

UNITED STATES NUCLEAR REGULATORY COMMISSION

BRIEFING ON OFFICE OF NUCLEAR MATERIAL SAFETY
AND SAFEGUARDS PROGRAMS, PERFORMANCE AND
FUTURE PLANS AND INTEGRATED STRATEGY ON
SPENT FUEL MANAGEMENT

FRIDAY

JUNE 25, 2010

The Commission convened at 9:00 am.,
the Honorable Gregory B. Jaczko, Chairman Presiding

NUCLEAR REGULATORY COMMISSIONERS

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P R O C E E D I N G S

CHAIRMAN JACZKO: Good morning.

The Commission meets today to receive its annual briefing from the Office of Nuclear Material Safety and Safeguards.

It's a legacy name, I guess. It's not necessarily totally appropriate to what you do, but I guess we'll hear about that today.

The Commission has been continually impressed by the work of the Staff and the office in effectively managing a very broad portfolio of issues under their responsibility. This is Cathy Haney's first meeting -- first program briefing as the new director, so we welcome you.

And the work at NMSS is critical. It ranges from the front end of the fuel cycle and the licensing and oversight of enrichment and fabrication facilities to the back end of the fuel cycle, ensuring the safe storage and transportation of spent fuel.

In addition to hearing a general overview of several NMSS initiatives, the Commission also will be discussing in greater detail the agency's ongoing efforts to review our spent fuel storage and transportation programs.

And this is an area in which we have tremendous

expertise in over several decades of experience with more than 1200 casks at over 50 sites today. So it's certainly an area that we have done a tremendous amount of work.

We have resources to conduct research and to develop the appropriate regulatory framework to continue to ensure safe storage of spent fuel.

So we'll begin this morning's presentation with the Staff to focus on the NMSS program review. And then we'll hear from some stakeholders to talk more specifically about spent fuel and storage and transportation.

I offer my Commissioners an opportunity for remarks. Commissioner Svinicki.

COMMISSIONER SVINICKI: Yes, thank you, Mr. Chairman. If folks didn't have a sense of the broad scope of activities prior to your statement, they do now know. So I think NMSS and FSME have a tremendously broad scope of activities under their purview, so this is very timely, I think, and I look forward to all the presentations today.

COMMISSIONER MAGWOOD: Thank you, Mr. Chairman. Just briefly just wanted to cast my greetings to Cathy as well, we had a chance to interact and travel

together, actually, most recently, and look forward to your very first meeting before the Commission.

Thank you.

COMMISSIONER OSTERNDORFF: I thank all the presenters in advance. I look forward to hearing a very interesting discussion today.

CHAIRMAN JACZKO: Bill?

MR. BORCHARDT: Thank you. I would also like to add my congratulations to Cathy. It was a brilliant selection on our part.

I also would like to recognize the very dynamic nature of many of the activities that this office is involved with.

I want to just congratulate the Staff of NMSS and all the offices that worked with this office in maintaining a very positive attitude, very professional environment in the constantly changing work environment that they're faced with under the same kind of budget constraints the rest of the agency is under, but if there's any one office I think that's really feeling the brunt of a very dynamic environment, it's NMSS.

So I think they really maintain living the values on a daily basis and I want to recognize them for that and congratulate them.

With that, I will turn over the Cathy, who will begin the briefing.

MS. HANEY: Thank you very much. And thank you for those kind, welcoming remarks.

I would like to start out by saying -- repeating some of what the Chairman said, but just to echo the broad area of responsibilities that we have.

We are responsible for regulating activities which provide for the safe and secure protection of the nuclear fuel used in commercial nuclear reactors for the safe storage, transportation and disposal of high level radioactive waste and spent nuclear fuel, and the transportation of radioactive materials regulated by the Atomic Energy Act.

Next slide, or slide 2, please.

As I go through the agenda this morning, what I would like to do is to introduce the members of my management team that are here with me today.

First, to my right, is Tim Pulliam, who will be discussing how we are managing that dynamic environment. He will discuss the activities that are applicable to all the NMSS program areas across our business lines. And Tim is the director of the Division of Planning Budget and Program Analysis.

Next to Tim is Marissa Bailey. Marissa is the Deputy Director for the Division of Fuel Cycle Safety and Safeguards. She will provide an overview of the licensing program for the fuel cycle facilities. In addition, she'll give a brief overview of the agency safeguards and nonproliferation programs.

Moving to my left and Bill's left, also joining me is Lawrence Kokajko. Lawrence is going to introduce our plan for integrating spent nuclear fuel regulatory activities. Lawrence is currently our Director of the Division of High Level Waste and Repository Safety.

And to Lawrence's left is Vonna Ordaz, who will discuss the extended storage and transportation component of the integrated plan. Vonna is the Director of the Division of Spent Fuel Storage and Transportation.

Before I continue with my formal remarks, what I'd like to do is to take this opportunity to also thank the other programs, support and regional offices that provide NMSS with value support in carrying out our mission.

Many of these offices have representatives in the office and are in attendance here today, and they're here to help me with any type of questions that I can't answer.

Next slide, please.

Maintaining the safety and security of our

operating facilities and transportation is the number one priority at NMSS.

In addition to many universities and smaller Part 70 licenses for special nuclear material, we currently license or certify one conversion facility, four enrichment facilities and six fabrication facilities.

Over the last year, we completed approximately 120 licensing actions to support the fuel cycle program.

In addition, we've been very active in licensing new fuel facilities over the last year. And we've been working collaboratively with Region II and overseeing -- providing oversight to the fuel cycle facilities, both the existing ones, as well as the ones that are under construction.

We also support a broad range of stakeholders through certification, inspection and guidance development for interim spent fuel storage and transportation for all radioactive materials.

As you said, there are over 1200 loaded storage casks at approximately 55 sites in the nation.

In fiscal year 2009, we issued 93 transportation certificates of compliance and 17 certificates of licensing actions or certificates for storage.

By the end of May of this year, we had also completed 38 transportation certificates of compliance

and 7 certificates and licensing for storage.

As you can see, a tremendous amount of work is going on in that area.

In addition, NMSS is working very closely with the Department of Transportation to regulate shipments critical to the entire fuel cycle, as well as to the medical and industrial communities.

We've maintained a safe record for transportation of all types of material, as well as the interim storage of spent fuel.

Lastly, NMSS has organizational responsibility for managing the high level waste program.

In parallel with the ongoing hearing, the Staff is conducting the review of the DOE license application. Currently, we are scheduled to provide the Atomic and Safety Licensing Board Volume 1 and Volume 3 of the Safety Evaluation Report for DOE's Yucca Mountain application in August and November respectively.

These dates are consistent with the information we provided to the Board in the January 27th prehearing conference, as well as statements made at the June 4th Case Management Conference.

I will not be mentioning these activities again during the briefing because, as you are aware, this

licensing review includes matters that are under contention before the Board.

Also in this area, we're working with the Blue Ribbon Commission on America's nuclear future, and we're prepared to respond to any requests for information from the Blue Ribbon Commission.

Specifically, several members of my Staff have attended the meetings of the Commission and several of us have been engaged with either members of the Commission or Staff supporting the Commission.

Next slide, please.

During the last several months, NMSS has interacted with the NRC's Commission in regards to revisions of the fuel cycle oversight process, the regulatory framework for reprocessing, the regulatory program to support extended storage and transportation of spent nuclear fuel and the plan for integrating spent nuclear fuel regulatory activities.

Staff will continue to focus our attention on these three project areas as directed by the Commission.

Specifically, on March 19, 2010, the EDO forwarded a plan for revising the fuel cycle oversight process to the Commission.

The goal of this effort is to establish a fuel cycle

oversight process that is more risk informed, performance-based and that increases the predictability, consistency, objectivity and transparency of the oversight process so that all stakeholders will be well served by the changes that we would propose in this plan.

On June 15, 2010, the EDO forwarded Staff's response to the Staff Requirements Memorandum on COMDEK-09-0001 entitled Revisiting the Paradigm for Spent Fuel Storage and Transportation Regulatory Programs.

The proposed project plan outlines our plan to undertake a thorough review of the current regulatory program to evaluate its adequacy for ensuring the safety and security of spent nuclear fuel and transportation for periods beyond 120 years.

Lastly, just recently on June the 21st, I forwarded to the Commission, for information, a plan for integrating spent nuclear fuel regulatory activities.

This plan is intended to assist the NRC in addressing ongoing revisions to the national strategy for ensuring public health and safety and the environment in managing spent nuclear fuel and high level waste.

Next slide, please.

Over the next year we will be faced with many challenges and preparing the agency to respond to the national strategy for managing that spent nuclear fuel and high level waste.

First, we look forward to stabilizing our regulatory program for high level waste disposal.

We have and will continue to strive to be open and transparent with our states, our Staff, our internal stakeholders, as well as our external stakeholders, in communicating information as we move forward to stabilize the program.

We're also developing a plan to capture and preserve the knowledge and experience gained over the past three decades, as it relates to the disposal of spent fuel and high level waste.

We also will continue our efforts to launch the plan for integrating spent nuclear fuel activities. NMSS is dedicated to maintaining the forward momentum that has started on this plan as this plan was developed, and working collaboratively with internal and external stakeholders to implement the plan.

Lastly, we will continue to reach out to our stakeholders in all areas of responsibilities, and will continue meaningful dialogue with our external

stakeholders on impacts and timing of our regulatory actions.

And with that, I would like to turn the presentation over to Tim.

MR. PULLIAM: Thank you, Cathy.

Good morning, Mr. Chairman, Commissioners.

In managing NMSS's dynamic program, we continue to live the NRC organizational values. As the paradigm of our work shifts, it's imperative that we continue to effectively and efficiently manage our resources and provide continued outreach to all of our stakeholders.

The concepts used aren't new, however, they're used effectively in carrying out our mission. It's my pleasure to give you an overview.

Next slide, please.

The office has a number of knowledge management initiatives and has participated in the NRC knowledge management affairs.

Our divisions are heavily involved in knowledge management. We are strong proponents and users of the Knowledge Management Center within the NRC.

We have numerous communities of practice; however, I would like to specifically discuss a few. The

first is the technical review qualifications resources community of practice.

This community is intended to provide inspectors, license reviewers, project managers and technical reviewers with sufficient information to conduct inspections and license reviews that are technically correct and in accordance with NRC's regulations, policies and procedures.

Another community of practice that I would like to highlight is the high level waste knowledge management, knowledge transfer and sharing community of practice.

As our work paradigm shifts, it is imperative that we capture the high level waste work of the past. The results of knowledge transfer and knowledge management efforts by the High Level Waste Staff are collectively disseminated through the key community of practice.

This community identifies and traces the roads of pre-licensing review activities, development efforts, lessons learned and Staff interaction that led to critical knowledge discovery and production of high level waste repository safety.

In addition, we have extensive use of other communities of practice, to include professional

development, the NSPDP, project management, and nuclear criticality safety.

We also conduct interviews and seminars. The seminars are typically given by our Staff that have expertise in particular areas. Most seminars are recorded and the presentations are placed on the community of practice website.

In the areas of interviews, in the past five years, the high level waste Staff has conducted subject matter expert interviews to capture the experience and insight of senior and retiring Staff.

We also continue to update internal procedures.

We have recently updated internal guidance for the fuel cycle project management handbook and created a fuel cycle licensing assistant handbook.

The project management handbook provides internal guidance on overseeing and corresponding with regulated facilities. The licensing assistant handbook provides guidance to the licensing support Staff.

Maintenance of these guidance documents is a priority of knowledge sharing across the office.

NMSS continues also to enhance its outreach activities to both domestic and international stakeholders.

NMSS outreach activities are important to both NMSS and our stakeholders, to have a common understanding of each other's position on matters of common regulatory interest.

The benefit of maintaining our outreach activities has improved effectiveness and efficiency in regulatory processes.

Also, both NMSS and our stakeholders can better carry out their respective roles and responsibilities through a mutual understanding of each other's positions. All parties realize the benefits of improved communications with each other.

A couple of specific examples of domestic outreach include the spent fuel storage and transportation licensing process conference, which provided an opportunity for the NRC Staff, industry, representatives, licensees and other stakeholders to openly discuss regulatory issues on how to improve the effectiveness and efficiency of licensing processes.

And second, the upcoming annual fuel cycle information exchange, which includes domestic stakeholders and brings the international speakers to discuss issues of interest in this public forum.

Internationally, NMSS recently hosted a meeting of

the reversibility and retrievability working group, a subgroup of the Nuclear Energy Agency Radioactive Waste Management Committee, and will play an active role in preparing the group's international conference on this subject in December.

Additionally, as part of the integrated strategy on spent fuel management, NMSS plans to participate in a variety of international activities to develop an understanding of the methods various countries use to deal with the regulatory, technical, environmental, legal and programmatic aspects of long-term storage, reprocessing and waste disposal.

Further examples of international activities are participation in international committees, such as the NEA's Fuel Cycle Safety Committee, Radioactive Waste Management Committee, Regulator's Forum and Forum on Stakeholder Confidence and the International Atomic Energy Agency's IAEA Transportation Safety Standards Committee.

Throughout this briefing you will hear further discussions of NMSS's outreach activities.

In the area of work life balance, it is important to NMSS, and we believe that the best way to get the most out of NMSS is to encourage all of our Staff to have

balance in their lives.

We fully embrace the concept of Newflex and telework, and it is our job -- and it is the job of the senior managers of the team to set the tone for the work life balance.

A majority of the NMSS SES managers are working under approved Newflex work schedules, and we currently have 59 percent of the NMSS Staff approved for Newflex.

In addition, approximately 34 percent of NMSS employees work on a portion -- have a portion of their weeks by telework. And we have approved several members of our Staff to work under full time telework agreements for alternative work spaces.

In closing, I would like to provide you a prime example of our work life balance and how we live the values.

During the snow storm of 2010, one of our Staff members actively used telework and work schedule flexibilities to resolve technical issues and obtain necessary concurrence in a manner that allowed the amendment for the Diablo Canyon independent spent fuel storage installation to be completed on time.

The employee went beyond the call of duty during

extreme weather conditions, with the Government shutdown, in order to issue a licensing action in a timely manner, to support the needs of the licensee.

These actions clearly demonstrate the NRC organizational values of integrity, service and commitment.

I would now like to pass it on to Marissa.

MS. BAILEY: Thank you, Tim.

Good morning. I'll be discussing NMSS activities in licensing of fuel cycle facilities and enhancing safeguards and nonproliferation.

Slide nine, please.

Over the last year, NMSS has continued to accomplish the mission of the agency, through quality and timely licensing decisions for fuel cycle facilities. We met or exceeded all Green Book licensing metrics for fiscal year 2009, while completing a licensing caseload that was more than 25 percent above projection. And we're on track to accomplish the same thing in fiscal year 2010.

For example, last year, we completed the first ever 40-year renewals for two fuel fabrication facilities, Global Nuclear Fuels and AREVA Richland. We also approved Nuclear Fuel Services' amendment request to

add the Commercial Development line.

In the area of new facilities, we completed a large volume of licensing actions required to commence enrichment operations at Louisiana Enrichment Services.

At the same time, our Staff worked closely with Region II and supported the operational readiness review inspections in the areas of criticality safety, material control and accounting and quality assurance.

The first cascaded LES became operational this month. It should be noted that LES plans to construct and operate its facility in phases. Thus, construction operations and operational readiness reviews will continue to be performed for each phase.

LES has also announced plans to expand the facility to double its capacity. Additional license amendments will be required to complete the planned expansions. We expect those this year.

NMSS is also reviewing three new fuel facility applications; the AREVA Eagle Rock and GE Hitachi enrichment facilities and the International Isotopes deconversion facility.

We are currently performing the safety and environmental reviews for the GE Hitachi and AREVA applications. The draft impact statement, environmental

impact statement for GE Hitachi was issued last week. The draft environmental impact statement for AREVA will be issued next month, and the Safety Evaluation Report in August.

Both GE and AREVA submitted exemption requests to authorize pre-construction activities before receiving their license.

The Staff granted those exemptions this past year.

We also initiated the international isotopes deconversion facility licensing review. As part of that effort, we conducted a very successful public outreach meeting on the licensing process in Hobbes, New Mexico and met with elected officials in the surrounding communities.

A notice of opportunity for a hearing was issued and no hearing request was received for International Isotopes.

Finally, the mixed oxide fuel fabrication facility licensing review is continuing on schedule.

The draft safety evaluation report will be delivered to ACRS this month. And the Staff will present to the subcommittee in August.

In coordination with Region II, we are planning for inspections of the primary structures, systems and

components or PSSCs. We must verify that PSSCs are constructed as described in the application before making a licensing decision, which is not expected until around 2016.

The mixed oxide facility review is also a matter that is currently before the Hearing Board.

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Over the next year, we face potential challenges with some unique applications related to low enriched uranium research and development and medical isotopes reduction.

We are reviewing an application for a special nuclear material license from Oregon State University.

Oregon State intends to receive low-enriched uranium fuel elements from other test reactors to perform hydro-mechanical experiments.

We also have received an indication of interest from Rensselaer Polytechnic University concerning a new special nuclear material license for testing low enriched uranium fuel.

To address potential challenges in the medical isotopes production arena, we are actively supporting the interoffice agency group related to medical isotope production systems. The Staff is also

working on a response letter to American Medical Isotope Corporation on a proposed licensing framework.

In addition, Staff visited B&W in March to discuss aqueous homogenous reactor technology and held a closed meeting with Coqui Radiopharmaceuticals in April to discuss licensing plans and schedules.

We also have a number of challenging issues related to consistent implementation of the integrated safety analysis.

The Staff completed initial ISA summary reviews in 2008 and recently revised a standard review plan for licensing fuel cycle facilities. This revision incorporates lessons learned from the ISA summary reviews. However, there remains a number of ISA issues that Staff and industry have identified during licensing reviews and inspections.

These include the use of design features and bounding assumptions to meet performance requirements, and the appropriate destination of items relied on for safety.

To address these issues, the Staff has held a number of public meetings with industry and plan to continue these interactions.

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As part of our continuous improvement efforts, we are conducting a lean six sigma review of the operating fuel cycle licensing process. The goal is to improve the process to ensure consistency with confidence for repeatable high quality and timely issuance of licensing actions.

We are also upgrading the fuel cycle reviewer and project manager qualifications requirements, and have established metrics to monitor progress and expectations for qualifications.

As I mentioned previously, we have updated the Standard Review Plan to incorporate lessons learned from the past eight years of licensing experience with Subpart H to 10 CFR Part 70.

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In the area of international safeguards and nonproliferation, the NRC continues to participate in U.S. government international nonproliferation obligations and policies through its statutory responsibilities and through its support for implementing requirements established by treaties between the United States and international communities, including the International Atomic Energy Agency.

NMSS activities in implementing these

obligations and requirements include supporting the U.S. Government in applying international safeguards in the U.S, such as through its material control and accounting requirements.

We also work with Federal partners to review and coordinate activities related to international safeguards.

The U.S. has been and remains a strong proponent for, and adherent to, international safeguards, including implementation of the Voluntary Offer and the Additional Protocol.

Currently, no NRC licensees are selected for Voluntary Offer safeguards. However, the IAEA has indicated its intent to select LES.

These safeguards will depend on U.S. Government funding and will employ novel safeguards techniques. In January, NMSS coordinated an IAEA visit to the LES site and discussions with IAEA are ongoing.

For new facilities have been selected for Voluntary Offer safeguards, NMSS is working with licensees and applicants to develop and implement IAEA safeguard approaches. To date, in addition to LES, this work has included AREVA and GE Hitachi.

And this effort, which includes “safeguards by

design,” are being coordinated with NNSA.

NRC is working with the U.S. Government to prepare for an anticipated request by the IAEA for a complimentary access short notice safeguards inspection under the Additional Protocol. This will be the first under this treaty.

Our challenges in this area include the transition to the computerized Additional Protocol reporting system with web based Department of Commerce/NRC data collection forms. Funding issues at Commerce have cost delays in employing the system.

Another challenge is developing safeguards concepts at new facilities that are acceptable to the IAEA and, at the same time, protective of sensitive information and technologies.

To accomplish this, NMSS Staff will continue to work with licensees and will continue to collaborate with NNSA on safeguards development.

And that concludes my presentation. I'll now turn it over to Lawrence Kokajko.

MR. KOKAJKO: Good morning, Chairman and Commissioners.

In response to the evolution of the current national disposal program, we have developed and begun

implementing the strategy to address future regulatory challenges related to management of spent nuclear fuel and high level waste.

Our strategy has a goal of assuring that the NRC treats the regulation of this material as a system of interrelated activities, so that decisions made about one components adequately considers and integrates related components.

By coordinating the approach for regulation of spent nuclear fuel, potential reprocessing, transportation and disposal, the NRC can improve the efficiency and effectiveness of its regulatory processes and provide stability and predictability.

Next slide, please.

At present, we are implementing a number of actions, including developing revisions to NRC's regulatory and analytical tools to consider waste disposal alternatives, developing a framework for licensing and regulating reprocessing facilities and evaluating the technical regulatory requirements to support extended long-term dry storage and transportation of spent fuel.

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The nation has now entered a period where

the national policy for storing and reprocessing and disposal of spent nuclear fuel and high level waste is being reexamined by the Blue Ribbon Commission on America's nuclear future.

This reexamination may result in the need for extended spent nuclear fuel storage, transportation of older spent fuel, reprocessing and a revision to the regulatory framework for high level waste to consider disposal alternatives. These developments may fundamentally alter programmatic and technical assumptions that govern the NRC's current approach to the regulation of spent nuclear fuel and high level waste.

And, I might note as Cathy has pointed out that we are following the Commission activities and expect to continue and expand our engagement with them.

At this point, we have some lead time to develop new regulatory tools should --

CHAIRMAN JACZKO: You mean the Blue Ribbon Commission.

MR. KOKAJKO: The Blue Ribbon Commission, yes. But we'll continue to interact with you too, sir.

At this point, we have some lead time to develop new regulatory tools, should the NRC have a role in

licensing another geologic repository.

At present, our regulatory program is focused on one site. It will take time and effort to retool our regulatory framework to consider other alternatives.

This can be lessened if we leverage the capabilities that we have developed over the past 25 to 30 years that covered site selection, site characterization and licensing.

I might add that we have reengaged with the international community so we can get the information from them and learn their approaches as well.

Next slide, please.

This plan provides a systematic approach to integrating regulatory activities for the back-end of the fuel cycle.

The primary objective of the plan is to facilitate integration of regulatory requirements across core program areas by identifying critical interfaces and interdependencies, identifying and filling regulatory gaps created by the evolving national policies and industry practices, and increasing the efficiency and effectiveness of current and future regulations in regulatory practices by identifying and adopting common definitions, assumptions, methodologies to eliminate

duplication of effort.

Under this plan, potential changes in NRC's regulatory framework or practices will be analyzed using an assessment tool, which was used to promote integration in the plan and was patterned after the International Atomic Energy Agency's methodology to develop and integrate regulatory activities for the back-end of the fuel cycle.

Specifically in terms of disposal, we intend to assess the regulatory gaps associated with different waste forms and different waste disposal media. And, in the process, develop a flexible total system performance assessment tool for a variety of disposal options.

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In regard to reprocessing, the SRM in response to SECY-07-0081, the Staff was directed to perform a gap analysis and provide a technical basis for establishing the reprocessing regulatory framework.

In May 2009, Staff completed the gap analysis and in it, the Staff recognized the need to harmonize efforts for a few of the gaps, which will impact that framework.

Ongoing rulemaking efforts, such as the one for depleted uranium and unique waste forms and the security rulemaking, will directly affect the reprocessing

facilities.

Staff is coordinating integrating these efforts, realizing that delays in one rulemaking can impact the overall framework.

A few weeks ago, the Staff provided an update to the Commission on the status of the efforts to establish the framework to license and regulate a reprocessing facility.

Staff's intention has always been to keep pace with the nuclear industry's interest and intent.

The industry continues to support sustained progress on the framework, and a revised framework by 2015 would continue to support the pace of their activities.

Staff recognizes that significant challenges associated with such a comprehensive effort to revise the framework for reprocessing, with the backdrop of an uncertain national direction with regard the managing spent nuclear fuel, the process to revise the framework will involve resolution of complex technical and policy issues that are of important concern to many stakeholder groups, such as nonproliferation, waste management and environmental concerns.

This effort will also likely involve extensive

inter-agency coordination on such aspects as transportation and limits on environmental releases.

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As part of the development of the regulatory basis, public workshops are being planned, which will provide an opportunity for increased stakeholder input to the framework.

The outreach will be modeled after several successful approaches that were recently applied to other rulemaking efforts, and as I mentioned, the workshops for depleted uranium and unique waste streams.

These workshops will be a venue to discuss significant technical and policy issues and obtain perspectives from a wide variety of stakeholders.

In addition, the Staff will continue to engage its international counterparts in countries having operating experience with reprocessing.

The NRC Staff has participated in regulatory and technical information sharing sessions with Staff authorities and operators in France, the UK and Japan.

In December 2009, Staff discussed the areas of risk assessment in material control and accounting with its counterparts in Japan. The agency is planning a

similar information sharing session with France, for September. That will include discussions with the French counterparts on waste management and other topics relevant to Staff's ongoing efforts.

In parallel, a report is being developed to examine environmental concerns associated with these facilities.

If Staff moves forward with rulemaking following completion of the regulatory basis, an environmental impact statement will be initiated.

That concludes my presentation. I'd like to now turn it over to Vonna Ordaz.

MS. ORDAZ: Thank you, Lawrence.

Good morning, Chairman and Commissioners.

Next slide, please.

In February, the Commission directed the Staff to undertake a thorough review of the spent fuel storage and transportation regulatory programs to evaluate the adequacy for extended storage periods beyond the 120 years considered up to this point.

As directed, the review will include the regulations, guidance, standards and processes that make up the regulatory framework.

The Commission also directed the Staff to undertake research to bolster the technical basis of the

regulatory framework in support of extended periods, and also to leverage ongoing improvement initiatives as appropriate.

The Commission direction included several other activities, such as considering risk-informed and performance-based enhancements, to improve efficiency and predictability, examining ways to incentivize the adoption of state-of-the-art technologies, and considering the experience from the Multi-national Design Evaluation Program.

And where appropriate, consider efforts to harmonize international standards. The Commission directed the Staff to provide a project plan for approval that includes objectives, projected schedules and potential policy issues.

The Staff provided a project plan for the Extended Storage and Transportation Regulatory Program Review to the Commission on June 15.

The plan was led by the Division of Spent Fuel Storage and Transportation in NMSS, in coordination with 10 NRC offices and four Regional offices, to appropriately consider the front and the back-end of the fuel cycle.

Many thanks to our colleagues for these efforts.

The project plan is publically available and was provided to the stakeholder panel earlier this week.

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The project plan scope involves two goals to enhance the regulatory framework.

The first goal is to implement near-term regulatory improvements to our current storage and transportation framework for efficiency and effectiveness.

The improvements will target streamlining, integrating and enhancing the current regulatory program to meet emergent needs for interim storage and transportation.

These improvements will also be applicable to future licensing and inspection activities related to extended storage and transportation.

The process improvement reviews will include a thorough review of the internal procedures, guidance and regulations the Staff uses in certification, licensing and inspection activities. This includes the Part 72 general license and cask certification processes that are used by most Part 50 licensees for dry spent fuel storage, the site specific storage licensing processes and the Part 71 certification of spent fuel transportation.

The Staff intends to focus on several areas,

including the compatibility and integration of the transportation and storage review processes and the rulemaking process to approve storage cask designs for use by a general license.

The Staff initiated a lean six sigma of the general license process earlier this year, which will be integrated into this overall program review.

And over the past couple of days, we hosted a licensing conference and received very valuable feedback and insights from many of our stakeholders here today, which will also be considered in our regulatory process improvements.

The Staff intends to complete most reviews of review activities in fiscal year '12 and update internal procedures and regulatory guidance, as needed, in fiscal years '12 and '13.

If necessary, Staff would also initiate potential rule changes to implement near term improvements, with a targeted completion by fiscal year '15.

The second goal is focused directly on enhancing the technical basis on regulatory framework. This is to support extended storage and transportation needs in the future.

The Staff considers this to be a seven year

program to bolster the technical basis and develop additional guidance for extended storage. If needed, potential rule changes would follow to codify additional regulatory requirements for extended storage and transportation.

Inherent in this review is the consideration of the transportability of the storage cask components and its spent fuel after extended storage periods to be able to determine whether the spent fuel can be reasonably handled and safely transported from sites.

The Staff intends to enhance the technical basis of regulatory framework in each of the three areas of the NRC's mission; safety, security and environment.

We will initiate gap assessments and a staggered approach to systematically identify additional research and analyses that are needed to support future extended storage and transportation.

The gap assessments are meant to identify technical and regulatory differences between the current well-founded regulatory framework and that which may be needed to support extended storage and transportation.

The additional research related to aging will be a multi-year effort.

Upon completion of the additional research, the Staff will develop any necessary guidance updates and potential rule changes. Although the time needed to enhance the framework is highly dependent on the issues identified through the gap assessments, the Staff is projecting that the guidance and technical bases could be enhanced by fiscal year '17.

The significant challenge will be addressing aging phenomena beyond 120 years and evaluating the scope of assumptions regarding external factors that may influence the safety and security of dry cask storage beyond the next century.

These include long-term site characteristics and resources as well as potential changes in national policy and industry practice for managing spent nuclear fuel for an extended period.

Initially, Staff has chosen a 300-year time frame as an analytical bound for extrapolating data in performing various time dependent assessments.

The extrapolating research data and performing long-term assessments may result in various degrees of uncertainty that must be identified and considered by Staff.

An enhanced regulatory framework and technical

bases for extended storage and transportation will likely include updated procedures, standards, guidance and regulations that address analytical aging management plans for the analysis, monitoring, maintenance and mitigation of aging effects during the extended storage and transportation periods.

Also important to note that the Staff efforts for the external industry initiatives could identify time frames within 300 years that could require significant mitigation actions that could be necessary during dry cask storage, as well as the need for new design features and methods to monitor and inspect cask components in spent fuel while in dry storage.

On the next slide, I'll discuss Staff participation and industry and DOE research activities related to technical evaluation and research of extended storage.

Finally, as part of the plan, the Staff will apply several cross-cutting strategies to both near-term improvements and extended storage and transportation enhancements as appropriate.

These include things such as risk-informing and performance enhancement, promoting the development of domestic codes and standards to support extended storage and transportation, promoting international

cooperation, incentives, exploring incentives for adoption by the industry of state-of-the-art technologies and, of course, ensuring that stakeholder involvement is included in the future changes.

I would like to highlight, we did have a recent international conference of spent fuel management in Vienna earlier this month. It was very encouraging, there were over 41 countries represented.

There was some significant interest in the NRC's activities, in particular, representatives from the IAEA, Japan, Germany and the UK expressed an immediate interests in our efforts and looking to help harmonize with those standards.

Next slide, please.

We expect research related to material aging will be a multi-year effort needed to enhance the regulatory framework.

We have ongoing materials research in the area of high burnup fuel, and recently initiated an aging gap assessment for extended storage and transportation.

The materials aging research will consist of identifying and ranking aging phenomena and potential issues based on our current knowledge base, conducting additional research and aging modeling to determine the

impact and importance of these issues and participating in a potential long-term cask demonstration with the EPRI, which is the Electric Power Research Institute extended storage collaborative program, by performing an independent evaluation of the data generated from the cask demonstration programs. So we are very encouraged by that.

This research will include the long-term cladding behavior of high burnup fuel and potential degradation of surrounding cask structural and confinement components.

It's important to note that there is a significant diversity of cask design features, cask materials and service conditions in the current fleet of approved casks used to manage that fuel. The Staff expects this diversity to expand as the cask designers continue to innovate to meet the needs of reactor utilities. This has to be considered in our research activities.

In summary, a successful materials research program will identify important aging phenomena to consider for extended periods, predict the potential effects of aging degradation on the safety and security of spent fuel management operations and establish an enhanced technical basis for future spent fuel regulatory

activities.

Next slide, please.

The Commission has directed the Staff to identify some potential policy issues related to the thorough review of this regulatory program area.

We identified four initial issues that have potential policy implications. The first includes the approval of casks through the rulemaking process.

We currently use the direct final rulemaking process to approve new cask designs and cask amendments used by general licensees. This process occurs at the end of a safety review and requires significant agency resources. Based on a lean six sigma review of the general license process in consideration of past decade of rulemaking experience, the Staff will consider options for streamlining the current process and consider alternate means for cask approval in a more efficient way, while ensuring stakeholder participation.

Clearly, any policy issues that could arise from these options would be brought to the Commission's attention.

Next, with respect to the compatibility, some storage casks are designed with a dual purpose, for later use as a transportation package.

Typically, these casks are first certified for storage and loaded with spent fuel by licensees to meet storage capacity needs. The cask designers then later request certification of the dual purpose components for transportation.

The Staff reviews this request under a separate process and set of regulations. This approach may result in a certain risk taken by the licensee if the cask cannot be certified for transportation, especially those loaded with high burnup fuel.

The Staff will evaluate approaches for integrating the storage and transportation review procedures and associated regulatory requirements. So integrating the storage and transportation review processes may present both advantages and disadvantages to the Staff and industry.

The third item is the cladding integrity. And, basically, the spent fuel cladding has traditionally provided the defense-in-depth as the primary fission product barrier in the nuclear fuel cycle and has been relied upon to provide geometry control for criticality safety during transportation.

The regulations require consideration of cladding integrity during storage operations. However, little data

exists with respect to long-term behavior of high burnup fuel in spent fuel pools and dry storage casks.

The Staff is currently engaged in the independent research activities regarding high burnup fuel, and has identified cladding integrity as an issue with potential policy implications.

The fourth potential policy issue is the financial qualifications and assurance. This is generally founded -- the current qualifications and assurance are founded on the premise that dry cask storage is an interim operation and that the Department of Energy would provide for long-term spent fuel management, including bearing the cost of shipping the spent fuel from reactor sites to the permanent repository.

Clearly, with the uncertain future of the repository, Staff needs to consider how licensees would finance operational expenses for an extended period. A variety of options can be considered in what would be involved in those expenses.

Next slide, please.

In terms of the path forward -- the near-term path forward, I mentioned the lean six sigma review. That's underway currently and would be completed at the end of this calendar year. And in fiscal year '11 we would look

at the licensing inspection processes as they come out of the lean six sigma review.

The extended storage and transportation gap assessments – we would be initiating a gap assessment for -- the current one that's underway is on safety. There's an environmental gap assessment in fiscal year '11 that would be initiated, a financial gap assessment that would be initiated in '13, fiscal year '13, and a security gap assessment initiated in fiscal year '12.

I already mentioned some of the research activities and our stakeholder panel will elaborate on that more.

And, finally, just a brief note on stakeholders. I would like to indicate that we are encouraged, we've had a lot of opportunities to outreach with the stakeholders. We've had some recent activities and we value the stakeholder input and believe it as crucial to the success of the program review.

Thank you.

MS. HANEY: That concludes my Staff's presentation. I'd like to thank my management team, as well as all the NMSS Staff in helping us accomplish all these things we spoke about today and preparing these plans for the Commission's consideration.

And just to close by saying that we will maintain

our continued focus on the safety of the operating fleets that we have working under NMSS. And also, to continue with outreaching, our outreach efforts with our internal and external stakeholders.

Bill, I'll turn it back to you.

MR. BORCHARDT: Staff is complete.

CHAIRMAN JACZKO: I'll start with Commissioner Magwood?

COMMISSIONER MAGWOOD: Thank you Chairman. I believe you indicate that there is a goal, it sounds like there is a goal to have a rule for reprocessing sometime in the 2015 time frame, did I understand that correctly?

MS. HANEY: Yes.

COMMISSIONER MAGWOOD: What level of effort is going into that right now?

MS. HANEY: From the standpoint of Staff level of effort, right now we have a small number of resources this year (2 approximately, 2-3 FTE). Our intent is to move up over next year into the '11 time frame because we are working on the technical basis development responding to the gap issues that we have identified. The technical basis would be late next year and then we would move into the rulemaking period.

COMMISSIONER MAGWOOD: What do you expect the next opportunity of the Commission to really work with you on this, on the sort of strategy, going forward, because I know that the Commission provided guidance for the gap analysis which, as you said, was complete.

What is the next step in the guidance process?
Will we see a proposed rule at some point?

MS. HANEY: You should see -- we will have available the technical basis over the next year as we develop the technical basis, obviously, if policy issues come out of that, we would choose to bring those policy issues to your attention, sooner rather than later, obviously.

But, really, our next key product is the technical -- the regulatory basis, I say technical basis, but refer to it as the regulatory basis would be late next year. Marissa?

COMMISSIONER MAGWOOD: Thank you.

MS. BAILEY: Currently we did just submit an update to the Commission on May 14, which lays out our schedule for reprocessing, and it does have a final rule by 2015, if the Commission directs us to pursue rulemaking.

The draft technical basis we are looking at, the end of fiscal year 2011, and the final regulatory basis would

be in 2012, the first part of 2012.

There will be public outreach activities going on, as part of the technical basis development and we are always happy to get Commission input on those things.

COMMISSIONER MAGWOOD: Thank you. Let's talk a little bit about the spent fuel storage.

What's your -- from talking to the different licensees, it sounds like we might be looking at the possibility of a license renewal submittal sometime in the next 3, 4 years.

What is the Staff's plan right now to receive a license renewal application for ISFSIs?

MS. ORDAZ: If I understand that question, correctly we've already had three renewed licenses in the past. In 1986, Surrey was the original license, original ISFSI license, actually Surrey, H. B. Robinson and Oconee have all had renewed licenses in ISFSIs for 20 year renew -- sorry, 40 year renewed licenses.

COMMISSIONER MAGWOOD: So the process is already in place for this?

MS. ORDAZ: Those renewals were completed through the exemption process in the existing regulations, and the current Part 72, before the Commission will codify that requirement for a 40 year

renewal, on top of the initial 20 year term.

COMMISSIONER MAGWOOD: Thank you.

I appreciate that clarification.

Medical isotope production is going to raise some interesting new issues. Are there any gaps in the Staff expertise as far as addressing the issues associated with these different facilities?

MS. BAILEY: As I mentioned in the presentation, we are working closely with the interoffice working group on medical isotopes production to look at those gaps.

We are also, at the moment, developing a response to the American Medical Corporation on a licensing process for isotope production.

So, I think we are still in the process of looking at the gaps, including the licensing process, itself.

COMMISSIONER MAGWOOD: In particular, I know one of the licensees is looking at liquid fuel reactors. I'm curious as to whether you have given a lot of thought to that, at this point. Maybe this is not so much in your side of the house, but I'm curious as to whether there is any Staff, maybe Bill, you can respond to this.

MR. BORCHARDT: That would be NRR would have the lead for that technical review. I actually don't know. I would have to get back to you whether or not

there is any significant gaps.

We certainly have not reviewed that kind of design before.

I'm not aware of any real show stoppers that would prevent us from being able to do a timely review.

MR. LEEDS: Bill, if you don't mind, my name is Eric Leads, I'm the director of NRR.

As Bill mentioned, NRR has the lead for that activity. We have had requests for responses to potential policy issues, which the Staff provided to the Commission. We responded back to the licensee on how to handle some of the issues that are going to come up with liquid spent fuel, in terms of how it's classified, and how the reprocessing will work for that.

We are very active, looking at that potential application right now, Commissioner. And as we go along, if there are any policy decisions, or if we find that we have a gap in technical expertise, we will make the Commission aware.

COMMISSIONER MAGWOOD: Thank you.

One last question about -- actually, I'm going to go back to spent fuel storage for a moment.

Obviously, one of the more difficult policy aspects of the spent fuel storage situation, is the fact we have

spent fuel being stored at sites where there are no longer operating reactors.

And I imagine Staff has looked at this. Are there special regulatory issues that arise from having ISFSIs sitting in, basically, in the middle of nowhere, with no reactor around? What issues should the Commission be paying attention to in a situation like that?

MS. ORDAZ: One of the reasons for all the different gap assessments that we have, including the safety gap assessment, the security, the environmental, the financial assurance. We are looking at all of those, as we go through and step through the requirements, or the items in this plan, to be able to explore all of those.

There could be a variety of things, differences between the way the regulations currently exist and how those would be handled, when we are looking at long term storage.

COMMISSIONER MAGWOOD: Of course, we have some right now. So what issues do you think we should be thinking about today?

MS. ORDAZ: Well, today, based on what we have in the current licensing basis, we are in a safe and secure manner for today's activities, with the ISFSIs that we currently have at the decommissioning facilities, as

well as the operating sites.

So, what we are going to be doing as part of this plan is when we look at the gap assessments as identifying what other activities, especially possibly in the security area that could arise, that we would like to consider as part of this review.

COMMISSIONER MAGWOOD: Did you have another?

MS. HANEY: Vonna touched on the issue, probably with the standalone within the decommissioning sites, the security ongoing, what are those requirements.

Currently, we are comfortable and secure that they are safe, but it is looking forward and asking the question, do they need the level of security that they have right now and could changes be made?

Those are things that we will look through, either in Vonna's efforts, as she described under the plan that we have, or just our routine work that we are doing is constantly looking at the regulations and security for ISFSIs.

COMMISSIONER MAGWOOD: Thank you, that all Chairman.

CHAIRMAN JACZKO: Thank you Commissioner Magwood. Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman. Cathy, I want to start out in your area. I know you were very happy about assuming the new mantle of leadership in your organization, and just looking at the scope of activities that NMSS has, which is very broad, and a lot of work going on in a lot of different areas, and you have significant regulatory program reviews underway, from a resource standpoint, are there any big picture concerns you have about the ability to do all the things that are on your plate, with the resources you currently have.

MS. HANEY: I'm comfortable with the resources we have this year and next year, certainly. I could get some of these longer term, some of the longer term, not all of them, done quicker with additional resources, depending upon the direction that we go on the fuel cycle oversight program.

There are some things that with a little bit more resources we could get things done sooner.

But, I could not reduce -- you know, like a 7 year, as in the case of Vonna's case, a 7 year proposed plan, I could not bring that much shorter because some components are for long term research.

So we need the results of going through some of

this, a methodical look, and stepping through the process, and letting the research take place.

So with the way the program is integrated -- my office resources are integrated right now, I'm comfortable that we're able to meet our mission and accomplish what we need to get done.

COMMISSIONER OSTENDORFF: Just a quick follow-up. My experience at the Department of Energy a few years back -- and I think Tim kind of touched on this, and maybe Tim can take this question, if you like.

But basically, there are some niche areas of nuclear safety that are areas of concern, and criticality safety was one, trying to find people with expertise, both education and experience wise, are there any particular areas of expertise right now that cause you worry?

MS. HANEY: Yes, and I think what I would do is -- I worry, it's not a lose sleep overnight, but it is an area where I'm not as deep in knowledge as I would like to be.

And that's -- probably the first area that I would turn to is fuel cycle, and I'll let Marissa touch on that.

MS. BAILEY: I think you mentioned criticality safety, that is an expertise that takes time to develop, especially in reviewing fuel cycle processes. So that's

one area of expertise that, while we are not in a critical point right now, we do need to think about succession planning, and developing Staff.

The area of risk assessment -- NMSS activities, especially fuel cycle activities are becoming more and more risk informed, and becoming more and more, using a lot more risk methodologies, and so, again, that is an expertise that takes time to develop.

The chemical process, engineers, and electrical engineers. Digital I&C.

COMMISSIONER OSTENDORFF: Lawrence, I want to turn to you for a minute, please, and I want to ask your perceptions on the future of our San Antonio research activity there at the Center for Nuclear Waste Regulatory Analyses, and I know it supports your program.

I wanted to see what you saw as both the short and long term viability of those efforts, with respect to waiting on some other decisions out of the Department of Energy on High Level Waste.

MR. KOKAJKO: Yes, sir. Well, the short term, I believe the center is certainly viable. I believe we have sufficient resources in FY-10, and I think for the projected future, that they will be able to maintain

support for, not only my program, but for work for other parts -- work for other portions of the program within the NRC.

As you may be aware, this is a FFRDC, a Federal Funded Research and Development Center.

It has a five year contract, and of course we will have to consider, as we always do, consider what we will do with those resources at some point.

But, I, for the projected future, I think we're probably pretty good, for the support from them, and in terms of the skill set they have, which is across a spectrum of activities.

COMMISSIONER OSTENDORFF: A follow-up, Lawrence, on high level waste issues.

You mentioned, I was encouraged that you have a strong engagement with international partners with high level waste disposal issues.

And I was just wondering if there is any particular model or principles that are being employed in other countries that you suggest the Commission pay particular attention to in this area?

MR. KOKAJKO: That is a great question.

We only recently reengaged with our international counterparts, and, quite frankly, under the current

program, we pretty much ceased those activities except for a few basic areas, such as a forum for stakeholder confidence, which Janet Cotra chairs, as well as the general joint convention activities.

We are now reengaging, given that the program is evolving to a new place. Recently Staff has been to Japan and Korea. In fact, tomorrow I expect to leave for Germany, Sweden and Finland. And we also have other upcoming trips planned to try to understand some of the programs.

We are following -- and recently we also had a person over in France -- we are also trying to follow what they are doing, and take their best practices, and be prepared for whatever regulatory changes that we may need to assess. And of course, we are monitoring the Blue Ribbon Commission's work, and actively following them, and look forward to their draft and final report in the not-too-distant future.

COMMISSIONER OSTENDORFF: Vonna, a question in your area. Recognizing there are some significant project plans out there for regulatory program reviews under your responsibilities. Is it your sense that those program reviews have sufficient flexibility, in the event that the national waste strategy changes?

MS. ORDAZ: Absolutely. The program is not to change the national policy but to be informed by the national policy, such that there is inherent flexibility, as we proceed through the years of research and other reviews, and potential regulatory processes, that we are informed by anything that comes out of the Blue Ribbon Commission or other changes that occur.

COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Svinicki.

COMMISSIONER SVINICKI: Thank you all for the presentations.

Lawrence, I just want to make a comment, and I wanted to -- I would like to commend you and your Staff for, I think, their very model of professionalism, in terms of maintaining a mission focus and commitment in what is, you know, a very dynamic time. It is very difficult to do.

So, I just wanted to make that comment, and I hope you will carry that back to your team, because I'm very grateful for their focus and the hard work that they are doing.

On the two plans, I'll just confess to real fundamental confusion. Cathy, you talked, about,

because there was a plan that came on June 15 and June 21. Can you help me understand, is one a subset of the other, or is the June 21st, is this kind of the public plan that we are going to keep updated, and the plan that came on the 15th is in response to the SRM?

Is that the difference there, because there are a lot of overlap?

MS. HANEY: There is a lot of overlap.

The one that came up on June 21, which is for information purposes is the overarching one, which is really an NMSS level plan, if you want to look at that, although we can't accomplish that alone.

The paper on the paradigm, the one that actually came up first, really, is a subset of the integrated strategy. That one was developed in response to the SRM that we had on the spent fuel storage and transportation area revisiting the paradigm.

So that one is a subset of the June 21st paper.

COMMISSIONER SVINICKI: So as the Commission acts then on the project plan submitted on June 15, then you would inform this overarching plan, subsequent. And I know that the plan on June 21 talks about this will be somewhat of a living document, so you would make any subsequent changes there?

MS. HANEY: Yes.

COMMISSIONER SVINICKI: Thank you for that.

I wasn't sure, because they looked very similar, and I got them in quick succession, so thank you, that was very helpful.

I would like to turn -- it is something discussed in both of these plans, which are the two elements in Vonna, I think you talked about this most specifically.

And this is the security and the financial assurance discussions. And in security, maybe this follows on what Commissioner Magwood was asking you about when he said: Well, we have standalone, independent, spent fuel storage facilities right now.

So if we have considerations on security, it isn't something -- correct me if I'm wrong -- it is not something that becomes an issue in the 121st year. It is something that, since we have standalone ISFSIs right now, so some of my confusion, I think, is that I understand us to have a regularized approach and assessment to what security requirements are needed at any particular nuclear installation, so it's not something that the Staff would just be looking at from year 121 to year 300, it would be something that all along the way we would be assessing.

So, what is the differentiation that, as we look at beyond 120 years in security, for security for ISFSIs, is there something truly new that manifests outside of the 120 years?

MS. ORDAZ: At this point, it's too soon to tell you. quite honestly. The thinking is, clearly, the current security in place is sufficient and adequate for today's ISFSIs.

In looking at the gap assessment, a lot of this we're in the beginning stages, and our colleagues in NSIR would have the lead for this, clearly, to look at today's requirements verses what the possibilities, or what the realm of possibilities could be for tomorrow, you know, in looking at storage for the future.

Meanwhile, as we are going through this, and the security assessments don't start for a couple of fiscal years from now, clearly working closely, and understanding what the industry's plans are you might hear some more of that later this morning, but depending on what those plans are, we need to look at the gap assessments, in terms of being able to address security for all types of situations, whether that be centralized storage and other activities.

So, at this point in time I don't see anything new

that we can reveal right here. Clearly looking at this self-protecting aspect in that time frame is something of consideration in the security area.

COMMISSIONER SVINICKI: Again, my input is just that, let's not get too bifurcated in our thinking.

We have to make sure the installations are safe and secure continuously, so there isn't really anything magical about the extended period that causes it to be so unique.

Certainly we need to look, and the same is true, as you mentioned in the cladding area for just basic physical phenomenology, we need to be looking at what we know all the way along. We've had this issue on the paucity of data regarding high burnup fuels and things like that. That is an issue, whether or not you are looking up to 120 years or beyond.

So some of this is a continuum, and I just don't want to see us have a whole different frame of reference for the extend period. Because a lot of these are just our safety security mission that just continues all the way along, and I'm hearing from you that that's what is intended here?

MS. ORDAZ: That's correct. And the reason why we put the 300 year time frame down, that was truly for

analytical purposes, so we can look at from a function of time through the years and extrapolate the data and research accordingly.

COMMISSIONER SVINICKI: That brings us to an interesting point.

When I had spoken to some of the technical folks in NMSS over the years, you know, a lot of times scientists and engineers think in terms of ranges for an aging phenomenon, and we, I think, are somewhat concerned about high dried reorientation, in terms of long term spent fuel storage. Those things emerge over ranges of periods of time. So is there any consideration given to say, you know, this phenomenology becomes of concern over, you know, 200 to 500, or a thousand years and beyond?

Is that some of the thinking, because I think sometimes we are challenged with the precision that we put on some of these longer time frames, when we are really concerned about some phenomenon that will emerge over a extended period of time.

MS. ORDAZ: The answer is yes. We are looking at all possibilities, including ranges.

We recognize things that evolve in 200, 300, many years from now, so we just need to look at all

possibilities.

COMMISSIONER SVINICKI: And the last point I would like to discuss with you is the financial assurance look that the Staff wants to do, and again, in reading the, one of the two plans, it might have been the one in response to the SRM, there was a discussion of the fact that we needed to relook at financial assurance requirements for longer periods of time.

The concern that that raised in my mind is that -- and so I'll ask if this is something you intend to do, because if you don't intend to do it, I don't need to be concerned about it, but, obviously, these are matters that have been litigated in terms of liabilities, and the NRC has had no role in that. And so, I hope that what we would not be doing is wading into that and making our own independent determinations about liabilities and damages and things like that, because a lot of that has been litigated, and judgments have been made.

So, I hope that what we are not doing is saying, well, we cast some doubt on that continued finding of liability, and we're going to say that the financial assurance requirements need to be different.

My caution is I'm not certain that it is really an area for us to wade into.

MS. ORDAZ: I understand completely. You're correct, we are not looking to change any of what currently exists, but just simply to explore and be prepared for the future.

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

CHAIRMAN JACZKO: Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman. I'm still learning about the wonderful world of nuclear waste. So I appreciate the Staff's presentation.

I have just a few questions.

Lawrence, you mentioned that the Staff is developing tools for the evaluation of disposal alternatives. Can you give me an example or two. I assume you mean alternatives to deep geologic disposal.

MR. KOKAJKO: It could be or some alternative media. Instead of the salt it could be clay, granite, or something like that.

Right now we have developed a tool over many years, called our performance assessment tool, which is geared toward a specific site.

We believe that tool can be made flexible. Many of the features that are in it can be enhanced, and this is of course our equivalent to a risk assessment that we

would have in a power plant, or an ISA in a fuel cycle facility.

We believe that the benefits gained will allow to us look at a variety of waste forms, as well as disposal media. And for whatever direction the country may take, we will be prepared for it, and we will have some rudimentary understanding, at the get-go, and it will only be refined and enhanced over time.

COMMISSIONER APOSTOLAKIS: Coming to the international activities that Commissioner Ostendorff referred to. I attended a couple of meetings several years ago, international meetings on high level waste disposal, and it didn't appear that the international community has accepted performance assessments as the tool for licensing facilities.

Is that still the case?

Are we the only ones that thinks highly of performance assessment?

MR. KOKAJKO: I don't think so.

We all have to have our own vehicles, tools to assess their programs and the performance of their proposed repositories.

I think they may call it something different but I also think that, based upon those countries unique

approaches, they have revised things in a very different way.

This does not, of course, negate some of the other tools that we could use, such as a PRA, because there are many engineering functions which would still be involved in our assessments, but, for geologic disposal, or people who are using natural systems, I believe the performance assessment, whether you call it something else or not, is still a reasonably valid approach.

COMMISSIONER APOSTOLAKIS: It appears to me we spend much more time trying to understand the uncertainty and quantify them.

Is that still the case?

MR. KOKAJKO: That is a big part of what we do. When you deal with natural systems you can't possibly know everything that could happen, but these are our informed judgments, based upon a variety of research, as well as years and years of dedicated study.

And our performance assessment tool now has been revised many times. I think we're on the fifth major revision of it, starting from a very rudimentary piece, all the way up to today.

COMMISSIONER APOSTOLAKIS: By the way, I was very pleased to hear you say that you're taking the

systems approach to the various elements of the waste disposal issue. That's very good.

Tim, you're trying to preserve knowledge. What kind of knowledge is that, in particular? I assume you're trying to preserve models and all that, but, I looked at, again, some time ago, at high level waste performance assessments, and there had been several peer review groups, including international groups, that have made excellent comments, and then the analysts had to respond and all that.

Is that part of what you're trying to preserve, in other words, I can go to your system and find that there was a review in 2001 by an international group, and here's what they said? Because I find those to be extremely useful, because those reviewers are usually very frank, as opposed to reading, am I asking the wrong guy --

MR. KOKAJKO: Tim, if you don't mind.

We have been engaged and in fact will be increasing and enhancing some of our knowledge management capture efforts.

We realized some years ago that there were mature people in our organization and they would be retiring, and we began to start trying to talk to them and

would capture them on video, we have them on CD, to say: what are the things that you did or learned about, as we began to move into the high level waste program, and we have captured much of that.

We will be doing even more so. In terms of the international community we do maintain some of the records of those conferences. We do try to send people to them, all the major ones, to understand the best practices and where things may be evolving to over the long term.

The thing that Tim talked about earlier is more related to trying to capture individual knowledge, and to understand what they did, what made them know what they know, and how did they apply it. And there's been some interesting insights that have been gleamed from those things.

COMMISSIONER APOSTOLAKIS: My specific question had to do with peer review comments. Are these somewhere where people can find them?

MR. KOKAJKO: Absolutely.

This programs for many years with the Staff at the Center, as well as our own Staff here, participated in a number of conferences, all the material that was generated, typically, is peer reviewed, both internally,

and in some cases that go into journals that are published professionally, are all peer reviewed. And many of them are peer reviewed internationally.

COMMISSIONER APOSTOLAKIS: Now I heard the magic words of lean six sigma.

What is that?

Is that something new, or why is that something that this agency finds very useful?

MR. BORCHARDT: Well, Commissioner, lean six sigma is an improvement process that has been in existence for many years, I think.

Government wide, I think it's received extensive use in the Department of Defense over the years. We started using it four years ago, maybe. And we've actually had some very positive results out of it.

It is just a business process improvement methodology, that has a structure, has a qualification program for people that lead the individual processes, and we would be happy to give you a briefing on the topic, if you're interested.

COMMISSIONER APOSTOLAKIS: I am not.

My question is really, are you doing anything different now because you are using lean six sigma that you were not doing before? And I suspect --

MR. BORCHARDT: Many things.

COMMISSIONER APOSTOLAKIS: Many things?

MR. BORCHARDT. Yes, we've used lean six sigma in a number of processes, ranging from administrative functions, like contracting actions, to some technical review areas. And it's just -- it allows the quality to stay at the same level, or sometimes even improve, but reduces the time duration that it takes to do any given task.

So it resulted in considerable savings for us in a number of areas.

COMMISSIONER APOSTOLAKIS: Okay, well --

CHAIRMAN JACZKO: Change your mind about the briefing?

COMMISSIONER APOSTOLAKIS: I might in the future. Because there are a lot of these buzzwords that go around, and I never heard the words used in the reactor area, but maybe I'm out of date.

Well, thank you, Mr. Chairman.

CHAIRMAN JACZKO: A couple of questions on the extended storage and transportation plan.

As I read the plan, it says that there is two main goals to identify and implement the improvements to the efficiency and effectiveness of the licensing inspection

and enforcement programs, kind of within the current technical basis, and to enhance the technical and regulatory basis of the existing regulatory framework to support ultimately this extended storage and transportation.

As we look out over the future, there seems that kind of embedded in there, there are activities that are really needed to really support this extended storage and transportation. And then there are activities that would be nice to do that would be enhancements.

As you look at the plan right now, is it broken down or easily separated into those two kinds of categories, or is it all kind of inter-mixed throughout?

MS. ORDAZ: Basically, many of the activities are needed to be performed in series, based on what they are.

But in the near term initiatives which, based on licensing conference this week, and a forum last month with the industry, there is a number of regulatory improvements that we are kind of in the midst of relooking at, as we speak. So, in addition to the lean six sigma, so those activities are currently underway so there is a lot of energy and momentum on that, as we speak.

But the other ones, in terms of the gap assessments, again we've initiated work on that.

You will hear some more from the stakeholders, I believe, later this morning, on some of their activities and we are doing some independent assessment of things.

So some of it is timed in coordination with that, so we can be the same time line -- but, in terms of the gap assessments, until we find out what comes out of all these different gap assessments, we will know what additional research may or may not need to be bolstered for the future. So they are somewhat staggered, if you will from a timing standpoint intentionally.

CHAIRMAN JACZKO: But, if necessary, if we needed to make choices based on priority, something like doing the lean six sigma on cask certification reviews or licensing activities for cask certification, that may not be something that has a direct safety nexus relative to some activity we may need to do to implement a new rule to ensure better cladding integrity after 200 years.

It's possible to differentiate those things that are really needed from a safety perspective versus those things that are process improvements and enhancements

that don't necessarily come to that ultimate safety answer.

MS. ORDAZ: That's correct. There are in some cases different groups. We have technical folks working on the technical issues and the gap assessments and the licensing group working on the regulatory improvements, so in some cases there are two different bodies. But, yes, they can be modified.

CHAIRMAN JACZKO: As I went through the plan and I had not gone through all of it in detail, one thing that did strike me very early on we indicate that we are not going to address research reactors, spent nuclear fuel production reactors, spent nuclear fuel Naval reactors, spent nuclear fuel defense high level waste, or potential reprocessed high level waste.

Seeing as this is intended to be a plan to really look kind of far into the future, to whatever, far into the future is a relative term, a subjective term, but we're looking at several hundred years, and perhaps looking at a new paradigm, those may all be fuel types and fuel elements that we will have to play into whatever true extended storage and transportation program we have.

I'm wondering if you can give me some insight. I may be misreading that statement, or maybe you can

give me a, Lawrence or Vonna, give me some insight about why that is not a concern to you. It was an immediate concern to me, perhaps I can say it that way.

MS. ORDAZ: In terms of the direction from the Commission, we were looking at a comprehensive approach, but staying within the bounds of some resource limitations, so part of it was scope in nature, but looking at what may be the near term higher priority items, which you can offer, would be in the spent fuel area. So we did it in terms of priorities there, but clearly, it is an evolving plan, we are going to be informed by stakeholders, yourselves, Commission direction, and it's subject to change.

CHAIRMAN JACZKO: So if you were to look out beyond the near term, at some point, would you see that this is an issue that is going to need to be addressed?

MS. ORDAZ: It could be, yes.

CHAIRMAN JACZKO: Turning to a couple of other topics. One of the issue that will be very new, and I think Cathy or Marissa, you touched on this, the potential application of IAEA safeguards to facilities under the voluntary offer.

In the past, I know we heard from LES, or from others, about that particular process, and concerns that

they may have with the application of safeguards.

Can you give me an update on where we stand right now? Do we still see challenges or any issues with -- in particular, perhaps with the use of novel safeguards monitoring equipment, and issues like that?

MS. HANEY: I would say we still have concerns, we're still watching it. It's evolving as we are speaking.

Today there are no significant concerns, but it is something that we are monitoring on a daily basis, almost as we would see something that would be significant, we will let the Commission know. But right now things are working through the process that we would anticipate of making something like that, and being supportive to IAEA work.

CHAIRMAN JACZKO: What's the time frame for a final decision and then implementation of the actual monitoring program, equipment installation, whatever would be necessary?

MS. HANEY: I would have to get back to you on that one, I don't have that.

CHAIRMAN JACZKO: That's fine, if you could provide that to us it would be good.

One of the significant activities that we'll be undertaking, I think Marissa falls in your areas on the

review of the uranium deconversion facility, and that's upcoming. This will be a new review for this agency, or at least in recent time.

Are there any issues that you see, going forward with the review, any challenges you are seeing, in terms of a regulatory infrastructure, any safety issues that you are seeing, as we go forward?

MS. BAILEY: Not at this time. We just initiated a review, and we're about to initiate the environmental review. So, no, at this time we don't see any potential challenges of that review.

CHAIRMAN JACZKO: The last question I have and this perhaps touches on, I think, Tim, your response to Mr. Ostendorff's question about important skills.

One of the things you talked about was chemical hazards. That's not a traditional area for the NRC, but given the Homeland Security legislation and the relationship between the Department of Homeland Security and Nuclear Regulatory Commission when it comes to regulating chemical hazards at nuclear facilities, the current approach is for the NRC to play a more dominant role in that area.

For those facilities that are already regulated by us, from a nuclear perspective, I know we have papers

coming to the Commission to look at how we would do that.

But as we're looking to address the policy issues there, do we have a challenge right now that if the Commission were to say, do fairly sophisticated chemical reviews, that we would not have the resources or the skilled personnel to be able to conduct that kind of hazard analysis that we might have to do in that context?

MS. BAILEY: You will need to ask the question again.

CHAIRMAN JACZKO: We -- the Commission may be embarking on a greater role in dealing with chemical hazards at nuclear facilities, because of our responsibilities under the Chemical Security Act and the exemption process established for facilities that are chemical facilities but also have a nuclear component.

And I think Tim mentioned that chemical hazard analysis was an area of weakness in our skills.

So is there a problem right now that if we were to embark on that, we don't currently have the people do those kinds of analyses?

MS. BAILEY: No, I don't think so. I don't think that that's a problem right now.

We do have some -- I think we have the skill at this

point.

MS. HANEY: Let me just comment on that one.

We do have the skill set at this point to do it. But, again, it's -- they are very unique skills that we have. We are not very deep in that particular area, but, of course, with FTE limitations within the office, we have to balance all the different needs that we have.

So it is one of the areas that we do focus on.

CHAIRMAN JACZKO: Well, certainly, I think as that paper comes, I think, sometime late this fall, we are expecting to see something from the Staff about that. Keeping in mind that resource limitation I think that will be important as we look at what options we could or couldn't consider.

Well, again, I appreciate the presentation and would certainly echo Commissioner Svinicki's comments about all the work all of you have done, in particular, Lawrence, your Staff dealing with a very uncertain environment, and appreciate everybody's hard work and the work you have done. Thank you very much.

We will have a quick five-minute break and began with the stakeholder panel.

(Whereupon, a recess was taken.)

CHAIRMAN JACZKO: We will get started with our

stakeholder panel.

I believe Mr. Schwab is here, but not currently in the room, so he'll take his seat as we get started.

We will now hear from a panel of stakeholders who will discuss their perspectives on spent fuel management.

And the Commission is pleased that we have the opportunity to hear from such a broad range of stakeholders, including governmental, advocacy, research and industry representatives.

I'll just take a brief moment to introduce the stakeholders and then we'll begin with their presentation.

We have, to my left, Steven Kraft, who's the Senior Director for Used Fuel Management at the Nuclear Energy Institute.

John Kessler, who is the Manager of High Level Waste and Spent Fuel Management at the Electric Power Research Institute.

Mr. Patrick Schwab, who is the Acting Director of Office of Used Nuclear Fuel Disposition Research and Development at the Department of Energy.

Sally Jameson, who is the Vice Chair of the Conference of State Legislators. She works with the high level waste working group.

We have Mary Olson, who is the Director of the Southeast Office of Nuclear Information and Resource Service.

And Mr. -- I apologize if I say this wrong -- Hidehiko Yamachika. Thank you. Who is the General Manager of the Washington office of the Japan Nuclear Energy Safety Organization.

So we will begin with Mr. Kraft.

MR. KRAFT: Thank you.

Mr. Chairman, Commissioners, I appreciate the invitation to be here.

If I can have the first slide, please.

I'm not going to stick too closely to the slides, because the two documents of interest, as Commissioner Svinicki mentioned, came out just recently and we were literally reviewing them over the weekend to be prepared for this discussion.

So let me just say that from the standpoint of the broader policy, that it's good to see the Commission Staff looking at the broader questions. They definitely need to be looked at going forward, relative to what's happening in policy.

But when you put the two together, it is a very broad reach of activities that have some very, very good

things in them.

And if I could just sort of delve for a bit into the spent fuel storage document, the COMSECY-10-0007, there are excellent things that are relative to near-term regulatory improvements, which was the subject of the conferences the last few days, things the industry has been asking about for a very long time, and are necessary if we're going to store spent fuel in the near term, in an efficient manner.

The rest of that plan and part of the overall plan, not to be too confusing, looks to beyond 120 years. That suggests to me that there is a lot of time available to do this in a way that we step through the right steps or right processes.

It is such an extensive document, in terms of what it will look at, that coupled with the state of affairs in used fuel management, that with unintended consequences, the Commission could be leading national policy development rather than reacting to it, which is, I think something that I heard the Chairman and many others say that is certainly not the role of this agency. And we agree.

More specifically, when we look at the different elements in the spent fuel area, we are concerned that

some are out of sequence.

Let me say it this way: That we believe there is a need to complete, substantially, the research and development first to understand what is actually technically needed to go beyond 120 years, prior to engaging in gap analyses for the regulatory development.

Certainly, gap analyses for R&D, but there are two different sets of gap analyses, as I understand the document.

And then, lastly, we believe that there could be, again, unintended, but could be some confusion among the different elements where early results from R&D get applied prematurely to regulations before things are fully understood and developed, and that could cause some confusion on licensing requirements and things like that.

Going back to the other parts of the plan, such as closing the fuel cycle, we definitely believe that the work to complete the reprocessing regulations should be done. That was identified as a need a number of years ago and we are pleased to see the Staff is doing that.

I would argue, though, that it is not reprocessing, it is a fuller closing the fuel cycle policy that is needed in this nation and that we are working towards with the Blue

Ribbon Commission, which is not to say reprocessing may not be part of that.

With regard to disposal, not wanting to argue things we shouldn't argue in this venue but, of course, we would like to see the SER completed for Yucca Mountain, but that's another matter before this agency.

But it seems to me that what needs to be done, to pick up what Lawrence Kokajko was saying, is the tool development for future -- looking at future repository locations. Not necessarily specifically looking at any particular rock type or rock body, but to develop the tools for going forward.

And lastly, let me just raise a question that I certainly can't answer from my perspective, but I think it's a fair question. That is the overall question of resources.

Let's posit for a moment that Yucca Mountain as a project, does in fact go away and that does free up resources. Is someone stepping back and taking a holistic look across to whole agency as to what the right utilization of those freed up resources are?

May very well be that this plan is the right one, but there may be other areas where resources in a resource constrained environment can be used.

And I simply raise that as a fair question. I can't possibly answer it, I don't manage the agency, the Commission does.

I think that closes what I would like to say. Thank you.

MR. KESSLER: I'm going to stick to the research side of things. I could definitely agree with Steve that having the right kind of R&D under our belts will help with -- in terms of what may need to be done with regulations in the future.

Next slide, please.

In terms of what we feel are the guiding principles to extended storage, certainly everybody is aware that reprocessing or disposal options may not be available for many decades. We don't know how long it will take to develop a new repository, if that's what happens, or reprocessing, but we can assume it is going to take quite a while.

Right now, the combination of wet and dry storage can occur up to 120 years, under the existing regulatory precedents.

By that I simply mean that one can assume that if plants run for 60 years, you can store spent fuel in the plants, in pools for 60 years.

And as Vonna talked about earlier, there are license extensions now out for dry storage for 60 years. So, theoretically, one could store things up to 120 years.

I would say the majority of the fuel, though, is not going to be stored for 60 years in spent fuel pools and majority of the plants will be certainly a lot less than that, because space in those pools need to be freed up.

Projections for 2055 sent forward, the assumption that all of the existing plants run for 60 years, is that we will have more used fuel in dry storage than in wet storage at that time.

Another thing that can be said is that extended storage in whatever system, high level waste used fuel is of global interest.

There are a lot of us in the world that are looking at this issue, that have this issue to deal with, perhaps even more so than in the U.S. for some countries that have very long-range programs for reprocessing or disposal.

While one can say that the existing in the future storage systems are expected to perform their intended function beyond the licensing period, we have to develop the technical basis for that.

My gut says we can probably go beyond 60 years,

but part of the issue is to develop the technical basis, so we can do that.

Next slide, please.

So what we looked at for extended storage aging management R&D needs, we split it up into three time periods.

The first one that we're most interested in, and I think we've been talking about the most, is let's try to maximize the life of the existing systems, as well as ensure transportability of the spent fuel whenever transportation to wherever will occur.

And we're going to be looking at additional data and analyses of long-term degradation mechanisms, very much as you heard from Vonna and Lawrence, and we will look into is there a role for enhanced monitoring and inspection as well.

For the intermediate term, you've heard a bit about the gap analyses that NRC is conducting, EPRI has conducted some already.

You'll hear about some gap analyses that NE is doing. Nuclear Waste Technical Review Board has done a gap analysis, so we expect to have a lot of information about what we expect to bubble up to the top, in terms of the key technical issues, although we have a good guess

as to what a lot of those are already.

Which leads to the intermediate term, which is evaluate mitigation and design options. Are there things that we can do to continue to use the existing systems and ensure transportability. Maybe just throw out a hypothetical, evaluate some sort of anticorrosion coding, if that's what's needed to protect the stainless steel canisters.

There may need to be revisions to the cask design, specifically for extended storage.

And then, over the long term, what we can talk about is develop a risk-informed approach to extended storage.

What I mean there is, we have to decide if there is some -- like a good discussion earlier about there's a range of time periods over which certain things may be happening.

Well, when we get into those time periods where we become less confident that the cladding will be 100 percent intact, we can make a risk-informed decision to say, okay, does that mean we need to go through the cost of both financial and worker dose cost of repackaging or doing something with that? Or do we feel that the incremental increase in risk is still acceptable

for using those systems to transport? So that's what I mean there.

Next slide, please.

We have developed -- we being -- EPRI started it, but we have quite a few members that are now participating and what we're calling the extended storage collaboration program.

We had our first workshop back in November of '09. The mission statement for the program is to provide the technical basis to ensure safe long-term used fuel storage and future transportability. Certainly focusing on both.

We're modeling the activity on the prior ISFSI licensing extension research. This was done about ten years ago with a lot of NRC research co-funding where we took a cask, it was at Idaho, reopened it, took a look at the fuel, took a look at degradation mechanisms, pulled some rods, brought those in for destructive exams to see whether there was any degradation in this 14, 15-year-old fuel that was -- had been sitting for that many years.

So right now our participants in this collaboration program include EPRI, NRC, DOE, NEI, utilities, we have the vendors and we're increasing our international

participation, which is definitely appropriate, because there's a lot of work out there that's being done.

We have a steering committee, which I'm on, Vonna Ordaz is on the steering committee representing NRC, Pat Schwab is for DOE, as an example.

We're looking at three phases. One is to review the current technical basis conducted gap analysis. That's what's going on now and you heard about that.

The next phase would be to conduct experiments, field studies, any additional analyses that would need to be done to address gaps.

And then the next phase is something that NRC Staff have expressed a lot of interest in, which is to conduct a full-scale demonstration of a high burnup dry storage systems loaded with spent fuel as high over the 45 gigawatt days per metric ton as we can.

The cost for that are quite large, anywhere from a million to 20 million, EPRI estimated quite a few years ago, depending on the degree of data that would need to be done, as well as where do you do that.

And that, to me, is one of the key points of the collaboration program. we're going to have to pool resources when it comes down to do doing some of this technical work.

So, with that, Pat.

MR. SCHWAB: Good morning. And thank you for inviting me to speak here today.

The DOE office -- can I go straight to the next slide, slide number 2.

The DOE Office of Nuclear Energy has four objectives shown here.

I will focus on objective number three, develop sustainable nuclear fuel cycles.

The Office of Nuclear Energy's organizational structure is derived from these four objectives. So we have an office devoted to objective number three called the Office of Fuel Cycle Technologies.

Next slide, please.

This slide shows our current appropriation and FY 2011 budget request in this office.

136 million in FY '10, and our budget request of 201 million for FY '11.

This looks like a very healthy increase, but let me insert one note of caution: The Office of Civilian Radioactive Waste Management, which manages Yucca Mountain project, had a budget of 200 million in FY '10 and the budget request is equal to zero in FY '11.

So the total DOE budget for the back-end of the

fuel cycle is going down, not up.

Next slide, please.

The fuel cycle R&D program covers a variety of technical areas. And I have a slide on each of these, but in order to keep my briefing short, I'm just going focus on the last one.

The next slide, please.

I have included slides on the first five technical areas as backup slides. I'll be happy to answer questions about them, but I think the Commission is most interested in our new activity, called the Used Nuclear Fuel Disposition.

We have created a new office, again, following our objectives. And a budget request for this new office is the Office of Used Fuel Disposition R&D, is \$45 million in FY '11.

Recalling what I just said about the Office of Civilian Radioactive Waste Management budget going way down, it is clear that this \$45 million budget request is just starting to take up the slack from the termination of the Yucca Mountain project.

Next slide, please.

This slide shows our planned breakdown of that \$45 million budget request.

It is significant to note that the mission of this new office is research and development. At this time we have no plans in this office to conduct any design or construction of new facilities.

And all the R&D is non-site specific. That is, we are not performing any site characterization activities at Yucca Mountain or at any other site.

We don't want to get out in front of the Blue Ribbon Commission.

Now, I have a few slides. Going to slide number 7. I have a few slides on the planned activities in the Office of Used Fuel Disposition R&D.

The scope of this office includes storage, transportation and disposal of used nuclear fuel and high level waste.

So it includes research on high level waste as well as used fuel, and it includes storage and transportation as well as disposal.

Starting with storage, it's great that I'm speaking here today right after John Kessler of EPRI. He described his collaboration program, and I think that collaboration program is great.

DOE is involved in this collaboration program. In fact, the first two bullets on this slide are a direct result

of that collaboration.

DOE is receiving input from industry and from NRC and we are using that input in our planning for FY '11. We are listening.

We are investigating the storage of LWR fuel for up to 100 years or more, and we're investigating high burnup LWR fuels.

And, as stated on the third bullet on this slide, we're also starting to evaluate various other types of used fuel and waste forms, comparing their storage requirements back to conventional LWR fuel.

Next slide, please.

We are also evaluating concepts for dry cask storage and vault type facilities, which could be distributed, regional or centralized.

Next slide, please.

Slide number nine: We did not have enough money to start any work on transportation in FY '10, and this is a new start in FY '11.

As you know, transportation is closely linked to storage, because the stored material must meet the transportation regulations at the end of the storage period.

And, finally, my last slide, disposal: There is no

doubt that geologic disposal will be required. The new fuel cycles and new waste forms may reduce the heat load or volume of waste that requires geologic disposal, but they never reduce it down to zero. So at some point we will need geologic disposal.

The used fuel disposition R&D program has started to evaluate a variety of new potential disposal environments, including granite, clay, shell, salt and deep bore holes.

Thank you, and I'll be happy to answer any questions.

CHAIRMAN JACZKO: Ms. Jameson.

MS. JAMESON: Thank you, Mr. Chairman. Good morning to all of the members of the Commission.

I'm happy to be here today representing the National Conference of State Legislators. This is a body of legislative members from across the country.

We have membership in all states, about 7500 overall. And our main goal is to educate and inform our legislative members.

Next slide.

I serve on the AIG and Energy Committee as their chair and we also hold joint jurisdiction over related spent nuclear fuel policies with our environmental

committee.

These two policies are the radioactive waste policy and the federal facility management policy.

Next slide.

We think it's important as legislators to have input in developing state nuclear energy policy.

We meet with our local congressional delegations and we think it's very important that we retain good working relationships with the Department of Energy and other key groups, such as yourselves.

Next slide.

We do have a concern, though, over the last year we've had a significant reduction in the DOE's state legislative outreach.

And, if you're aware, the Nuclear Waste Policy Act refers to a portion that says that DOE must have contact and work with the states on these issues regarding spent nuclear fuel.

They have closed the Office of Civilian Waste Management, they have moved that. The funding was pulled. And therefore, we have been significantly impacted in our ability to be able to interact with various stakeholders around the country.

We have a wonderful relationship with the NRC.

Have worked with them through our high level waste working group for a very long time.

And the impact they've had on legislators across the country has just been incredible, because they've certainly given us a good education in the work that you are doing and the things that we need to be considering when it comes to state policy.

Next slide. I'll just hit on a few of these.

We think it's very important that we look at one or two private Nuclear Regulatory Commission licensed interim storage facilities until we can determine what the final disposition and repository will be for high level waste in this country. We know that the Nuclear Waste Fund is there. We would encourage that it be used to support the interim storage facilities.

We also are very concerned about the shipment of any of the materials. Understand the decisions that you make in the regulations that you form will affect us in our neighborhoods, in our communities. And I know that they're your communities too, but please understand that it's very important that we be part of the planning process.

As we look forward, we would hope that the interim storage would just be that. If you choose to move

forward with an interim storage facility, we hope that you will recall that it was never meant to be stored on an interim basis, that there is to be a final repository.

We're very concerned about the states.

If we can go to the next slide, please.

We're very concerned about the states that have stored spent fuel and have been decommissioned.

It is a tremendous burden financially on all of those states, and we hope that you will keep that in mind as you move forward.

We also have a radioactive waste policy.

Understand that our policies are a consensus of 50 member states. That's not easy to make happen.

So we're very pleased that we do have documents that we are able to lobby Congress and others on regarding our beliefs as states.

But we would certainly encourage the Commission to be looking at the recycling of high level waste, spent nuclear fuel in the future.

Next slide.

I believe I already mentioned the Nuclear Waste Fund and its activities.

So as I mentioned, NCSL, through the high level waste working group, has had a long history of work on

transportation issues of used nuclear fuel.

We are very concerned that as you move forward and you look at transportation, be it to an interim storage facility or to a final repository, that the transportation mechanisms are certainly the safest that they can possibly be, understanding that the roads and the rails and the ships are all in our backyard.

So I thank you for the opportunity to be here with you today and we look forward to being able to interact with you in the future.

CHAIRMAN JACZKO: Ms. Olson.

MS. OLSON: Good morning. Thank you for the opportunity to be here.

My name is Mary Olson and I am the Director of the Southeast Office of Nuclear Information and Resource Service.

I've been working on waste policy issues since 1991. And I believe I'm here to frame the debate this morning.

Nuclear Information Resource Service, we call ours NIRS, was founded in 1978 by grassroots activists who were fighting nuclear reactors at that time.

We were founded as a national clearinghouse for information and referrals, and today we have members

that include more than 200 grassroots organizations and 16,000 concerned individuals across 50 states.

Our bottom line is this: The only real solution to radioactive waste is to stop making more of it.

Uranium mining is primarily on the lands of native peoples. It leads to six processing steps, each of which generates more waste, worker exposure, releases of radioactivity to air, water and soil at every step.

This leads to community exposures, transportation, and multiply that across the six steps and then the reactor. To our view, this is not a solution.

There is no safe dose of radiation.

Next slide.

Since there is no safe dose of radiation, there is no safe radioactive waste.

Many in this room may dismiss what I'm going to say today, and this is because we disagree or it may be due to beliefs that are not founded in data.

An example is this: Is the linear no threshold model a case of excess margin of safety? Or as epidemiological data shows us, in fact, there is no safe dose. All it takes is one single living cell and one radioactive emission to start a cancer.

No, cancer doesn't start every time, but the

potential exists in every single exposure. And half of those cancers will be fatal.

So it is our responsibility to limit the total source term we give the future generations and the living systems of earth.

Source term here refers to the inventory of radio nuclides in the whole big pile of waste.

All radioactivity has the potential to be released, which, of course, we are all working to avoid.

Next slide.

Solutions. Forevermore, radioactivity does not go away with burning, burying or boiling. It is a shell game. Since we can't get rid of it, all we do is move it from point A to point B.

Moving waste for the purpose of making more makes the problem bigger and, therefore, is the opposite of a solution.

Next slide.

We are going to skip this one today. Next slide.

So centralized interim storage would also be called a parking lot dump in my community.

Would put a backlog of waste into one congressional district, leaving one member of Congress and two senators to advocate for any further federal

appropriations for that waste.

There is nothing inherently better about putting waste in one place. It remains at all the other generating sites in the process. Except for the corporation that makes it, gets rid of it, and likely in order to make more.

Next slide.

Nuclear nonproliferation and nuclear disarmament are vital. However, burnup of transuranics is not a waste solution. Fusion of plutonium and heavier elements results in evermore mutagenic waste and cancer potential.

This is not a public health solution.

In our perspective, transmutation is not an option.

And, by the way, 30-year half lives mean a 300-year hazard, which, in our view, is not short.

Reprocessing makes matters worse. But if you reject plutonium fuel use, you don't need it.

Nonetheless, there is no reduction in curies with reprocessing. Even partial separation increases proliferation risks. And smearing it around makes an enormous costly and enduring mess, such as we see at West Valley, New York. Where commercial reprocessing was done in the United States, it's a big mess, and more

than 30 years later it is still not cleaned up.

And recently DOE has deferred a decision about how much to clean up for another ten years. The price tag is 9 to \$10 billion to clean up that whole site. And that is from one year's worth of waste being put through. Took them six years to do it, but it was one year's worth of waste.

So, the solution is to make more. You've got COLs pending. We're talking about new reactors and DOE has signed new waste contracts that stipulate that when the waste leaves the site, and DOE takes it and it becomes the property of the U.S. taxpayer. Which is, over time, an enormous incalculable corporate bailout.

On the other hand, we do agree that plutonium on the open market is a really bad idea. So March 24th of this year, Beyond Nuclear Institute for Energy and Environmental Research, Harmon Keron, et. al., broke the news that DOE has signed new waste contracts there was no public notice, no public oversight.

The contracts that we have today have resulted in \$12 to 50 billion worth of taxpayer exposure to liability for court ordered damages.

So this is likely not a new small -- the new liability is likely not to be small.

Next slide.

NRC is beginning to ask the right questions, but unless and until it steps out of the role of facilitating more radioactive waste production, it will not be credible.

The Atomic Energy Act obligations have not been taken seriously. Homeland Security issues are enormous.

NRC talks about health and security, however, there has been one federally funded national study of health in reactor communities and none in downwind communities of reactors or other sites.

This suggests to us that historically NRC has had a don't ask, don't-tell policy in regard to radiation impacts.

NRC regulations simply cannot make radiation safe. There is no safe dose. The principle of precaution is to stop making more.

Next slide.

Yes, we agree, closed reactors are a driver, but not for centralized interim storage. When production of waste stops, there is much greater willingness to engage with options.

Stop making it is a basis for community cooperation and readiness to accept reality-based

regulation.

It is communities with closed reactors who put in many, many hours to forge the strongest consensus within our community, which is known as the principles for safeguarding nuclear waste at reactor sites.

283 groups in 50 states are signed on to this document calling on NRC and the industry to establish hardened on-site storage; we call it HOSS, protect the fuel pools, require periodic review of HOSS facilities and fuel pools, dedicate funding to local and state governments for independent monitoring, and prohibit reprocessing.

These are areas where we can actually work together. And I want to add that my community largely supports the idea of IAEA safeguards in this country being widely instituted. That's another area of agreement.

Clearly, there should be site specific analysis of installation of HOSS, both in terms of environment and security, as well as addressing issues of repackaging and what that would take on the sites. For instance, pools.

No reactor communities -- next slide.

No, reactor communities are not volunteering to be

permanent high level waste dumps, but current ISFSIs look like bowling pins. Many are on roads and rails in plain sight. Many are on water, including the Mississippi River and Lake Michigan.

And no matter what the next plan is, these communities know that this waste is going to be there for decades and they're asking for increased care and concern.

Next slide:

This is an artist's concept of HOSS. Spread the casks out, use earth to create a berm around them, put cameras, heat and radiation monitors on each one to give real time data, in addition to the inspections.

Take old waste out of the pools and harden the pools since it's at least five years of liquid storage that's unavoidable.

And last slide.

These pictures are to serve as a reminder that communities do not like nuclear shipments. The best way to avoid the hazards of transportation is not to move the waste, at least not unnecessarily.

Our bottom lines: No transport for reprocessing, no transport to centralized interim temporary storage sites.

The picture on the right commemorates Corbin Harney, a spiritual leader of the Western Shoshone people of Newe Sogobia, parts of which we call Nevada.

To paraphrase my colleague Kevin Kamps, the final solution that the nuclear industry and its supporters have found of this worst of all waste so far is to drag it down a dirt road and dump it on Native Americans.

We as a people better do better than that.

NRC has presided over the production of too much radioactive waste. It persists far into the future.

What is not given today, however, is building new reactors. Operating the existing ones for longer or power uprates that will make much more intensive radioactive waste.

I invite you to consider that you have the authority to not do these things. You would gain hero status, particularly when people look back from the future.

Stop making more of it.

Thank you for listening.

CHAIRMAN JACZKO: Thank you.

Mr. Yamachika.

MR. YAMACHIKA: Thank you, Commissioners. it is an honor to have this opportunity.

First let me briefly introduce our organization

Japan Nuclear Energy Safety Organization or what is called JNES.

Next slide, please.

In Japan, the Nuclear and Industrial Safety Agency, called NISA, is responsible for safety examination of nuclear energy in commercial use. JNES, as a technical support organization supports NISA from the technical viewpoint.

Next slide, please.

Main business of our organization is composed of inspection of nuclear power plants and nuclear facilities, analysis and evaluation of safety on nuclear power plants and nuclear facilities.

Next slide, please.

And investigation, tests and research to ensure safety in the framework of utilizing the energy.

I understand that it is my role to make comments on activities of Office of Nuclear Material Safety and Safeguards, including safety of spent fuel management as a stakeholder overseas.

We do recognize that the organization responsible for safety degradation in same boat, to ensure nuclear safety. And we have had close relations with NRC in nuclear reactor safety.

Recognizing that NRC would give up a new policy on spent fuel management in the future I would like to show our policy and present situation and express our desire for the future, in terms of spent fuel management and general disposal of high level waste.

Next slide, please.

First is spent fuel management. Japan will reprocess all of the spent fuel generated in commercial nuclear power plants. High level waste generated through the reprocessing will be disposed of deep under the ground.

There is a large number of spent fuel arising from the operation of nuclear power plants in the past. Some of which have been reprocessed. The rest is stored safely in the country.

We estimated that 13.5 thousand tons of spent fuel will be generated in the coming ten years.

Reprocessing plant in Rokkasho has the capacity of reprocessing 800 tons of spent fuel and they expect it to reprocess almost 8,000 tons in ten years.

Spent fuel exceeding 8,000 tons will have to be stored safely resulting in necessity of storage of additional 7,000 tons.

Next slide, please. Six, please.

Centralized spent fuel storage facility was licensed on 13 May this year, and will be developed by two utilities. Facility has the capacity of storing 3,000 tons of spent fuel.

Next slide, please. 7 page.

With dry metal cask for 50 years, the facility has a plan to expand the maximum capacity to 5,000 tons.

Regulatory body examined aging phenomena, such as corrosion arising from the expected storage burial time and confirm that metal cask on spent fuel keeps sufficient safety soundness for that period.

Next slide, please.

Affects such as neutron shielding capacities and deep confinement properties of the cask and -- next slide, page 9, please -- thermal creep of the fuel were examined and analyzed by our organization. Our conclusion was that there would be no significant deterioration affecting safety for 40 to 60 years.

This expanded data and information was provided for the safety examination.

Next slide, please. Next topic is geological disposal.

Please be patient with my complicated figure in the presentation. Candidate sites for the geological disposal

for high level waste is to be decided through three stages in our country.

First stage is a literature survey.

The next stage, preliminary investigation, uses brief geological examination, like boring.

At the final stage shaft and galleries are excavated and used for detail examination.

NISA will conduct oversight of the result of the examination at every stage.

Since 2002 localities have been encouraged to express interest in survey as candidates for survey. Several municipalities have expressed interest. One formally requested to be included in survey but has withdrawn its request.

Next slide, please.

JNES is now carrying out research and development on various subjects like evaluation method of geologic environments to review the result of second stage investigation.

These R&D activities are approached, not from a site specific perspective, but from generic perspective.

When the specific area is selected, we are going to shift our R&D approach to fit the specific area.

Next slide, please.

At the same time, JNES is collecting studies, gathering information and background data gained in the world, so that's how our regulatory body would make use of them.

Next slide, please.

Once again, I ask your patience in the complicated figure.

In order to carry out this R&D, we cooperate with various research facilities in other countries and academic groups and industries.

So, next slide, please.

In terms of spent fuel storage and geological disposal project has to be evaluated from the long-term safety aspect. Activity coordinated and integrated in international effort will reduce uncertainties inherent in these projects.

JNES initiated and developed cooperation with many countries having nuclear programs. We hope to have an agreement with NRC on background safety research corporations, such as radioactive waste management; on top of our ongoing cooperation in nuclear power reactor field.

Thank you for being patient with my broken Japanese-English.

CHAIRMAN JACZKO: Thank you.

We will start with Commissioner Magwood for our questions.

COMMISSIONER MAGWOOD: Thank you, Chairman.

Let me thank all the stakeholders for appearing today. I appreciate all of your comments.

Let me start with you, Mr. Yamachika, since you spoke last, I'll let you go first. Just a very general question.

I was interested to hear about the progress on the spent fuel storage facility that Japan is constructing.

Can you give us a general description of what the facility is going to look like; what type of storage mechanism its using?

MR. YAMACHIKA: Yeah. As I mentioned, one of the spent fuel storage facilities licensed, last month, this is used in the cask, metal cask, which is stored in the building, which is different from U.S.

And then, so as far as I know, the -- this facility is developed by the utilities. And as far as I know, the other utilities have a plan to set out other storage facilities, outside of the power plant.

I'm not sure, inside the plant or outside the plant.

COMMISSIONER MAGWOOD: Thank you.

Dr. Schwab, just more of a general policy question for you. I know that you're not the reprocessing guy, you're formerly from OCRUM; is that correct?

MR. SCHWAB: No, sir, I didn't work in OCRUM.

COMMISSIONER MAGWOOD: Well, you didn't work for me, so I didn't know where you came from.

MR. SCHWAB: Well, if you're interested, I'll show you my resume.

COMMISSIONER MAGWOOD: We can get together later. Can you give me just a -- from a DOE perspective, your expectation or -- without anticipating the Blue Ribbon Commission -- I understand that there's going to be some guidance from that -- what role reprocessing is likely to play, in terms of time frames.

When you think -- when DOE thinks about reprocessing, what time frames are you thinking about?

MR. SCHWAB: You're asking me to anticipate the recommendations from the Blue Ribbon Commission, I can't answer that. I'd rather not anticipate what the results might be.

COMMISSIONER MAGWOOD: If I were you, I probably wouldn't answer it either.

Mr. Kraft, the industry obviously believes that

reprocessing is likely to be an option relatively soon, because I understand that NEI has encouraged the agency to proceed with the reprocessing of licensing reprocess formation.

Can you give me your views on this? Exactly what is realistic here? What does the industry expect is likely to happen over the next 5, 10, 20 years.

Can you give us some time frames?

MR. KRAFT: Relative is a relative term, Commissioner.

We provided, in advance, with our slides, copy of our statement for Blue Ribbon Commission from May 25. It's a set of principles that we've identified for thinking about implementing a future fuel cycle that might -- would be useful in terms of expansion of nuclear energy.

Certainly, in the long run, and I don't think I can put a time frame on that, Commissioner, is there will be advanced recycling.

I think that simply from, if we're going to expand the use of nuclear energy the way worldwide seems to be going, I think some form of closing the fuel cycle, in some manner, simply for fuel supply, and certainly for reducing waste burdens, will be implemented.

Now, if you're asking specifically about when

reprocessing might be used, the way we see it is that you begin with today's technology and build on today's technology.

You don't wait for the moonshot R&D work to come up with something in the distant future. You have to start with something that's concrete.

Now, I think it's fair to say, and I don't think any of our members would dispute the idea, that even if we had the idea that we wanted to begin reprocessing as soon as possible, we would be 20, 30 years out, simply in developing the facility. So looking at experiences in Japan.

So there is a lot of opportunity there for R&D to improve current technology as well as to develop future technology.

So when we think of time frames here, it is very hard to put years on them.

The reason we support the completion of the regulations is the simple fact that I can't tell you when you would see a license application, but I can tell you will never see one if there are no regulations in place in companies such AREVA, EnergySolutions, GE, Westinghouse would not be able to understand how to develop the technology and how to cost out a project if

they don't have that information.

That's the motivation behind wanting to see those regulations developed.

COMMISSIONER MAGWOOD: Appreciate that.

Ms. Jameson, appreciate your comments from the state perspective.

I was interested in seeing that you did have a lot of rather specific comments with regard, not to just reprocessing, but also to centralized storage.

Can you elaborate a bit on what the states' view is? Because you are so focused on reprocessing and central storage, I take the counter position, which is that you don't like the idea of leaving spent fuel where it is for long periods of time.

Can you give us some views from the state perspective on that?

MS. JAMESON: That is correct. For those of us who have nuclear power plant sites in our communities, we were told from the get-go that the used fuel would eventually be removed and, in fact, would be taken possession of by DOE in 1998, I believe was the final date.

And certainly, that did not occur. We would like to believe that it is not going to stay in our communities.

We believe that there is certainly a nuclear revival going on out there and we also understand as states that we need new energy, we need new forms of clean energy.

And if that is going to occur in the area of nuclear energy, then we need to ensure that we are doing whatever we can do to help find a path forward for the used fuel.

Your greatest advocates of nuclear energy are usually within 20 miles of a nuclear power plant. And the further out it goes, you lose your advocates.

But, in my case, I have a nuclear power plant in my community. We are very comfortable with what occurs there, as far as safety, and we would like to help to ensure that a new reactor will be built in that area. But, also, there immediately arises the concern of what's going to happen to the used fuel from that reactor.

So we certainly believe that there needs to be a movement of used fuel from the nuclear reactor sites.

And, as I mentioned, the sites that have been decommissioned and are holding that used fuel, either in dry storage or perhaps in a pool, you know, it's very expensive for that to continue.

The ratepayers are paying for it. The ratepayers are our constituents and we certainly do not want to see

them burdened any more than we have to.

We think recycling does make sense. That if there is a means of being able to utilize it again, and perhaps even a second time -- I believe France recycles twice -- then that would be a reasonable thing to do.

So we strongly encourage that you keep moving forward, because we believe that there is a need for nuclear energy and that there is a place for it in the fuel mix.

COMMISSIONER MAGWOOD: Thank you very much. My time is actually up, but I did want to quickly comment on Ms. Olson's presentation.

I've interacted with people from NIRS over the years in different pieces of NIRS and this is actually the first time I have seen a proposal on how to deal with spent fuel beyond the stop making it.

I appreciate the stop making it message is most important to you, but I also appreciate the fact that you have put a substantial proposal on the table for spent fuel storage. So thank you for doing that.

MS. OLSON: Thank you for hearing me.

CHAIRMAN JACZKO: Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman, and thank all the stakeholders, the

presentations were all very helpful.

I want to maybe pick up where Commissioner Magwood left off with Ms. Jameson on one point.

Your slides -- and I recognize there's lots of discussion about different phases, Mr. Kraft talked about, we had a stage here to deal with the shorter term, then the longer term effort based on geologic repository solution that may be some time down the road.

But I would like to focus for a minute on the interim storage facility that you have in your slides that you talked about with Commissioner Magwood.

In your proposal, specifically to use some of the funding from the Nuclear Waste Fund for that effort.

What type of reaction has your organization received from the Department of Energy, or elsewhere in the Government on that proposal, if you've vetted it with them?

MS. JAMESON: We certainly have had at least one opportunity to talk with DOE about our thoughts on interim storage.

And again, we've seen a change in the attitude in the communities across the nation.

There have been several facilities, a uranium enrichment facility has recently been opened.

Bids were put out for that. It's amazing the number of communities that have stepped forward and are willing to host such facilities in their community.

So I think that is one thing that has driven us to looking at an interim storage facility.

It seems that no matter where you go, and what you do, there is always a desire for to us keep our environment as clean as we can.

And when we look at energy being utilized for the generation of electricity, we know that there is some fuels that are not as clean as others. And so, therefore, we try to encourage clean energy production whenever we can.

It takes a lot to get a policy through NCSL, and the interim storage policy took a number of years. We worked on it very collaboratively.

Our states are just as varied as the stakeholders you have here at the table today.

Various areas in the country have different ideas. Just different environments, different geology, and so it took a lot for us to come up with an agreement.

But in the end, it was determined that if an interim storage could be built and utilized, it would be better for us to be able to help keep the promise that was given

that used fuel would be removed from our communities by 1998.

COMMISSIONER OSTENDORFF: Thank you.

Mr. Kraft, I would like to ask you a question, please.

I appreciate your comments about resources and priorities and I think we are all wrestling with those types of issues and I think NRC Staff has done a very credible job of trying to establish those to the best of their ability, given the uncertainties we face.

You commented that you thought that tool development for a repository should be a high priority and I think that was a very helpful specific example.

Are there other specific examples you might have from an industry perspective that we ought to be aware of?

MR. KRAFT: Thank you, Commissioner. I think the thing to do, after reading through the two plans, is to focus on what needs to be done soonest first.

Tool development, as Mr. Kokajko explained, we think that's vital to understanding what other proposals might come forward for disposal.

We're going to be putting a lot of fuel in a lot of casks for a long time, and that does beg the question about

what do you do beyond 120 years. I think Dr. Kessler's presentation covered that from the industry's perspective very well.

In the near term, we need to get more efficient, and the conference that just concluded the last two days I think goes to that question.

There are a series of things the industry is very interested in near term; cask regulation efficiencies.

There are some things we need to do in pools as well, it's not subject to this discussion, but there are some open issues these days in pool storage as well that need to be resolved in order to keep moving forward.

I think it is a pretty good rule of thumb that used fuel storage should never be the tail that wags the dog, it should be taken care of along the way and not get in the way of plant operations.

So I think if you look at the overall activities that you'll engage in, one, make a decision about what activities you need to do or not need to do, but then you got to prioritize.

And I think from all the activities covered in these plans, I think that the improvement of near-term licensing of casks is probably the most important one that we have.

COMMISSIONER OSTENDORFF: Thank you.

A question for Dr. Schwab and also Dr. Kessler.

I appreciated the reference to the extended storage collaboration program that EPRI, DOE, NRC and others are involved in. I think that was helpful.

Any comments or suggestions for the NRC as to its role in these or -- and how to maybe -- are we happy or satisfied with the level of coordination and use of resources overall?

I know it's hard to bring different organizations together and have organization "A" do this and organization "B" do that and have it complementary, but is it working pretty well?

Are there any suggestions you might have from where you sit?

MR. SCHWAB: So far I think it's working well. I'd like to compliment John Kessler for taking the initiative. And it made my job easier because he took the initiative and called all the important people together for a committee meeting.

I have been listening to John and NEI and EPRI and the utilities, the cask vendors.

COMMISSIONER OSTENDORFF: Dr. Kessler --

MR. SCHWAB: NRC is there, too.

MR. KESSLER: Thanks, Pat.

Certainly that is at the intention of the collaboration program.

There is a lot of different organizations interested in fundamentally the same thing from a technical perspective.

And the idea behind the collaboration program was simply to pull everybody together, find out what everybody is doing, share experiences, gap analyses.

And regarding resources, I would say in the near term, I'm very happy with NRC's participation. They're providing great support, great input to the collaboration program.

If and when we get down -- further down the road of actually having to do something experimental, some sort of field study, something like that, I'm hoping that with as many participants as we have, we will pool resources, some of those resources hopefully coming from NRC, to do what it takes.

Do I know exactly what that is and when that will happen? No. But I'm certainly hoping that NRC continues to participate and potentially co-fund that kind of work, as is necessary.

COMMISSIONER OSTENDORFF: Thank you.

Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Svinicki.

COMMISSIONER SVINICKI: I might pick up on that exact point then, Dr. Kessler, some of the dollar amounts you're talking about, in terms of a field study and actual physical experiments, you mentioned a broad range, which didn't surprise me, you said a million dollars to \$20 million, it depends a lot on the design of what you're doing.

But, in terms of an NRC contribution, not that singular element, but just the general notion of the expense of this type of the research would have the potential really just to devour the preponderance of our regulatory research budget.

So I think it is important that there'll be some sort of collaborative effort here. At the end of the day, of course, the NRC must also have a measure of independence.

So we're going to have to address the resource question, for us has that additional complication as well.

But on your Slide 4, do you have a notional time frame for the three phrases that you outlined?

It seems to me many people are looking at literature surveys, gap analyses and other things.

But as I mentioned in the last panel, paucity of data, you know, in general, that's true of a lot of actual physical data of fuel that's been in storage.

You mentioned the Idaho experiment about ten years ago, some canisters were reopened. But, you know, even that is not an extensive amount of data.

So we're limited, even in what we know now.

So there's a lot that you likely could do under these phases, but what's your initial thought?

MR. KESSLER: On phase one, that's the easy one to talk about, in the sense that it has a lot to do with gap analysis, what are the technical issues or technical concerns for extended storage?

We've already done one. I understand DOE/NE will be finishing one sometime this calendar year. I understand that NMSS has also contracted to have a gap study done by the end of the year.

So I think within the next year, we'll have phase one under our belts.

When it comes to phase two, which is conduct experiments and field studies, it depends on what those are and how difficult they are.

For example, we talked about things like, all right, we're going to have to examine some of the canisters

that actually have fuel in them, how do you go about doing that? What's the best technology; what are the technology options to do that?

That becomes more unclear in terms of exactly what we would have to do and the amount of money it would take, and the required regulations -- licensing for doing something like that.

If we wanted to do another step, say for example, we wanted to take a gas sample from inside a closed canister that actually has fuel in it.

That's yet another challenge that would involve, not only the technical aspects, but the licensing aspects of being able to do something like that.

That time period, I'll just say off the top of my head, five years.

For phase three, I would imagine we couldn't get our acts together any sooner than about five years. It's a big program getting -- first of all, we are struggling with figuring out where would we do this study, who would participate. You know, who's fuel are we going to use, what kind of canisters are we going to use. Specifically, what kind of data do we want to collect.

That's where that cost range comes into effect. And that will involve everybody's input, in terms of what

needs to be done.

So that five years, ten years out, I would imagine would be working on that large one.

Plus, the kind of the phase 3B would be, after all this high burnup fuel has been in storage and we've done our initial examinations, we would like to leave it sit for X number of years and then take a look at it again.

And that's -- now we're talking out say the 15-year time frame after we let it sit, to do gas samples, take a look at the fuel; things like that.

COMMISSIONER SVINICKI: Now, DOE has some fuel in dry storage, certainly at Idaho, perhaps other sites, I'm just not aware. In that case, if it's a fuel already at a research laboratory, you would maybe avoid some of the questions of moving additional spent fuel to a DOE lab.

Is that something being considered in kind of looking at the DOE inventory and anything that -- if they had something sitting out on the pad for 15 or 20 years already, would that be of use?

MR. SCHWAB: Yes, ma'am, that is one of the options on the table.

COMMISSIONER SVINICKI: And then - I think it was Vonna who mentioned in the NRC Staff panel, the

challenge of the diversity of both storage technology systems, vertical, horizontal of different designs and different material types.

As you think about designing experiments here, do you focus on the extrapolation? Again, you've got to pick something to demonstrate the materials and the technology.

Is the considerations around then, if we do this at a great expense, how do we extrapolate those findings to other storage systems?

You're nodding your head, but is there anything you would add about that?

MR. KESSLER: Not too much that I could add to it.

We have had some initial discussions in the collaboration program about what kind of fuel are we looking at, what kind of system should we look at for extended storage. And there's been a semi-agreement that we need to be looking at, essentially existing fuel types. We're very much interested in looking at high burnup spent fuel.

But looking at zirc 2, zirc 4, 5, those kind of fuels that are out there already, we would want to look at. In terms of advanced fuels beyond that right now, we're not planning a program around that.

Regarding casks, we are looking at existing types of cask designs as something we want to look at.

If say out of the phase two work we find that, gee, maybe the casks could be designed somewhat differently, well, then, maybe we'll look at those as well.

COMMISSIONER SVINICKI: And that's a key point, I think if you kind of design a program that looks more to what has already been deployed, again, looking for that element of technical surprise, if there is any, about materials aging or anything related to that; or do you look to the future and say if the nation faces extended periods of storage and we need to learn more about the best materials and storage designs? Do we try to design something to validate a forward-looking deployment of storage systems?

MR. KESSLER: Certainly, it's an excellent question, but what I have in the back of my mind is we're going to have a lot of spent fuel in dry storage in the existing systems, with the existing kind of spent fuel. That will be the oldest fuel that will be out there.

So I would argue that, yes, we may be able to be forward looking and look at new designs and things, but I would argue there is certainly a need for looking at existing fuels, existing cask types.

I don't envision the cask types or fuel types changing in the near future, such that I would still think if we're going to spend a lot of resources, it would still be well spent on existing types of fuel and systems.

COMMISSIONER SVINICKI: And when Vonna mentioned diversity I thought, you know, at some point that may actually be a strength, because if there is some element of something you learn about materials already deployed in systems, that is much less desirable than you had believed about it, it's good to have a diversity of systems out there.

But also your point, it may help with division of labor, Commission Ostendorff was talking about organization A and B and having a complementary initiative.

As the regulator, certainly, in my view, we're interested in anything we might not know about the systems already deployed, whereas the industry may be more interested in forward-looking design of more robust systems.

Thank you. My time is up.

CHAIRMAN JACZKO: Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: No questions, Mr. Chairman.

CHAIRMAN JACZKO: I just have a couple quick questions.

We talked a lot about research and all the issues we are dealing with.

Maybe, Dr. Schwab or Dr. Kessler, you can give me a higher level. What specifically are the risks that we're focusing on here?

I mean, is it a criticality event? Is it a rupture of a cask that would lead to exposure? What is the hazard that we're trying to deal with? Or do we not know?

MR. KESSLER: We certainly have NRC guidance, in terms of what are the functions that need to be maintained for storage for whatever period of time.

I'm not going to remember them all, but it's criticality, confinement, thermal, structure, things like that. It's in NUREG 1536.

We are going to take that as essentially, the document to say, all right, where are we? What do we know about these things and where does our knowledge start to break down as we go out into the future? So, we certainly want to take a look at that.

When it comes to both storage, but especially transportation, as our knowledge gets stretched, what do we need to do. That's where the risk-informed comes in.

If we're trying to decide 60 years from now we're going to transport in the same systems, what do we know about those systems? What are the risks? What are the options, in terms of maybe repackaging something like that?

CHAIRMAN JACZKO: If I look at, I mean, it seems the thing that keeps coming up is that transportation presents -- at least we think those are some of the bigger risks, because you may not have the same kind of structural integrity as we would have now or in 20 years. And maybe 200 years it's a very different structural integrity.

So is the concern that you have in a transportation accident a loss of structural integrity that leads to a criticality event? Or is it that you have a rupture of a canister and because you have more dispersible fuel, you could have greater external exposure? I don't -- we just don't know that?

MR. KESSLER: I guess I would say that right now we have a lot of barriers to especially preventing the criticality event and certainly loss of material.

EPRI has done some studies on what's the probability of criticality occurring during transportation. And it is in the dust-to-dust, I think it's something like

probability is 10 to the minus 12 over 11,000 shipments.

That's where the existing -- assuming the existing container systems continue to function the way they need to function.

CHAIRMAN JACZKO: And that's assuming existing material properties of fuel or that makes assumption --

MR. KESSLER: Fuel, the canister, the transportation, over pack.

CHAIRMAN JACZKO: Well, I appreciate that -- again, I know this is some of what you're going to be looking at, I don't mean to try to pin you down on answers you may just not know, but I think it's just helpful for me as I focus on these things to just have an appreciation of where -- what kinds of hazards we're really dealing with here and they may be different, obviously they are different than the usual types of hazards we deal with power reactors and other things --

MR. SCHWAB: May I just add one thing to what John said?

That is the issue of security. It's very important to maintain the integrity of transportation casks, and we also have to think that we are now living in a world of post 9-11 and we have to increase -- we may have to increase our security stature.

CHAIRMAN JACZKO: Well, I appreciate that. I think that is a helpful reminder. Certainly one of the challenges we deal with.

Mr. Kraft, I thought I would ask you a question. I think your slides talk about a technology neutral framework for reprocessing. And I have to say, I probably disagree with one comment you made that if we don't have Regs, we won't get applications. I think the history of this agency has shown that applicants don't wait and they send us very complicated exemption requests to our regulations. And I agree with you, the proper way to do it is to have Regs in place.

I'm not sure that not having Regs will prevent somebody from coming in.

Do you think it's possible to do technology neutral framework without really having a better sense of where the applicants are going to be going in terms of reprocessing?

MR. KRAFT: Let me address your first point, Mr. Chairman. I think something like an exemption process works when you got an existing set of regulations you can then exempt off of.

What struck us when we began looking at this question of do you need to engage NRC for these

regulations when we began working on it 2 or 3 year ago is that, yes, Part 50 would apply, yet the history of Part 50 is reactor based, all the guidance, NUREGS and everything else. So that's what drove us into looking into a Part 70 type area.

And there wasn't -- you couldn't come in with an application what would you exempt off of. So you have to have something.

Yes, it is true that you have got three technologies now that people talk about. We've got participants from all of those parties. So we are hopeful that you can have a set of regulations that cover at least that order front, would they cover some futuristic work, obviously, you don't know what the future is.

CHAIRMAN JACZKO: By technology neutral would you see the regulations having separate regulatory requirements for each of those three reprocessing technologies? Or are you -- by technology neutral you mean one regulation that would envision each of those three different processes?

MR. KRAFT: I think what I'm personally envisioning, Mr. Chairman -- and I can't -- pardon, I can't speak for those other members -- just say it this way: Maybe what we're not talking about is hard and fast, you

know, regulations 70 point X point whatever of this requirement. More regulatory bases, regulatory requirements in the sense that whatever system you design, you have to accomplish the following safety, the following environmental protection.

And they go into some detail about getting down into the level where you would end up not just differentiating technology versus technology but plant design versus plant design. You're nowhere near that.

I think the way things are today, there really is no guidance from this agency as to what would be expected in an application.

I think that's where the people are thinking about going.

CHAIRMAN JACZKO: Lastly, I want to turn perhaps a question to Ms. Olson and Ms. Jameson. I think as Commissioner Magwood suggested, Ms. Jameson, I think you certainly were strongly suggesting that, in particular, at those sites that have no longer operating reactors, that's important to move fuel, I think.

Ms. Olson, you suggested that in some of those communities there may be less discomfort with that used fuel there now. I guess I would ask both of you, how would you reconcile those two different views from our

perspective? Maybe Ms. Olson and then Ms. Jameson, maybe I misunderstood what you both were saying.

MS. OLSON: I don't think you misunderstood me. I think that there is diversity in every community and I would like to emphasize that our membership includes people in reactor communities and even workers and others who have taken an interest in our organization over the years.

So there is a lot of diversity there, and all I can say is that the conversation changes when the production of waste stops.

It changes substantially and in ways that I don't think anyone anticipated in our community until it happened. And those closed reactor sites have taken a lot of initiative, in terms of reaching out within our community to forge a consensus. It's not 100 percent. There's still a few places where they say, no, it's got to move locally, not necessarily centralized, but off the island, away from the dunes, but a growing sense that we do not want to see the waste moved until the situation where it goes will be improved.

And we categorically -- I say it, categorically reject plutonium recycle, reject reprocessing, that is not an improvement.

I think there's also that level of adamance about centralized interim storage because it's understood they are related, ones sort of a cover story for the other.

But there's growing interest and dialogue in our community about permanent disposition and I want to emphasize that we do not view the current reactor sites as that.

CHAIRMAN JACZKO: Thank you.

Ms. Jameson, do you want to comment?

MS. JAMESON: Yes, certainly.

As I mentioned, I think it's very important that those sites that have been decommissioned are able to finally close their gates.

And if an interim storage facility were licensed by the NRC and approved, be it private or governmental facility, that the first fuel to be transported would be from those facilities.

Now, I know there is a certain way that you already plan to move fuel or that DOE plans to move fuel in a certain manner regarding age of the material.

But I certainly think that some strong consideration should be given to those sites that are about to be or already are decommissioned.

CHAIRMAN JACZKO: All right. With that, I

appreciate your answers. I appreciate all of you participating. I think that this has been a very interesting discussion. The Commission has some work in front of us and we -- I think this will only enlighten and benefit our discussions. So thank you very much.

We are adjourned.

(Whereupon, we are adjourned)