONER SVINICKI: Okay.

MR. LOMBARD: -- which is good. So that is the only way we could shave off the peak, so that's a good question.

COMMISSIONER SVINICKI: And I would be remiss if I -- if I did not share this, is that when I think about the entire range of activities in -- well, I won't say the -- the spent fuel storage and transportation, I don't like that acronym, but early in my time of service on this

Commission, '07-'08, there was a lot of Commission focus on that set of activities, of how gains in efficiency, improvements could be made, and to John and others who presented on that this morning, I really was reflecting as I sat here and was taking that in.

That body of activities -- I know it is probably different people working on it now than were working on it 10 years ago, but these activities and processes have come a long, long way, and I hope that folks take some level of satisfaction in that because we -- it is impressive to sit here today, and my colleagues who sat with me in '08 are long gone, but I think they -- you know, Chairman Klein had a big focus on this, and I am just grateful that you have continued, whether or not it was on the Commission's radar, you've in an impressive way -- you have continued to really just plug away at that, and I think it really puts the agency in a stronger position, so thank you for that.

And with that, Mr. Chairman, I am done. Thank you.

CHAIRMAN BURNS: Well thanks. Anything else?

(No audible response.)

CHAIRMAN BURNS: Well thanks again for the opportunity to hear from the staff on both business lines this morning about the priorities and challenges that we have in undertaking and carrying out our responsibilities in decommissioning low-level waste, spent fuel storage, and transportation. Again, I thank you for the presentations today, and we stand adjourned.

(Whereupon, the above-entitled matter went off the record at 12:09 p.m.)