

UNITED STATES

NUCLEAR REGULATORY COMMISSION

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STRATEGIC PROGRAMMATIC OVERVIEW OF THE DECOMMISSIONING

AND LOW-LEVEL WASTE AND NUCLEAR MATERIALS USERS

BUSINESS LINES

(PUBLIC MEETING)

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THURSDAY,

JANUARY 18, 2024

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The Commission met in the Commissioners' Hearing Room,  
at 9:00 a.m., Christopher T. Hanson, Chair, presiding.

COMMISSION MEMBERS:

CHRISTOPHER T. HANSON, Chair

DAVID A. WRIGHT, Commissioner

ANNIE CAPUTO, Commissioner

BRADLEY R. CROWELL, Commissioner

ALSO PRESENT:

CARRIE M. SAFFORD, Secretary of the Commission

BROOKE P. CLARK, General Counsel (via video teleconference)

NRC STAFF:

JOHN LUBINSKI, Director, Office of Nuclear Material Safety and Safeguards  
(NMSS)

JANE MARSHALL, Director, Division of Decommissioning, Uranium  
Recovery, and Waste Programs (DUWP), NMSS

CYNTHIA BARR, Risk and Technical Analysis Branch, DUWP, NMSS

THERESA CLARK, Deputy Director, Division of Materials Safety, Security,  
State, and Tribal Programs (MSST), NMSS

ROBIN ELLIOTT, Senior Health Physicist, Division of Radiological Safety and  
Security (DRSS), Region I

SHERRIE FLAHERTY, Senior Intergovernmental Liaison Project Manager,  
MSST, NMSS

GEHAN FLANDERS, Senior Health Physicist, DRSS, Region III

JOEY ROLLAND, Mechanical Engineer, MSST, NMSS

AMY SNYDER, Project Manager, Reactor Decommissioning Branch, DUWP,  
NMSS

## PROCEEDINGS

9:00 a.m.

1 CHAIR HANSON: Good morning everyone, and welcome.  
2 I convene this meeting to hear about the strategic considerations associated  
3 with the Decommissioning and Low-level Waste Business Line and the  
4 Nuclear Materials Users Business Lines. I think it's important to keep the  
5 public informed of our activities. And so, I thank all of you for supporting  
6 today's meeting, both our first panel and our second.

7 As I said, we're going to have two panels. We're going to  
8 take a short break in between. With each panel, we'll hold questions until the  
9 end, and then we will hear questions from the Commissioners to the panel.

10 Before we start, I'll ask my fellow Commissioners if they  
11 have any remarks they would like to make.

12 (No response.)

13 Okay. With that, John, we'll had it over to you, our Director  
14 of the Office of Nuclear Material Safety and Safeguards, for opening remarks  
15 and an overview.

16 MR. LUBINSKI: Thank you, and good morning Chair  
17 Hanson and Commissioners. We appreciate the opportunity to provide you  
18 our annual update on the activities and priorities for the Decommissioning and  
19 Low-level Waste and the Nuclear Materials User Business Lines, commonly  
20 referred to as DLLW and NMU. Next slide, please.

21 Let me start by commending the staff in both business lines  
22 for their hard work, diligence, and commitment to achieving the agency's

1 critical safety mission in what has been a highly dynamic regulatory  
2 environment.

3                   Our first panel today will present the Decommissioning and  
4 Low-Level Waste Business Line. I will be providing an overview of the  
5 business line. I will be followed by Jane Marshall, the Director of the Division  
6 of Decommissioning, Uranium Recovery, and Waste Programs. She will  
7 discuss some recent accomplishments and areas her staff has focused on for  
8 more effective and efficient regulatory oversight.

9                   Amy Snyder, Senior Project Manager, will discuss the  
10 integration of risk principles, relevant historical information, and current data  
11 into the decisionmaking process, which has helped to unlock first-of-a-kind  
12 challenges and accelerated our review time while maintaining safety.

13                   Cynthia Barr, Senior Risk Analyst, will share how domestic  
14 and operating experience has enhanced decommissioning guidance and how  
15 NRC is benefitting from international collaboration and decommissioning  
16 activities.

17                   Gehan Flanders, Health Physicist from Region III, will  
18 provide an overview of some recent decommissioning inspection activities and  
19 how we continue building community relationships. Next slide, please.

20                   I am very grateful for today's opportunity to represent the  
21 great people and work contributing to this business line. This business line  
22 is relatively small compared to others within the NRC with, roughly, 83 full-  
23 time equivalent, or FTE, staff. About two-thirds are in NMSS and the rest are  
24 in Regions I, III, and IV, and in other headquarters offices, including the Office  
25 of General Counsel and the Office of Research.

1                   The business line manages the agency's programs for  
2 reactor and materials decommissioning, uranium recovery, and low-level  
3 waste, and closely interacts with other federal agencies, tribal nations, states,  
4 international partners, licensees, and the public.

5                   The business line is involved with a significant number of  
6 licensees which are listed on this slide. I would like to focus on a few types.  
7 Our team ensures safety and security through our licensing and oversight  
8 work at 23 decommissioning reactors, including 16 in active decommissioning.  
9 I am proud to say that the staff was able to complete the review of both La  
10 Crosse and Zion Units 1 and 2 site release reviews, and license termination  
11 over the past year -- taking us from 18 down to 16 active reactor  
12 decommissioning sites.

13                   Over the past two decades, we have successfully completed  
14 our evaluation and terminated the licenses for 11 decommissioned power  
15 reactors. We are also working on a number of decommissioning, uranium  
16 recovery, and low-level waste projects. This includes issuing a license to  
17 Rare Earth Resources in support of a pilot project to extract rare earth  
18 minerals.

19                   Through the National Materials Program, we and our  
20 Agreement State partners ensure safe decommissioning of material sites,  
21 including former radium sites and several complex materials sites. The  
22 Agreement States license and provide oversight for the majority of the active  
23 uranium recovery licensees and all four active and four of the five inactive or  
24 closed low-level waste facilities. There will be a discussion of the National  
25 Materials Program and Agreement States within the Nuclear Material

1 Business Line later this morning.

2                   Despite its relatively small size, sites in this business line  
3 traditionally garner a high level of interest from the public and federal, state,  
4 and local government officials. The activities in this business line generally  
5 result in significant changes to licensed activities and changes in NRC  
6 oversight, including the final termination of the license and NRC involvement  
7 at the site. Therefore, it is important for NRC to ensure the sites are safe for  
8 unrestricted use and to provide stakeholders information that supports this  
9 decision.

10                   We view proactive and meaningful interactions throughout  
11 the steps of decommissioning as essential for safe and effective  
12 decommissioning. These interactions increase stakeholder confidence and  
13 they improve our regulatory decisions. The NRC provides opportunities for  
14 public engagement through public meetings in the vicinity of a facility, such as  
15 when we receive the Preliminary Site Decommissioning Activities Report,  
16 referred to as the PSDAR, and when we receive the License Termination Plan.

17                   We have continued to perform rigorous community  
18 engagement through the support of local advisory boards at reactor sites  
19 undergoing decommissioning. Additionally, we have been working hard to  
20 maintain our public-facing websites to ensure information about the sites we  
21 oversee is available and up-to-date. Next slide, please.

22                   On this slide, you can see the business line priorities, but I  
23 really want to emphasize the importance of having a knowledgeable and  
24 diverse workforce. We can only do all of this by ensuring we promote an  
25 organizational culture that focuses on knowledge management and staff

1 training. In the last couple of years, we have issued the revised Inspector  
2 Qualification Program and we are currently working on a revision to the Project  
3 Management and Technical Reviewer Qualification Program. This effort will  
4 modernize the administrative process-related qualifications and reshape the  
5 training requirements to ensure our staff has the necessary knowledge and  
6 skills to meet the anticipated needs.

7 To develop the necessary knowledge and skills, we've  
8 completed the revision of the NRC's Training Course on Reviewing  
9 Decommissioning Dose Modeling. Also, we are developing training  
10 curriculum this year for low-level waste performance assessment reviewers.  
11 All these activities will assist the NRC staff, as well as Agreement State staff,  
12 in performing their mission.

13 This concludes my remarks, and I will now turn the  
14 presentation to Jane Marshall.

15 MS. MARSHALL: Thank you, John. Good morning, Chair  
16 Hanson and Commissioners. Next slide, please.

17 Over the past year, we've been able to leverage our  
18 previous experiences to better inform our licensing reviews. I'll briefly  
19 highlight a few examples where we were successful and how it will help in  
20 future reviews.

21 DLLW staff built on earlier reviews of DOE's disposal  
22 actions at the Savannah River tank farms and the Saltstone Disposal Facility,  
23 as shown in the picture on the left. We focused on our monitoring activities  
24 on barriers that provide the majority of isolation and containment.

25 For the Saltstone review, our risk-informed monitoring

1 strategy identified a shift in emphasis by the Department of Energy from the  
2 safety functions of chemical waste retention to long-term performance of the  
3 covered system. We shifted our review team's focus accordingly.

4           Leveraging this experience helped us to streamline the  
5 review of DOE's Revised Safety Assessment of the Saltstone Disposal  
6 Facility, which was completed in FY 2023. Going forward, we will use this  
7 methodology in the upcoming Revised Safety Assessments, enabling us to  
8 complete these tasks over the next four years with fewer resources.

9           Similarly, staff has greater experience from our recent work  
10 on license terminations for La Crosse and Zion. We're incorporating this  
11 experience into our ongoing and future license termination, or LTP, reviews.

12           Our latest Interim Staff Guidance, or ISG, provides a  
13 comprehensive overview of the methodologies and strategies to tackle distinct  
14 challenges encountered during decommissioning. Furthermore, we've  
15 reviewed and issued comments on recent industry guidance aimed at  
16 ensuring licensees develop a high-quality, complete LTP that satisfies NRC  
17 requirements.

18           Staff recently completed the license termination and transfer  
19 of Western Nuclear, Incorporated, to the Department of Energy. This is the  
20 picture on the right. We'll be able to use the lessons learned from this review  
21 to help us with future sites, including the upcoming transfer of the Durita site  
22 in Colorado. Our experience with Western Nuclear showed the importance  
23 of early collaboration between federal agencies and the states, which we  
24 believe will help us streamline the process for future license transfers. Next  
25 slide, please.



1                   Ensuring the staff has the skills, knowledge, and tools to  
2 perform the job is critical. Staff is conducting confirmatory research in  
3 decommissioning areas based on industry trends and operating experiences,  
4 such as the use of evapotranspiration, or ET, covers and autonomous vehicles  
5 for radiation surveys. We're also ensuring that staff are prepared to review  
6 license characterization and final status surveys. In this vein of work, we've  
7 created a Multi-Agency Radiation Survey and Site Investigation Manual, or  
8 MARSSIM, users' group to supplement MARSSIM training and allow staff  
9 across NRC to share information and keep up-to-date on the latest changes  
10 and trends in this area. This will help ensure that we have sufficient  
11 knowledgeable staff that are ready to conduct the reviews and inspections in  
12 this area.

13                   In addition to the research I mentioned, we've been  
14 collaborating with the Department of Energy on ET covers for uranium mill  
15 tailing sites through periodic meetings and site visits. The image on the left  
16 is of DOE's Grand Junction Disposal Facility, which includes study areas for  
17 ET covers. Staff was able to visit the site in June of 2023. These activities  
18 have greatly furthered our knowledge in this area and will support the reviews,  
19 as we're expecting in the next few years.

20                   Another key component of the work being done by the Office  
21 of Research is helping us to maintain and update the current models and  
22 codes related to the business line, such as the Residual Radioactivity Code,  
23 which is better known as RESRAD. These codes are important tools for NRC  
24 staff, Agreement State partners, and external stakeholders. On the right is a  
25 screen capture of our RAMP, or Radiation Protection Computer Code Analysis

1 and Maintenance Program, website for the development, maintenance, and  
2 distribution of radiation and dose assessment codes for the business line.

3 The NRC recently hosted the Fall 2023 RAMP Users' Group  
4 meeting. RAMP has codes for environmental assessment, nuclear power  
5 plant licensing, emergency response, atmospheric assessment, and other  
6 dose assessment scenarios, including decommissioning and uranium  
7 recovery. Next slide, please.

8 Over the past year, we've spent considerable time working  
9 with our external stakeholders to ensure effective and efficient  
10 decommissioning processes. We've supported numerous meetings,  
11 workshops, and conferences over the past year.

12 We've also issued generic communications and proposed  
13 guidance. For example, DLLW has been effectively coordinating with other  
14 federal agencies on uranium recovery and complex material decommissioning  
15 sites. Through collaboration with EPA and DOE, a license amendment was  
16 approved to bring mine waste from the Northeast Church Rock Minesite to the  
17 NRC-licensed millsite, along with important enhancements for erosion  
18 protection. Similarly, in cooperation with the EPA and the State of Oklahoma,  
19 Fansteel was added to the Superfund National Priorities List. This has  
20 opened up an opportunity to remediate the site.

21 We're also updating guidance as issued are being identified  
22 during licensing and oversight activities. In 2024, we plan to issue an ISG on  
23 evaluating the remaining subsurface residual radioactivity for  
24 decommissioning activities. Previous decommissioning plans and LTPs,  
25 such as La Crosse and Zion, developed site-specific approaches for open

1 excavation assessments. This new ISG builds off the lessons we've learned,  
2 while providing a variety of approaches that licensees can use to address this  
3 issue. We're also considering developing an ISG on discrete radiological  
4 particles, or DRPs. This will expand on our guidance for information that's to  
5 be potentially included in a License Termination Plan.

6 NRC generic communications continue to be used to  
7 address issues found throughout oversight activities. For example, in  
8 September of 2023, we issued an Information Notice on Fire Protection for  
9 Decommissioning Reactor Sites. Currently, we're developing an Information  
10 Notice on Contamination Control While Performing Decommissioning  
11 Activities. That will be issued in FY24.

12 In May of 2023, we hosted the first Reactor  
13 Decommissioning Lessons Learned Workshop. This workshop was very  
14 successful in bringing decommissioning reactor licensees together to share  
15 information and lessons learned.

16 We continue to conduct an annual workshop with our  
17 Agreement State partners on uranium recovery. The workshop provides an  
18 opportunity to discuss issues, operational experiences, and best practices.  
19 The scope of this workshop was expanded to include low-level radioactive  
20 waste in FY 2023.

21 We're also currently reviewing NEI Report 22-01. This  
22 report will help assist decommissioning reactor licensees in the development  
23 and implementation of License Termination Plans that satisfy NRC  
24 requirements and align with current best practices. We plan to provide our  
25 final feedback on the report in 2024 and believe that it will help improve the

1 quality of future submittals, and therefore, allow a more timely review by the  
2 staff. This concludes my presentation, and I'll now turn it over to Amy Snyder.  
3 Next slide, please.

4 MS. SNYDER: Thank you, Jane. Good morning, Chair  
5 Hanson and Commissioners. My name is Amy Snyder and I am a Senior  
6 Project Manager in NMSS. Today, I will be discussing how NMSS has been  
7 able to successfully use risk insights, historical data, and real-time field  
8 information in our views and decisionmaking. By doing so, it has enabled us  
9 to better understand first-of-a-kind challenges and address them in a timely  
10 manner while maintaining safety. Next slide, please.

11 We have successfully used risk principles and information  
12 to overcome challenges and inform decisionmaking during licensing reviews.  
13 For example, the review of San Onofre Nuclear Generation Station's request  
14 to reduce the ISFSI-controlled area boundary required us to involve multiple  
15 disciplines across the agency, including physical security, radiation safety,  
16 spent fuel safety, environmental, and emergency preparedness for this first-  
17 of-a-kind exemption request. This multidisciplinary team identified that  
18 comprehensive review criteria did not exist, but were able to identify how  
19 different review criteria could be used to address the issue. The team aligned  
20 early on and used qualitative and quantitative analysis to identify what was  
21 acceptable to making a safety decision.

22 After this integrated, risk-informed approach, the staff  
23 clearly knew what information they needed to focus on and how that would  
24 impact public health and safety. This cleared the way for completing the  
25 review in a few months. The integrative approach was also used for safety

1 analysis, security, and environmental reviews. Overall, the staff saved about  
2 six months using this approach. We appreciate the teamwork with OGC and  
3 NSIR on this challenging review.

4                   Next, I would like to discuss a recently completed Three Mile  
5 Island Station Unit 2 review. There were initially many questions from staff  
6 and the public regarding whether it would be safe to transition from post-  
7 defueling, monitored storage status, which it had been in for nearly 30 years,  
8 to active DECON, or active decommissioning.

9                   During this review, the staff assessed the hazards  
10 associated with the potential uncertainties related to the overall inventory of  
11 the fuel debris and the material left in the pressure vessel. Staff used risk  
12 insights to evaluate alternative scenarios and the adequacy of the safety  
13 margins for the no significant hazards consideration determination related to  
14 the proposed actions.

15                   These insights enabled reviewers to consider similar ranges  
16 of uncertainty and assumptions. This resulted in the team being able to  
17 complete the review for the technical specification amendment, which  
18 eventually led to site transition to DECON status. Next slide, please.

19                   Using risk insights in planning and executing confirmatory  
20 surveys has been invaluable to resolve potential uncertainty gaps or to confirm  
21 licensees' field work, helping us to complete safety reviews associated with a  
22 site's unrestricted releases. This was exemplified in a recent completion of  
23 Zion Unit 1 and 2 site unrestricted release. Significant progress was  
24 achieved once the NRC review team implemented a risk-informed approach  
25 for strategy development and implementation of the NRC confirmatory

1 surveys of the site.

2 By integrating insights, how decommissioning activities  
3 occurred across the site, and the results of a licensee's surveys, the team  
4 constructed a confirmatory survey plan that focused on areas that had the  
5 highest probability of the presence of potential residential discrete radioactive  
6 particles. The confirmatory survey results helped to resolve staff's concerns  
7 with information under review related to the licensee's past contamination  
8 control practices, survey methods, and final status survey results.

9 The top two photos are from Zion during the subsurface  
10 investigations. The photo on the top left is an example of an excavation area  
11 that was scanned for residual radioactive material -- "scan" meaning inside  
12 the surfaces, excavation surfaces and the soil that was also removed. The  
13 photo on the top right is an example of soil samples being retrieved from an  
14 excavation.

15 The confirmatory survey at Zion covered 128 final status  
16 survey units. And at the conclusion of obtaining information, we were able to  
17 make decisions about the unrestricted release for the site. This approach  
18 helped to address data challenges open since April 2021 and enabled us to  
19 make final determination that ensured public health and safety.

20 Another project was the Surface Ship Support Barge,  
21 referred to as SSSB. This was a unique, first-of-a-kind project that was  
22 conducted at a shipyard in Mobile, Alabama. It was a pilot project to  
23 demonstrate whether the Navy could successfully use NRC decommissioning  
24 requirements and inspection program to assist with the Navy's oversight of  
25 commercial decommissioning projects.

1                   The ship had a wet pit akin to a spent fuel pool. The photo  
2 in the bottom middle is what the wet pit looked like inside the ship. Each  
3 segment of the ship was transported by a crane to a huge containment tent  
4 and size-reduced and packaged as waste. The photo on the bottom left is  
5 how the shipyard broke up the parts of the ship during decommissioning. And  
6 lastly, in the bottom right of the photo is a photo of the NRC contractor  
7 surveying the floor during confirmatory survey after the containment tent was  
8 disassembled.

9                   For the review, the NRC was able to demonstrate how a  
10 risk-informed, performance-based approach can be used for such projects  
11 while meeting any additional requirements the Navy may have had. Staff  
12 developed a risk-informed confirmatory survey plan for this project that  
13 focused on active decommissioning areas of the highest risk, such as the area  
14 where the ship was segmented and waste-loading areas. After the two  
15 confirmatory survey visits, the staff and the Navy aligned on the use of the  
16 MARSSIM approach, which avoided a third confirmatory survey. Future  
17 reviews with the Navy will continue to become more efficient, as we gather  
18 and share lessons learned from the SSSB completion.

19                   This concludes my presentation, and now, I'd like to turn the  
20 presentation over to Cynthia Barr. Next slide, please.

21                   MS. BARR: Thank you, Amy. Good morning, Chair  
22 Hanson and Commissioners. My name is Cynthia Barr, and I'm a Senior Risk  
23 Analyst in NMSS.

24                   Today, I'll be discussing NRC's efforts to update  
25 decommissioning guidance to increase transparency in our license

1 termination process and allow a more efficient, effective, and predictable  
2 decommissioning process. Next slide, please.

3 NRC staff review of licensee decommissioning documents  
4 has emphasized the need for enhancements in decommissioning guidance  
5 related to radiological surveys and dose modeling to support license  
6 termination.

7 Multiple NRC-sponsored decommissioning workshops and  
8 several other public meetings and interactions with industry in recent years  
9 have helped NRC and industry identify areas of disconnect and reach closer  
10 alignment on acceptable methods to demonstrate compliance with dose-  
11 based release criteria.

12 In one example, current federal guidance on radiological  
13 surveys found in MARSSIM only addresses surveys of surface residual  
14 radioactivity, such as surface soils or building surfaces, while almost all  
15 complex sites have significant quantities of subsurface residual radioactivity.  
16 In fact, that's what makes them complex.

17 Limited guidance in this area has led to evaluation of  
18 licensees' subsurface remedial and final set of survey plans on a case-by-  
19 case basis. To address this gap, the staff developed Interim Guidance to  
20 extend MARSSIM, which you heard about earlier, to hard-to-access locations  
21 in the subsurface, including open excavations, reactor basement  
22 substructures, plan for backfill, and the actual backfill materials themselves.  
23 These types of staff reviews are a source of a significant number of RAIs  
24 related to the sufficiency of the radiological surveys to support the conclusion  
25 that the dose-based standards could be met for surface residual radioactivity



1 that would remain at the site.

2                   Sufficient survey support is especially important for  
3 subsurface materials due to the difficulty in surveying the materials after you  
4 backfill. Therefore, the ISG is expected to provide confidence to our  
5 licensees on acceptable methods to demonstrating compliance with our  
6 release criteria for buried materials, while promoting more consistent NRC  
7 staff reviews of decommissioning and final status surveys. In fact, NEI has  
8 communicated the usefulness of the ISG in plants to supplement their  
9 technical report NEI 22-01 with additional guidance provided in the Interim  
10 Staff Guidance. Next slide, please.

11                   More challenging issues of interest to the United States  
12 have benefitted from international collaboration. For example, I discussed  
13 NRC staff involvement with that ISG to extend MARSSIM to open surfaces  
14 and the subsurface, but perhaps a more difficult problem to address is  
15 subsurface surveys to support a decision regarding the need for remediation  
16 before any major soil-disturbing activities actually occur.

17                   Since undisturbed subsurface soils cannot be easily  
18 scanned with relatively cheap field instrumentation, due to attenuation of  
19 radioactivity in the soil column, you would need downhole gamma  
20 measurements; you know, have to drill boreholes or use more expensive  
21 laboratory sampling, potentially substantial volumes of subsurface soil.  
22 Therefore, a method to optimize the best locations to place those boreholes  
23 and take those measurements or samples is needed to make more confident  
24 decisions regarding remediation and compliance, considering limited  
25 resources.

1                   NRC chairs the NEA Working Party on the Technical,  
2 Environmental, and Safety Aspects of Decommissioning and Legacy  
3 Management, or WPTES, which recently hosted an International  
4 Decommissioning Innovation Workshop, as shown on the figure on the top  
5 right. We had over 140 experts from all over the world participating in the  
6 workshop with a number of presentations from world-renowned experts in the  
7 field of geostatistics. These presentations showed various examples of use  
8 of geospatial methods to facilitate selection of sampling locations, make  
9 predictions where no data exists, and support remedial and compliance  
10 decisionmaking.

11                   Building on the workshop findings, an NEA expert group  
12 was created to explore the uses of geospatial methods to optimize subsurface  
13 survey designs and support more efficient and effective decisionmaking.  
14 During the WPTES Innovation Workshop, several presentations were also  
15 made on the use of drones for engineer cover, monitoring, and maintenance,  
16 and radiological mapping, as shown on the figure on the bottom right.

17                   There is increasing global interest on the use of various  
18 delivery methods and platforms for the collection of large quantities of  
19 radiological survey information, but, currently, no guidance on how to process  
20 that type of data. Therefore, the expert group was also tasked with  
21 developing a standardized approach for analysis of what we call continuously  
22 collected data to demonstrate compliance.

23                   Recommendations and conclusions of the expert group in  
24 these two areas will be considered as NRC continues to develop guidance  
25 and tools to address more complex radiological surveys of the surface and the

1 subsurface. Next slide, please.

2                   Using both international and domestic experience, NRC is  
3 developing updated guidance to address current and future technical  
4 challenges related to nuclear facility decommissioning. The NRC is not  
5 stopping with development of just guidance. Partnering with our Office of  
6 Research, we are also developing practical tools necessary to implement the  
7 new methodologies laid out in guidance. These tools will help synthesize  
8 complex technical information into easy-to-understand results that will  
9 facilitate communication of risk information to our stakeholders.

10                   PNNL's Visual Sample Plan computer code used to design  
11 radiological surveys has been extended to three dimensions, and we're also  
12 further updating it to consider anisotropy and variogram fitting and kriging.  
13 Additionally, use of artificial intelligence and machine-learning methods has  
14 been proposed to combine different types of data to facilitate subsurface  
15 property assignment, for example, or to analyze radiological survey data,  
16 among other potential uses.

17                   Staying vigilant and ensuring NRC's regulatory readiness to  
18 address emerging technologies in the field of radiological survey methods,  
19 NRC is also sponsoring work to visualize and analyze big data, such as  
20 continuously collected data collected with a variety of platforms, including  
21 drones, as depicted on this slide. This work will help us maintain flexibility in  
22 methods used by licensees to demonstrate compliance and could result in  
23 significant efficiencies in time spent on supporting and reviewing the technical  
24 basis for license termination, while supporting more effective decisionmaking.

25                   And with that, I conclude my presentation, and I will now turn

1 it over to Gehan Flanders to discuss regional decommissioning activities.

2 MS. FLANDERS: Thank you, Cynthia. And good  
3 morning, Chair Hanson and Commissioners. My name is Gehan Flanders.  
4 I am a Health Physicist in Region III, and I have been with the Agency for two  
5 years. Today I will give an overview of the reactor and the materials of  
6 decommissioning inspection activities. This will include how the NRC is  
7 providing effective oversight of decommissioning activities to ensure safety  
8 and protect the environment as our efforts to build constructive relationship  
9 with local communities through public engagement. Next slide please.

10 As mentioned before, the Regions play a critical role in  
11 ensuring the safety of the decommissioning program through the  
12 implementation of our inspection program. The inspection program enables  
13 us to monitor the entire lifecycle of a site undergoing decommissioning. This  
14 is important because it allows us to not only focus on sites that are actively  
15 decommissioning, it also allows us to provide oversight of facilities that are  
16 dormant, and those adjacent to operating reactors.

17 The photo on the right shows Region IV conducting  
18 inspection activities at the GEH Vallecitos BWR to confirm that the licensees  
19 actions during the removal of the reactor vessel did not create significance  
20 environmental impacts. The top left photo from the Region I is offering  
21 inspectors at Vermont Yankee observing radioactive waste movement and  
22 segmentation. The photo on the bottom right shows Vermont Yankee's  
23 current state of decommissioning. The photo on the bottom left is showing  
24 how Region III conducted extensive confirmatory surveys and did sampling at  
25 Zion. Next slide please.

1                   Now I will briefly talk about how our staff has engaged with  
2 our external stakeholders regarding decommissioning activities. Specifically  
3 I will discuss two recent examples that highlight our efforts in this area.

4                   Our staff foster transparency and engagement at Palisades,  
5 Pilgrim, and Indian Point community meetings consistent with the NRC's best  
6 practices for establishment and operation of local community advisory boards  
7 associated with decommissioning activities at nuclear power plants. This  
8 engagement is shown on the top image.

9                   The second example is how we have partnered with DOE  
10 legacy management and the State of New Mexico to engage with the local  
11 tribe of Pueblo of Acoma regarding the decommissioning uranium recovery  
12 sites. The photo on the bottom left shows a community engagement to go  
13 onsite in New Mexico where several NRC staff were able to accompany them  
14 on the site and engage with the group. These engagements have allowed  
15 the staff to communicate transparency with individuals outside the agency to  
16 answer any questions or concerns they may have and to share knowledge  
17 and information about the process with stakeholders, including the public,  
18 media, local leaders and officials. We also believe there is great value in  
19 being out onsite to ensure we have the most comprehensive information  
20 available to fulfill our mission and assist us in making and forming regulatory  
21 decisions. This concludes my presentation. And I will now turn it over to  
22 John to close out this part of the briefing. Next slide please.

23                   MR. LUBINSKI: Thank you, Gehan. I would like to thank  
24 all our presenters today. I would also like to thank all the folks within the NRC  
25 that are part of this business line and contributed to all the accomplishments

1 and success. And I appreciate their safety focus as they continue to  
2 implement our mission. With that, that concludes our presentation this  
3 morning, and we're open to any questions. Thank you.

4 CHAIR HANSON: All right. Thanks, John. And thanks  
5 to the rest of the panel. I'll start off, kick off questions this morning.

6 Jane, I think I'm going to start with you. And I've got some  
7 questions I think about, how we're kind of planning for the workload on license  
8 termination plans, how many of those we see kind of coming down the pipe.  
9 And how is it, how are we adapting when sites are maybe changing their  
10 schedules or changing when it is they think that they're going to maybe finish  
11 up. And maybe some of that's easy because it's ten years down the road,  
12 but it's also possible that some of it is a little nearer term. So you kind of  
13 expand on that a little bit?

14 MS. MARSHALL: Okay. Thank you, Chair, for the  
15 question. Yes, I will agree that the changes that are further out, you know,  
16 eight, ten years out, are much easier to plan for. The near-term changes we  
17 do use the add/shed/defer process if it is a change that impacts planned work  
18 versus how much staff we have available. So we prioritize it that way.

19 Currently in-house we have five LTPs that we're reviewing.  
20 We're expecting two more in 2024. There is a pretty good possibility that  
21 there will be an additional third new LTP coming in, in that time.

22 CHAIR HANSON: Okay.

23 MS. MARSHALL: Yes.

24 CHAIR HANSON: Yes, thank you. This is maybe a  
25 question for both you and Amy. And I'm interested in, I guess, in some of the

1 changes. We mentioned La Cross and Zion, but particularly Zion. And,  
2 Amy, you mentioned kind of a risk-informed approach to confirmatory surveys.  
3 And I know a lot of, or the bulk of the decommissioning work at Zion had been  
4 done for quite some time, and a lot of that confirmatory survey was what, kind  
5 of what needed to be done in order to authorize site release.

6 Can you talk a little bit more about why that additional, why  
7 those additional confirmatory surveys were needed and how exactly the risk-  
8 informed approach was applied? I mean, you talked about a risk-informed  
9 approach but we still did, I think 128, 128 final status surveys and other things.  
10 And presumably there were surveys kind of before that that were preliminary.  
11 So can you kind of talk about that process and explain a little bit more about  
12 how a risk-informed approach was applied?

13 MS. MARSHALL: You want me to start and I'll --

14 MS. SNYDER: Sure.

15 MS. MARSHALL: -- ask you to add some of the detail. So  
16 at Zion we looked at kind of discrete radioactive particles that were being  
17 found, and where they were being found, and focused in on a few smaller  
18 areas that needed additional cleaning. So once the site had done additional  
19 remediation, they had to do another final status survey to document the results  
20 of that additional remediation.

21 We also considered the types of DRPs that were found and  
22 what that indicated as far as risk. So it was a very risk-based. And that  
23 allowed us to move through, focus on areas of concern, and ultimately lead to  
24 site license termination.

25 CHAIR HANSON: Got it. It was the discovery of the

1 discrete radioactive particles and the need to remediate those in order to get  
2 us to our greenfield --

3 MS. MARSHALL: Yes.

4 CHAIR HANSON: -- to the greenfield status requirement?  
5 Okay, thank you. Helpful.

6 MS. MARSHALL: Okay, thanks.

7 CHAIR HANSON: You're off the hook, Amy. Jane, you  
8 mentioned briefly that NRC has been collaborating with DOE on  
9 evapotranspiration covers --

10 MS. MARSHALL: Yes.

11 CHAIR HANSON: -- and the performance of those at  
12 uranium mill tailings site. Can you elaborate a little bit on that work and  
13 maybe what DOE or NRC has found about the long-term performance, or  
14 some preliminary indicators about the long-term performance of ET covers?

15 MS. MARSHALL: Okay, sure. So the ET covers, the idea  
16 is to minimize any radon coming out of the tailings pile, and to prevent  
17 infiltration of additional water into the pile which generates a groundwater  
18 plume, which is another remediation concern that we have. We've been  
19 working with Department of Energy on different strategies. So the ET cover,  
20 you have to find a balance between enough vegetation to keep it from eroding  
21 and vegetation that doesn't have very deep roots that would then pierce the  
22 radon barrier. So finding the right vegetation is, and getting it to be  
23 established so that it will stay, has been a bit of a challenge.

24 CHAIR HANSON: There is something outside of the, I  
25 mean, you know, if I think back about the approval of the license amendment



1 for Church Rock, right, we had a relatively discrete kind of intense monitoring  
2 period of, say five years --

3 MS. MARSHALL: Right.

4 CHAIR HANSON: -- after that pile was covered with the ET  
5 cover, et cetera. But is there a, are there kind of longer term considerations?  
6 My understanding was that DOE was finding some issues with ET covers that  
7 had been in place for, say 20 or 25 years, and starting to see some  
8 performance issues with those. And I'm wondering how that might inform our  
9 work or how that might, or how the collaboration with DOE on that front is kind  
10 of happening and what changes we might make up front in that process to  
11 better ensure kind of long-term performance?

12 MS. MARSHALL: So the concerns are mainly erosion.

13 CHAIR HANSON: Yes.

14 MS. MARSHALL: Which is, yes, you lose the cover  
15 through erosion. Some of the, there are different ways that you can prevent  
16 erosion riprap but it can erode from around the material for that, which is why  
17 vegetation becomes important.

18 Long-term monitoring is the piece of the equation for all of  
19 this. That's why we turn the sites over to DOE legacy management. And  
20 they do have a long-term monitoring role. And they can repair those ET  
21 covers if necessary. Ideally, which is more what we shoot for, is that the  
22 cover is designed and then placed in such a way that they don't erode and it  
23 doesn't require a lot of maintenance.

24 CHAIR HANSON: Yes.

25 MS. MARSHALL: We've had some other cases where the

1 tailing material settles and so then you end up with a kind of a --

2 CHAIR HANSON: A pond --

3 MS. MARSHALL: -- pond --

4 CHAIR HANSON: -- on top.

5 MS. MARSHALL: -- on top of the --

6 (Simultaneously Speaking.)

7 MS. MARSHALL: -- which is not ideal. Yes. You get an  
8 impoundment for areas of intense participation, so.

9 CHAIR HANSON: Well good. I'm glad we're actively  
10 involved in that and collaborating with legacy management and others on that,  
11 so thank you. With that, I'll hand it over to Commissioner Wright.

12 COMMISSIONER WRIGHT: Thank you. Good morning.

13 MS. MARSHALL: Good morning.

14 COMMISSIONER WRIGHT: And thank each of you for  
15 your presentations. There is a lot going on. And just always is in your area  
16 of job. John, I'm going to start with you this morning. You know, you  
17 mentioned the license that we issued with Rare Earth Resources. Can you  
18 tell me a little bit more about Rare Earth and the timeline for approving the  
19 license?

20 MR. LUBINSKI: Yes. Actually, I'll turn to Jane for that  
21 one. She can talk about the amendment that did come in last year. We  
22 issued the final, or not amendment, the license application. We did issue the  
23 license in July this year. And then, Jane, if you could talk a little bit about the  
24 overall schedule and what the scope of that amendment covered, I'd  
25 appreciate it.

1 MS. MARSHALL: Okay.

2 MR. LUBINSKI: Or license.

3 MS. MARSHALL: Thanks. Thanks, John. We spent  
4 nine months on this review. It was a limited review because it is a license for  
5 a pilot project. We had some other advantages that helped us keep that tight  
6 timeline for review. It was a good submittal, high quality submittal as always.  
7 Easier and faster to review. We had meetings with the licensee ahead of  
8 time. And the, both of the scope of what they're doing, being a pilot, kept it  
9 small. And the footprint of the site is smaller than a lot of the sites that we  
10 deal with. So for that we were able to complete it in nine months.

11 COMMISSIONER WRIGHT: Anything you learned going  
12 forward that you would be able to apply some good stuff?

13 MS. MARSHALL: Yes. We do encourage all licensees to  
14 take advantage of pre-submittal meetings because that way we can make sure  
15 that they understand what the staff is looking for. And the staff can  
16 understand the scope of the license that they're intending to apply for, which  
17 helps us plan our work better.

18 COMMISSIONER WRIGHT: Good. It's always good to  
19 get that on the record. Thank you.

20 MS. MARSHALL: Yes.

21 COMMISSIONER WRIGHT: So, Jane, I'm going to stay  
22 with you for a second here. You mentioned in your presentation a  
23 decommissioned lessons learned meeting, right?

24 MS. MARSHALL: Yes.

25 COMMISSIONER WRIGHT: Were there particular

1 highlights from that meeting that were interesting and could help maybe inform  
2 us moving forward?

3 MS. MARSHALL: Yes. I was really encouraged by that  
4 meeting because prior to that decommissioning is a little bit different than  
5 operating reactors. Decommissioning is like most commercial ventures, a  
6 fairly competitive market. And at this meeting the decommissioning  
7 companies got together and were very candid about some of the struggles  
8 that they had encountered. Whether it was DRPs and how to avoid  
9 generating DRPs to other issues that would extend the timeline for  
10 decommissioning to including best practices for reaching out to the local  
11 community and involving the local community in the decommissioning  
12 process. So being able to bring together that group of commercial  
13 competitors and share lessons learned was really a unique and, in my mind,  
14 very encouraging for the industry.

15 COMMISSIONER WRIGHT: So they actually --

16 MS. MARSHALL: Yes.

17 COMMISSIONER WRIGHT: -- shared everything and --

18 MS. MARSHALL: Yes. They were very candid.

19 COMMISSIONER WRIGHT: Good.

20 MS. MARSHALL: Yes.

21 COMMISSIONER WRIGHT: Thank you. John, I'm going  
22 to come back to you real quick here. You mentioned that you all were  
23 revising and adding new training courses for decommissioning and low-level  
24 waste. So I mentioned learning how these training courses kind of are  
25 planned across your business line. And I'm aware that we have requests for

1 more training in areas that we already offer, especially from Agreement States.  
2 So my question is, how do you balance adding the new training with making  
3 sure we have enough openings in the courses we already have?

4 MR. LUBINSKI: Thanks. Appreciate that question. And  
5 as I said, knowledge management is very important, and especially as we  
6 continue to hire new folks into the organization. If I could just go back briefly.  
7 Some of the challenges that we had were with the hiring across the programs.  
8 We'll talk later about more in the NMU program.

9 COMMISSIONER WRIGHT: Sure.

10 MS. MARSHALL: And the national materials program.  
11 But there was a lot of Agreement State participation. Eighty percent of the  
12 licensees are in the Agreement States, and they have the same hiring and  
13 training challenges we had.

14 A lot of the challenges associated with providing that training  
15 were being able to have enough seats in the class for folks to come in. It was  
16 also then with seats in the class, how many instructors do you have. We had  
17 a limited amount of instructors that were working those activities.

18 The training I talked about earlier in my discussion was more  
19 related to this business line. The first training I mentioned was actually a  
20 revision to a current training right now. So that class we had no problems  
21 from the standpoint of the number of people that needed it. It was a much  
22 smaller population of folks.

23 COMMISSIONER WRIGHT: Right.

24 MR. LUBINSKI: Again, I mentioned this is a smaller  
25 business line. Even within the Agreement States, there is a smaller group of

1 people so we didn't see as much of a concern there.

2 Also, these training class lend themselves to be ones that  
3 can be done remotely. So when you're talking about training online or  
4 remote-type training, you don't have the limitations for the number of seats  
5 and the number of people that can be in those classes. With that said, there  
6 is still a balance to the development of the training as well as our technical  
7 experts here who will be performing that training.

8 Jane mentioned the add/shed process earlier, and it's really  
9 the investment in the future. At NMSS our focus areas are people, trust, and  
10 workloads. We hit one of them was workload, but it also supports the other  
11 of the people and how do you make sure they're trained. So we balance that  
12 priority. But I don't see the similar type challenges that we saw with the other  
13 programs.

14 COMMISSIONER WRIGHT: Okay, thank you. Thank  
15 you. Cynthia, you mentioned the use of AI and machine learning in  
16 decommissioning, so I want to get you to tell me a little bit more about this.  
17 Are you talking about the NRC using these methods or is it something that the  
18 licensee would be using and we'd be regulating?

19 MS. BARR: Well currently it's just internally driven. Right  
20 now, I had mentioned specifically some of our contractor work and proposals-

21 COMMISSIONER WRIGHT: Right.

22 MS. BARR: -- for subsurface. So we have two contracts  
23 now with Oak Ridge National Laboratory and Pacific Northwest national  
24 Laboratory. And both of our contractors working on subsurface had  
25 proposed the use of mainly ML methods.

1                   For example, ORNL has proposed use of ML for variogram  
2 modeling. Or selecting the variogram model, which is a key component of  
3 geostatistical modeling. So you can think of using data and training that data  
4 to identify, if we're talking about animals, cats or dogs or other source of  
5 animals, then in this case it would be identifying certain variogram models.

6                   PNNL has also proposed use of ML methods and deep  
7 learning to combine different disparate data sources --

8                   COMMISSIONER WRIGHT: Right.

9                   MS. BARR: -- including geophysical data, and also  
10 radiological data. So they actually have an example where they have  
11 combined these different data sets to identify high probability areas in the  
12 subsurface that are pathways for containment and transport.

13                   More routinely here at the NRC we have also used  
14 neuronetworks and other machine learning technics to perform probabilistic  
15 sensitivity analysis. So we may be presenting that as a use case as part of  
16 the initiative at the starting. Thank you.

17                   COMMISSIONER WRIGHT: Thank you. Thank you very  
18 much. Gehan, how are you?

19                   MS. FLANDERS: Thank you.

20                   COMMISSIONER WRIGHT: So since you're one of our  
21 newer employees, two years, right?

22                   MS. FLANDERS: Yes.

23                   COMMISSIONER WRIGHT: I'd like to hear your thoughts  
24 because I believe you might bring a little, well, like a fresh perspective, right?

25                   How do you feel about the relationship between the

1 licensing staff and the inspection staff, especially given the back and forth,  
2 between the two, during the decommissioning process? Talk with me about  
3 maybe your experience with the coordination. Is the back and forth helpful to  
4 you, confusing or does it, you know, take time, tell me --

5 MS. FLANDERS: Absolutely. Thank you, Commissioner,  
6 for the question. I truly appreciate it. I would say the Agency licensing and  
7 inspection staff, they have been working together as one team. They are  
8 doing such a great job. And this is based on my own experience.

9 We both make sure we ensure we have a common  
10 understanding of the site as a whole. We cooperate together, we work it  
11 together for a periodic meeting, which would be calls with the licensee, site  
12 visits, what is ongoing activities. We also sometimes, the licensing staff  
13 would assist inspectors in licensing basis in support of, with changing an  
14 inspection finding. And also inspectors would assist the licensing staff for like  
15 the current status of the site, like ongoing activities. And that would be used  
16 for any ongoing licensing actions.

17 So in summary, we all work together as one team. And we  
18 all make sure that at the site, at any site, we will work together to carry out the  
19 agency mission to protect the public and the environment.

20 COMMISSIONER WRIGHT: Thank you very much for that  
21 answer. That was very good, thank you.

22 CHAIR HANSON: Thank you, Commissioner Wright.  
23 Commissioner Caputo.

24 COMMISSIONER CAPUTO: Good morning. Thank you  
25 all for being here. I'd like to commend the staff for wrapping up Zion 1 and 2,



1 and La Crosse. Zion ceased operations, or I should say shut down for the  
2 last time, three days prior to my joining the company. So that was quite a  
3 long time ago. And it spent a long time in SAFSTOR and a fair amount of  
4 time in decommissioning. So it's quite a milestone achievement for this  
5 Agency in bringing that to closure. So thank you for all that work.

6 I'm going to continue on, I think, in a vein where the  
7 Chairman was asking about surveys and some risk-informing. Cynthia, you  
8 talked about the challenge of subsurface contamination, right, and the search  
9 for it. Where to look for it, techniques on how to find it. But that sort of puts  
10 us in a position of trying to prove a negative. Right? Which in inspection  
11 space, and Gehan you may want to contribute here as well, how do you  
12 balance the search for a negative trying to verify that there isn't subsurface  
13 contamination, with being risk-informed and focusing your efforts on  
14 something that is safety significant? How do you draw that line?

15 MS. BARR: Excellent question, thanks. Well, MARSSIM  
16 already has a graded approach to performing these types of radiological  
17 surveys so that you can make confident decisions, eliminating decision errors  
18 on the ability to meet our dose-based standards. So we have attempted to  
19 extend those MARSSIM principles to the subsurface.

20 So a key component to MARSSIM is a historical site  
21 assessment. And so that's using all the historical information,  
22 documentation, including interviews with workers, that sort of thing, to identify  
23 areas that are potentially impacted versus not impacted. And if they are  
24 found to be impacted based on the historical site assessment, a graded  
25 approach is used in classifying those survey units as Class 1, 2 or 3 based on

1 risk. It's a little bit more difficult for subsurface because you can't easily see  
2 it. So the licensee has information and knowledge about any burials, any  
3 piping that carried radioactive materials that could potentially have leaked.

4 We have a rulemaking that asked the licensees to  
5 immediately investigate if there are any leaks or spills and to clean up those  
6 areas so it doesn't become a problem later on in a legacy site's created. So  
7 we're not asking any information, but we use all that information.

8 We can even supplement that information with modeling  
9 that kind of reflects the containment transport, and the potential for other areas  
10 or pathways in the subsurface that are more difficult to survey to supplement  
11 that information.

12 COMMISSIONER CAPUTO: So you mentioned that  
13 MARSSIM previously didn't address subsurface, but now you're pursuing  
14 subsurface. So were there historical examples that you found that drove that  
15 expectation that changed, or is it speculation about what you expect to find in  
16 the future, based on spills that you've seen presently?

17 MS. BARR: I think in the past they took kind of a brute force  
18 method and evaluated subsurface contamination on a case-by-case basis.  
19 So there was no real standardized approach for how you would go about doing  
20 those surveys and how many samples you needed to take, what class would  
21 apply. And so now we are providing that clarity and that transparency so that  
22 it's a little bit more efficient and our decisions are more effectively and long  
23 lasting. So hopefully we're just providing -- I'm sorry, did I not answer your  
24 question?

25 COMMISSIONER CAPUTO: So if historically it was on a

1 case-by-case basis and now you're doing it across the board, how is that more  
2 efficient?

3 MS. BARR: Because before they didn't know what to do  
4 and they would go back-and-forth with the NRC. The NRC would have a  
5 bunch of requests for additional information. They didn't know what exposure  
6 scenarios to consider. Then they would have to go back and redo their  
7 models, derive cleanup levels all over again.

8 So at this point in time we think we have enough clarity and  
9 experience from our work on all these sites in the past to be able to put  
10 together good practices and develop the guidance to a point where the whole  
11 process should be a little bit more efficient. And better decisions are going to  
12 be made from it as well.

13 COMMISSIONER CAPUTO: Okay, thank you. Ms.  
14 Snyder, you talked about a successful example where risk principles  
15 addressed issues and informed decision making and led to savings of six  
16 months using risk, an integrated risk-informed approach. How did the team  
17 focus on the information they needed to reach safety findings? Is there a  
18 process used?

19 MS. SNYDER: Thank you for the question, Commissioner.  
20 At first, we used the NRC process, Be riskSMART, but it seemed to be focused  
21 on the area itself, the technical area that each person had. And it wasn't until  
22 we looked at an integrated approach on how that information would be used.  
23 For example, a terrorist analysis result would be used in the environmental  
24 review, because the reviewer for the terrorist analyst knew what to do, but that  
25 end result, how it fits into the environmental assessment, was difficult to

1 comprehend. So each, it wasn't until we integrated the team and  
2 understanding of how we're using this information did we have a  
3 breakthrough.

4 COMMISSIONER CAPUTO: Okay. So, John, I've got a  
5 leadership question for you. Right? We got a lot of dedicated people at the  
6 Agency, and I am a firm believer that people will meet expectations. And if  
7 we set ambitious but achievable goals, we have a lot of talented folks that will  
8 strive to meet those goals.

9 So how, from a leadership perspective, and in terms of the  
10 culture of the Agency, how do we empower staff to make risk-informed  
11 decisions and strive for schedule savings and reaching a conclusion, an  
12 efficient conclusion to the work, rather than seek, then effectively using the  
13 maximum time allowed under milestones and generic schedules?

14 MR. LUBINSKI: Thank you. So let me use the Zion as an  
15 example. You complimented the staff, and I want to thank you for that  
16 compliment as well. And I want to compliment the staff in working across the  
17 agency. You said many talented people. That was an effort that was not  
18 just a headquarter staff, but the regional staff working very closely together on  
19 that.

20 And the expectation for that, and I'll use, again, as the  
21 example going forward, how we set the expectation. The expectation is to  
22 meet our mission of safety. In that case, when the staff was going through  
23 the process it was identified that what was expected at the site was not what  
24 was discovered during the survey. I think one of the questions was a  
25 preliminary survey. It was not, it was actually a final status survey we were

1 doing. And the staff, and it was ahead of schedule, right? They were  
2 looking, they weren't looking at schedules saying, we're just going to go butt  
3 up against a final schedule it was, how can we do this in the most effective  
4 way.

5                   The minute they hit and said, we have a problem here  
6 because we found this discrete radioactive particle, first we went back to the  
7 licensee, because again, the licensee is responsible for the cleanup. When  
8 it was clear that the licensee could not demonstrate they were meeting the  
9 exact items in their license termination plan, the staff then said, how do we  
10 look at this in a new and unique way? Because again, they were, we could  
11 have just said, well no, you need to follow the LTP, follow your process, go  
12 back and do more surveys, do more cleanup. But the staff said, no, that is  
13 not the goal of what we're trying to achieve. And I think that's how we're  
14 setting the expectation is, how are you making a determination of something  
15 safe or not. That's where the staff then looked at it and said, how do I pull in.

16                   And it sounds like a lot, Chair, when you say 128 surveys  
17 going out; that may sound like a lot. But when you're doing your third set of  
18 surveys there and you're identifying items that were not expected and you  
19 used risk insights to say, now that we've narrowed our focus and the majority  
20 of those were done in areas where already discrete radioactive particles were  
21 found, they could focus that area.

22                   So it's set in the expectation to say to the folks, what is our  
23 real goal of what we're trying to achieve. And that is site release. And I'm  
24 using decommissioning as the example. How do we achieve site release in  
25 the most effective way and an efficient way?

1                   Then I'm going to go back where Amy brought up the  
2 example earlier about the site boundary. Again, the licensee did not  
3 necessarily need that site boundary in a certain amount of time. It's, you  
4 know, they had business needs, but it was a longer-term time frame from when  
5 they needed that. But the staff didn't put that on the back burner they said,  
6 no, we have this unique issue in front of us today and how do we come up  
7 with a resolution.

8                   So again, it's what is the safety significance. In this case  
9 there was a security significance. So the staff, we set the expectation, don't  
10 be looking at schedules at this point be looking at what is needed to get the  
11 process moving. As part of, Amy said starting with the Be riskSMART  
12 approach, it was really integrating the team into those aspects of the Be  
13 riskSMART to say, what is really needed to make the decision. And then  
14 asked the question of, what information do we have, how much more do we  
15 need, how do we get it. And that's where the staff did that in both of these  
16 cases.

17                   So from a leadership standpoint it's setting the expectation  
18 for the result and then asking the staff, what is the most effective way of getting  
19 towards that result and what is the efficient way. And I think these examples  
20 show that those expectations are being realized, because I agree with you,  
21 we've got a lot of talented people in the agency.

22                   And when you set those expectations, they're going to rise  
23 up to meet it, and they're going to do it in ways that we, as leaders, may not  
24 have thought of because they know the way to get there. So I would really  
25 be setting the what, not the how.

1                   But on your point of schedules, schedules are important as  
2 well, because that helps with prioritization of activities. And then that gets  
3 into a leadership standpoint of re-prioritizing work. Certain activities are  
4 going to come in. The question was asked earlier about schedules with  
5 decommissioning and what are we going to do when more work comes in.  
6 We may get other competing work in and we'll need to re-prioritize that based  
7 on the business needs of licensees. Thanks.

8                   COMMISSIONER CAPUTO: Thank you.

9                   CHAIR HANSON: Thank you, Commissioner Caputo.  
10 Commissioner Crowell.

11                  COMMISSIONER CROWELL: Thank you, Mr. Chair.  
12 Thank you to all the panelists today for your presentations.

13                  You know, this business line may not get as much attention  
14 and may not be as "sexy" as the new reactors business lines that we talk about  
15 often, but your success is integral to their success and, you know, our broader  
16 social license as an agency really rests on how well you guys do your job in  
17 coordination with the public and the licensees. So it's important not to be  
18 overlooked, so I appreciate what all that you do. And that goes for the next  
19 panel as well.

20                  I want to pick up on the topic that both the Chair and  
21 Commissioner Caputo were talking about in terms of, and I think Cynthia, you  
22 said it best. You've got improved efficiency and better data using the new  
23 technics and technologies for monitoring. I assume that would also, with that  
24 standardization and efficiency and improved data also comes cost savings?

25                  MS. BARR: It's hard to quantify but we did do a regulatory

1 analysis for our updates to our decommissioning guidance and NUREG-1757,  
2 as well as the interim staff guidance. And so we did estimate the number of  
3 RAIs based on data that we had from previous reviews on how many RAIs we  
4 could save having the issue to the licensees, their time, responding to those  
5 RAIs and staff time reviewing the responses, as well as developing the RAIs  
6 to begin with.

7 But there are also savings associated with reworks that are  
8 more difficult to quantify if the licensee has to go back out to a site and perform  
9 more surveys. Having to mobilize in order to do that is, you know, something  
10 that adds to the cost. And so we just want to make sure that we're speaking  
11 to industry, we understand what their needs are, what they want to do.

12 As an example, they like to use in situ gamma for hard to  
13 access locations. They have these reactor building substructures that are  
14 sometimes located deep in the ground, maybe under the watertable. And  
15 they want to use this alternative method in order to do the surveys, which isn't  
16 a traditional MARSSIM approach.

17 And so, we have taken the time to look and see, what are  
18 the types of things that they've been trying to use, and where is our guidance  
19 lacking in giving them the confidence to be able to use these alternative  
20 methods. And it just doesn't extend to in situ gamma, there is probably  
21 another ten examples.

22 So we tried to be responsive to industry, make sure that  
23 we're doing adequate reviews that are going to be protective of human health  
24 and safety at the same time, but doing it, again, in a smarter way. So I think  
25 we're going to see some cost savings. Again, difficult to quantify but I think



1 I've named some examples.

2 COMMISSIONER CROWELL: Oh great, thank you. Kind  
3 of an extension of that. I think, I don't know if it was Jane or Amy or who  
4 mentioned it previously, but the engagement with industry on  
5 decommissioning best practices. You had mentioned that it included best  
6 practices for engaging local communities. Can you talk a little bit about, more  
7 about what those best practices are?

8 MS. MARSHALL: Thank you. One of the best practices  
9 that we've highlighted before is forming community advisory boards. And  
10 they're local groups local to the decommissioning facility that kind of serve as  
11 a focal point for interacting with the community and focusing community  
12 concerns for that specific site. It is entirely up to the local public and the  
13 licensee if they want to support that model to have that advisory board.

14 COMMISSIONER CROWELL: So when a community  
15 advisory board is established, it doesn't arise organically out of necessarily  
16 the community coming together to establish a advisory board, it was, it's NRC  
17 suggesting or saying that this is one option for you to engage and we would  
18 help you establish a community advisory board, is that --

19 MS. MARSHALL: We are not part of the community  
20 advisory board, it is truly the community. We do support meetings as we're  
21 invited to give presentations or be there to answer questions. I know Amy  
22 has a meeting this evening with Indian Point, is it, advisory board?

23 MS. SNYDER: Three Mile Island.

24 MS. MARSHALL: Three Mile Island. Sorry. So I'll invite  
25 you to give some more detail on how those --

1 COMMISSIONER CROWELL: And I don't want to cut you  
2 off, and I know kind of the back and forth with the --

3 MS. SNYDER: I'll be glad to add a little bit more. So we  
4 give presentations. We find that what, historically what has really helped is  
5 to explain the NRC process and to explain the safety significance. For  
6 example, the Pilgrim discharge. You know, what the NRC does, what our  
7 process is, why it's safe and so forth. So, we're very instrumental in  
8 explaining to the public the NRC ensures that what is being done at the site is  
9 safe. So it also includes the inspection staff.

10 Also, as a project manager, I give feedback to the licensee  
11 who sponsors, usually sponsors the community engagement panel. And also  
12 at times to the community advisory board member as far as what might be  
13 more effective or efficient as far as helping understand, helping the community  
14 understand what's going on at the site right now as far as active  
15 decommissioning. Or what's going to happen in the future. So we talk about  
16 the inspection program, what was inspected, and what are the areas we'll be  
17 keeping an eye on.

18 COMMISSIONER CROWELL: And these are all, you  
19 know, good topics and good things to engage the public on. I guess I'm a  
20 little unclear, even maybe concerned about, when we do public engagement  
21 whether we're being proactive or reactive.

22 And, you know, and John, you're welcome to take this as  
23 well because I know you said in your presentation that inspiring stakeholder  
24 confidence is a business line priority. And I've learned at my time at the NRC  
25 that the word stakeholder is not as straightforward or generic as I once

1 thought. It doesn't, I always took it to mean, anyone and everyone, including  
2 the public and licensees. But often it is a subset of just, you know, certain  
3 stakeholders who are specifically licensees or applicants.

4                   And I just would like someone to kind of explain how we are  
5 being proactive versus reactive in engaging the public directly or engaging the  
6 public tangentially through proactive encouragement of a licensee, or a  
7 community, in how they can engage their constituents in an effective way  
8 because, you know, getting that going early is going to head off issues later,  
9 because in my experience the big issues with decommissioning are lack of  
10 understanding or misplaced facts. And the way to get ahead of that is to start  
11 early. So whomever wants to take that.

12                   MR. LUBINSKI: Thanks. If I can. If you don't mind, Jane  
13 and Amy. It's definitely proactive. Let me start there. I mentioned earlier  
14 that even our regulations require us to hold public meetings in the vicinity of  
15 the site. You know, I'd have to search the regulations. There are very few  
16 cases where our regulations actually require us to hold a public meeting and  
17 require and hold in that area.

18                   We assure that when we're sending out our documents that  
19 we actually proactive reach out to our listservs of folks who have been involved  
20 when the site was active, right? We do have the advantage in  
21 decommissioning understanding who the folks were that were engaged with  
22 the site during operation. We actively reach out to them to make them aware  
23 of the meeting. We make them aware of all of the activities that we're doing.

24                   I think you said, to the standpoint of educating and  
25 understanding, there is a couple of things that, there is two parts to that. One

1 is educating them on the process that takes place at the site. What's being  
2 done and what NRC's role is. There is also the process of engaging with  
3 them to understand where they can engage in the process. And that's where  
4 we're being proactive as well.

5 I'll mention at the next session about our meeting we had  
6 with state liaison officers. That's an area where our regions to reach out to  
7 the state liaison officers, Governor-appointed officials who work and  
8 understand what's going on in the communities and what's important to them.  
9 So we use that as a resource to be able to reach to and say, what are the  
10 important issues, who are the important communities.

11 Finally we do have our tribal policy statement. And we  
12 ensure that we reach out to tribal communities that are impacted as well in  
13 going through the process. As an example, we do have our  
14 decommissioning rulemaking. We issued a proposed rule, held a series of  
15 public meetings in person. And again, reached out to the areas of the country  
16 where we felt the folks were most engaged in decommissioning, had the most  
17 to offer, and actively sought them out to attend the meeting so that we could  
18 get active input from them vice just putting something out in the federal register  
19 and saying, here it is, if you want to comment go for it. Instead we're saying,  
20 no, we actually want to hear from you.

21 During the meetings also, as Jane said, we don't run the  
22 community advisory board, we don't run the meetings. We offer our self as a  
23 resource to them. Any time we're invited, I can't think of a time where we  
24 turned down going to a meeting, but we go and talk about our roles and our  
25 issues there. But we also take it as an opportunity to say, if people are there

1 for the community advisory meeting, we may hold a town hall earlier in the  
2 day. It may hold it before or after the meeting.

3 And kudos to our regional folks and headquarter folks that  
4 attend in person, that stick around after the meeting, to actually seek out  
5 people who engage during the meeting to have further discussion. So it's not  
6 just that that takes place on the record during the meeting, but afterwards the  
7 hallway conversations, the networking, and folks reaching out to have those  
8 conversations in a very practical way.

9 COMMISSIONER CROWELL: That's helpful. It's a topic  
10 I'd like to explore more with you and your staff at some point to see how we  
11 can make tweaks to be even better in this regard. And I didn't get a chance  
12 to pick up on ET covers, but I will do that in some other fashion later, so thank  
13 you all.

14 CHAIR HANSON: Thank you, Commissioner Crowell.  
15 And thanks to our first panel this morning, really appreciate everyone's effort  
16 in getting ready for this meeting.

17 We're going to take a short break. We will reconvene just  
18 a hair before 10:30. And again, thank you all for the presentations. Thanks  
19 for the good discussion this morning and look forward to the second half.

20 (Whereupon, the above-entitled matter went off the record  
21 at 10:17 a.m. and resumed at 10:28 a.m.)

22 CHAIR HANSON: Okay. Thank you everyone.  
23 Welcome back. The next staff panel will discuss the Nuclear Material Users  
24 business line, and we're going to kick it off again with John Lubinski, our  
25 Director of NMSS. John, the floor is yours.

1 MR. LUBINSKI: Good morning again, Chair and  
2 Commissioners. Our second panel this morning features our Nuclear  
3 Material Users or NMU business line. The folks in the business line work  
4 diligently with a number of stakeholders and in partnership with Agreement  
5 State colleagues to ensure safety and security of the National Materials  
6 Program, or NMP.

7 For this morning's panel I will provide an overview of the  
8 business line. Theresa Clark, our Deputy Director of the Division of Material  
9 Safety, Security, State and Tribal Programs, will present how the business line  
10 is positioning itself for the future, coordinating internationally and advancing  
11 tribal outreach.

12 Sherrie Flaherty, a Senior Intergovernmental Liaison Project  
13 Manager at NMSS will discuss the increasing effectiveness of  
14 communications and enhancements to the national materials program that will  
15 ensure continued success.

16 Robin Elliott, Senior Health Physicist in Region I, will discuss  
17 how we are using Be riskSMART to enhance the materials inspection  
18 program. And also provide an overview of emerging technologies and  
19 guidance changes.

20 Joey Rolland, a Mechanical Engineer, and recently qualified  
21 sealed source and device reviewer in NMSS, will talk about how we are  
22 modernizing the staff qualification process for licence reviews and inspectors.

23 Next slide please. This business line has been the focus of  
24 a large part of my NRC career. I actually began my career in the position  
25 Joey Rolland is now, as a sealed source and device reviewer, and spent the

1 first nine years of my career in this business line. I find the work in the  
2 business line to be very diverse, rewarding and fulfilling because of the direct  
3 contribution of our work, the public health and safety in the daily lives of many  
4 Americans.

5 The business line oversees and implements the national  
6 materials program to enable the safe and secure use of radioactive materials  
7 in medical, industrial and academic applications for beneficial civilian  
8 purposes.

9 We implement our mission through effective partnership  
10 between the NRC and Agreement States. We establish and maintain  
11 effective communications and working relationships with local governments,  
12 other, with local governments, other federal agencies and tribal nations to  
13 promote greater awareness and mutual understanding of policies and  
14 activities.

15 The NMP leads the licensing and oversight of more than  
16 17,000 material licensees across the country. Medical and industrial uses of  
17 radioactive sources are also a global business and have been for many years.  
18 For this reason Theresa Clark will speak about international engagements on  
19 source safety and security.

20 Roughly 200 full-time equivalent staff, or FTE, at the NRC  
21 support this business line. About, 70 are in NMSS, 25 to 30 are in each of  
22 the Regions I, III and IV. And the remainder are across several partner  
23 offices at Headquarters.

24 Next slide please. This slide highlights some of the major  
25 work activities that are driving the workload and the business line. The

1 common themes here are the novelty of the effort and the need for extensive  
2 coordination and partnership.

3 We have several active rulemakings in the NMU business  
4 line at various stages of development. These are major team projects that  
5 involve NRC Headquarters, Regions and the Agreement States. Examples  
6 include reporting requirements for extravasations, which is a very high public  
7 interest, and will come to the Commission as a proposed rule this summer.

8 We also are working the fusion proposed rule. This  
9 rulemaking the proposed rule will come to the Commission in the fall.

10 We are also working on emerging medical technologies for  
11 which we completed the regulatory basis comment period last month. We  
12 are assessing the public comments received and are preparing to work on the  
13 proposed rule, which will come to the Commission by 2026.

14 Our Staff conduct licensing and inspection across a huge  
15 variety of number of licensees. And we expend significant effort to develop  
16 guidance tailored to the subject.

17 We are conducting a very high number of sealed source and  
18 device reviews as we work to qualify multiple new hired staff. And we are  
19 assuring a smooth transition of the sealed source and device program from  
20 the State of New York back to the NRC.

21 We continue to ensure effective completion of inspections  
22 in a timely manner. I would like to highlight a success story in this area.

23 Last year at this meeting we talked about the chance that  
24 we may not ensure timely completion of inspections in accordance with our  
25 metric. We mentioned last year that we were prioritizing inspection activities



1 to ensure the most risk significant activities were completed on time. Thanks  
2 to early identification of the issue, near daily use of dashboards and other tools  
3 we have from our web-based licensing, and most importantly, the cooperation  
4 and teamwork across regions and headquarters, we met our metric.

5 In addition, the dashboards indicate that we are on target to  
6 complete timely inspections in 2024. I want to thank the team across the  
7 agency for this great accomplishment.

8 The image on this slide demonstrates teamwork. It is a  
9 Region I inspector describing the high dose rate afterloader device in a Region  
10 III license facility, to a Region III staff member, and an Indiana State Inspector  
11 undergoing training.

12 Next slide please. The business line partners nationally to  
13 increase stakeholder confidence and to build trust. One example in 2023  
14 was when we hosted the National State Liaison Officer conference. This  
15 conference serves as a forum to discuss items of mutual interest between the  
16 NRC and governor appointed state liaison officers.

17 The conference covered a wide range of nuclear safety and  
18 security topics. Including emergency technologies in reactor and medical  
19 applications, fusion energy systems, engagement with tribal nations,  
20 emergency preparedness topics related to new reactors and  
21 decommissioning, potential nation-wide large scale spent fuel shipments, and  
22 source security.

23 Next slide please. Like the rest of the agency, the business  
24 line has a priority on hiring staff to ensure it meets today's workload needs and  
25 that it is ready for the unique challenges of tomorrow.

1                   We had nine NRAN Staff that completed rotations in the  
2 business line. In Headquarters, the Regions and in Agreement States.  
3 We're happy to say that the program is essentially fully staffed. We have  
4 hired folks internally and externally with great experiences and diverse  
5 backgrounds. And have a priority on ensuring they are trained and qualified  
6 in accordance with the NRC programs.

7                   This concludes my remarks and I will now turn the  
8 presentation to Theresa Clark.

9                   MS. CLARK: Thank you, John. Good morning, Chair  
10 Hanson and Commissioners. It's a pleasure to be with you to talk about some  
11 of the many activities that we have going on in this business line. Because  
12 we have so much going on we're just choosing three items to highlight during  
13 my piece of the talk.

14                   First I'm going to talk to you domestic and international  
15 collaboration on source security. Then I'll share how we're working to  
16 develop the talented staff that the NRC and Agreement States need. And  
17 finally I'll talk about our advancements in tribal outreach. These are all areas  
18 where we're really proud of what we've accomplished, and we see ways that  
19 we can enhance our efforts even further.

20                   Next slide please. In source security we have risk smart  
21 regulations and strong partnerships both domestically and internationally.  
22 2023 marked the 20th Anniversary of the Code of Conduct on the Safety and  
23 Security of Radioactive Sources. And I had the honor of co-chairing an  
24 international meeting at the IAEA last year where we gathered technical and  
25 legal experts from around the globe who are interested in these source

1 security topics. We shared information on each countries progress over the  
2 last 20 years on the code, and it's two supplementary guidance documents  
3 which deal with import/export and disuse sources.

4 George Smith in my division gave the U.S. presentation on  
5 our activities over the last 20 years. And given that, all this information about  
6 our very large program, which is over 80,000 high risk sources, was really well  
7 received and were regarding as an international leader in radioactive material  
8 security.

9 We also saw during that meeting how important it is for  
10 countries to commit this framework. And even more so to live up to those  
11 commitments through positive actions.

12 The U.S. and the Department of Energy both have  
13 assistance programs that help regulators and licensees who are along this  
14 journey. And it was clear how well those resources were appreciated.

15 Over the years we've strengthen certain requirements in  
16 response to our ongoing assessment of the security environment. One  
17 example is the radioactive source security and accountability rulemaking,  
18 which is currently in front of the Commission. It contains some right-size and  
19 practical solutions that address concerns that are out there about valid users  
20 of radioactive materials.

21 And separate from this rulemaking we're working on  
22 enhancement to our license verification system that will give us a light lift  
23 modern way to verify licenses without needing people to sign into our systems  
24 in a heavier effort.

25 Our partnerships across the federal family on source

1 security have never been stronger. We've greatly increased our coordination  
2 with the National and Nuclear Security Administration, which is our partner on  
3 a variety of topics.

4 This year we've extended that to a direct swap of staff.  
5 George Smith, who I already mentioned in my division, and Esther Bryan of  
6 NNSA have swapped jobs for a while. And they're really developing that  
7 developmental experience. And it's helping us strengthen ties across the  
8 agencies. Because we have different missions and mandates, the better we  
9 understand that, the better we can collaborate moving forward.

10 We've been actively involved in developing implementation  
11 plans associated with National Security Memorandum 19. This is a policy  
12 document issued by the administration last year.

13 The annex on radioactive material security is the first  
14 comprehensive policy that's designed to prevent and mitigate the  
15 consequences of potential use of radioactive materials by terrorists. The  
16 actions include various agency's work to reduce, eliminate and secure  
17 radioactive materials across the country. Our many activities to date, as well  
18 as ongoing efforts like our financial assurance rulemaking, are supportive of  
19 this policy.

20 Next slide please. As the leader of the national materials  
21 program we take our training and development responsibilities very seriously.  
22 Every year we facilitate over 900 sessions of Agreement Statement personal  
23 training.

24 And we manage the travel funds that help those Agreement  
25 State folks get to our classrooms. We couldn't be doing this so successfully

1 without the daily support and dedication of Karen Meyer, who manages our  
2 registrations and our travels. Thanks to Karen.

3 The technical training center has increased the blended and  
4 online training offerings which provide cost effective on-demand opportunities  
5 for students to learn about our topics. With all of this hiring we know that  
6 training is in high demand. Some Agreement States have raised concerns  
7 about meeting their training needs, especially when they have high turnover  
8 of staff all at once.

9 Respond to this in envisioning other potential needs we  
10 have increased the number of seats that we provide to states. And we have  
11 supported the states in conducting our own training sessions.

12 So on this slide you'll actually see a training that was  
13 presented in Washington State with the Oregon's program director leading  
14 that training. And this is one of many ways that states can meet their needs  
15 to get training. We're widely advertising these options to states, and we  
16 continue to encourage it.

17 We're also looking at how we can forecast our needs more  
18 precisely so that we can be more proactive in offering the classes that are  
19 needed. We especially appreciate the support of the Office of the Chief  
20 Human Capital Officer, and particularly Latonya Mahlahla and her health  
21 physics training staff. They really make all this program tick, and we  
22 appreciate their partnership.

23 As we get ready for the future we also focus on the training  
24 that we're going to need for emerging technologies and emerging regulatory  
25 topics. A key part of our vision for fusion is to be ready to license and inspect

1 fusion technologies as they evolve from the smaller research topics that have  
2 already been licensed.

3                   And to support this, in November we held a two-day fusion  
4 training session hosted by the office in Nuclear Regulatory Research and  
5 featuring MIT experts. Many Agreement State staff are going to be key  
6 participants in this licensing process, also participated in the seminar.

7                   We're getting more staff involved in our work in these  
8 emerging areas. We've had multiple rotations in our medical team at  
9 headquarters, and we have many staff supporting our fusion rulemaking and  
10 guidance effort. This helps us naturally build our bench strength through  
11 formal work assignments.

12                   And while we're still on this national materials program  
13 related slide, I'll just note that we're finalizing our efforts related to the effort  
14 that Huda Akhavannik presented on last year about the NMP of the future.  
15 The team completed its assessment and recommendations, and we're putting  
16 the finishing touches on what actions we'll take as a result. And we'll be  
17 transmitting that to you by commission paper later this year.

18                   Next slide please. We continue to strengthen our  
19 partnerships and processes for outreach in coordination with tribes. We  
20 realigned our organization to raise the profile of our tribal relationships team,  
21 which now reports directly to me and Kevin Williams.

22                   Nadiyah Morgan has been named our first ever tribal liaison  
23 program manager. This is a team leader role that both provides direct  
24 supervision of the team and programmatic ownership as we carry out the law  
25 on Commission policy. Her team includes Sandy Talley, Heather Frey, and

1 a vacant position we're interviewing for just this week.

2 We also benefit from a series of rotational staff. The team  
3 is updating our processes, advertising our services, and investing time in  
4 building relationships with tribes. And we have some successful examples of  
5 that over the past year.

6 We expanded outreach on Agreement State applications,  
7 led an exhibit during the 2023 Regulatory Information Conference, and  
8 published a quick reference guide on our consultation options. And as shown  
9 in this slide, our tribal liaisons also led a meeting between our senior leaders  
10 and the new president of the Navajo Nation.

11 We partnered with multiple federal agencies in a  
12 consultation with the Ute Mountain Ute Tribe, which is very interested in  
13 uranium mining activities in the west.

14 And finally, we coordinated extensively with our  
15 environmental staff on a number of reviews, including multiple license  
16 renewals and the issuance of the Kairos Hermes construction permit.

17 Another partnership that I'm proud of is the increased  
18 internal coordination between that team that I just spoke about and our native  
19 American Advisory Committee. Our mission work is guidance, outreach and  
20 consultation to implement the Tribal Policy Statement. And the volunteers on  
21 the Native American Advisory Committee focus on recruitment, retention and  
22 cultural awareness within the agency.

23 This November that collaboration yielded a seminar  
24 featuring Heather Frey of our tribal team, and our historian, Tom Wellock.  
25 And they highlighted the NRC's federal trust responsibilities and provided

1 cultural information. Actually, about ten percent of the agency participated in  
2 that event, which we see is a pretty big success. We want to sustain and  
3 increase these internal activities.

4 This concludes my remarks. My thanks go out to Candace  
5 Spore for helping us coordinate here. And now I'll turn it over to Sherrie.  
6 Next slide please.

7 MS. FLAHERTY: Thanks, Theresa. Good morning, Chair  
8 Hanson and Commissioners. I will be providing an overview of the working  
9 group that was established to assess and provide recommendations for senior  
10 management consideration as it relates to enhancing the national materials  
11 program, or NMP, and IMPEP.

12 As we partner with the Agreement States to regulate the  
13 safe and secure use of radioactive material, we implement our mission to  
14 ensure adequate protection of public health, safety, security and the  
15 environment from the hazards associated with radioactive material. The  
16 national materials program, through its efforts of the 39 Agreement States and  
17 the NRC's radiation control programs, continues to effectively protect public  
18 health, safety and security for over 17,000 specific radioactive materials  
19 licenses.

20 NRC ensures the protection by periodically evaluating each  
21 radiation control program using the integrated materials performance  
22 evaluation program referred to as IMPEP.

23 Next slide please. In 2022 we established a working group  
24 to assess the ability to evaluate whether the current IMPEP process provides  
25 for the proactive assessment of the NMP radiation control programs



1 performance.

2                   Our goal was to leverage the existing strong relationships  
3 and establish partnerships to develop and recommend enhancements to the  
4 NMP that would continue to move the NMP forward. We focused on  
5 identifying programmatic challenges across the NMP, evaluating assistance  
6 currently being provided to the Agreement States, and establishing strategic  
7 measures to address unsatisfactory performance.

8                   Regarding the need for assistance within the NMP, in the  
9 last five years there have been two Agreement States that were placed on  
10 probation and heightened oversight, and assistance was provided within the  
11 NMP. In addition, other Agreement States self-identified programmatic  
12 challenges and requested assistance within the NMP.

13                   The working group found that states with challenges have  
14 leveraged the relationships built across the NMP and utilized many channels  
15 to request support. Similarly, as John mentioned, when one NRC region was  
16 challenged with inspection timeliness the regions work collaboratively to  
17 complete inspections and ensure we continue to meet our goals.

18                   The working group found that although there was an  
19 increase in less than satisfactory performance for some Agreement States,  
20 this increase was the direct result of two IMPEP reviews with unique  
21 circumstances and not indicative of a broader trend.

22                   In addition, non-common performance indicators, sealed  
23 source and device review, low-level radioactive waste and uranium recovery  
24 may be a relatively small part of an Agreement State's program when  
25 compared to the licensing and inspection oversight program, so therefore an

1   unset finding in one of these, or more of these indicators, can result in a  
2   disproportionate negative impact on the overall finding for the state. Applying  
3   a risk-informed approach to these non-common indicators is recommended  
4   by the working group.

5                   The working group also noted that IMPEP procedures are  
6   well defined, and the processes and procedures provide for an effective  
7   IMPEP review. We will, or we found that the IMPEP and MRB processes  
8   benefit from strong relationships, establishing trust and sharing regulatory  
9   experiences that ensure adequate protection of public health and safety.  
10   Communicating the status of Agreement State programs, sharing operating  
11   experience, enforcement and allegations, and early alignment on strategies  
12   will lead to anticipating and addressing performance challenges early in the  
13   process.

14                   Next slide please. Our working group found that the NMP  
15   continues to be successful. We will offer five recommendations for  
16   management consideration related to additional ways for improving the  
17   effectiveness of IMPEP and the MRB in early identification of potential  
18   challenges and ways for providing assistance.

19                   The working group will present three recommendations for  
20   management consideration related to metrics for tracking performance, tools  
21   for identifying performance issues, and assisting programs facing  
22   performance issues.

23                   The other recommendations focus on enhancing  
24   communications and performance awareness procedural improvements.  
25   Including items such as providing procedures describing how programs can

1 request timely assistance through not only the NRC but through the  
2 organization of Agreement State's board, other Agreement States, and the  
3 regional state agreement's officers. This option provides opportunities to  
4 leverage our strong relationships and shared experiences across the NMP.

5 We're also recommending for consideration how to further  
6 risk-inform the IMPEP process. This could result in evaluating all radiation  
7 control programs under the same common performance indicators.

8 Overall, the national material program can successfully  
9 implement enhancements to the IMPEP and MRB process building on the  
10 strong relationships and established trust while continuing to uphold public  
11 health, safety and security.

12 Next slide please. Lastly, I'd like to acknowledge and thank  
13 the members of the working group. These individuals are from across the  
14 NMP, and they brought a great deal of IMPEP and NMP experience to the  
15 process. They brought energy and enthusiasm while leveraging their  
16 knowledge and expertise to the development of these recommendations and  
17 improvements. Thank you to these folks.

18 That concludes my remarks. I will turn it over to Robin  
19 Elliott. And next slide please.

20 MS. ELLIOTT: Thanks, Sherrie. And good morning,  
21 Chair Hanson and Commissioners. I'm a senior health physicist in Region I  
22 performing medical license review and inspection. I am pleased to present  
23 this morning regarding our risk-informed inspections and emerging  
24 technologies.

25 Next slide please. As you may know, in 2022 we adopted

1 new inspection procedures incorporating risk modules. These modules  
2 formalize how we risk-inform inspections and provide direction on what to  
3 consider in each focus area. Risk-informing inspections is not new for us, but  
4 expanding direction through the risk modules provides direction for newer  
5 inspectors and consistency across the regions.

6 Benefits of risk-informed inspection include ensuring that  
7 inspectors focus on the highest risk activities where failures could result in  
8 safety significant issues or security lapses.

9 For medical inspections, this means that a risk-informed  
10 inspection may emphasize observing activities that result in higher radiation  
11 exposures or require greater attention to source security. The pictures on  
12 this slide represent verifying the public dose limits outside of a mobile PET  
13 trailer for diagnostic imaging, and of a retrieval of a sealed source used in a  
14 radioactive seed localization procedure, which is a procedure that has proven  
15 to be challenging for source accountability.

16 Additionally, when inspectors target higher risk activities  
17 licensees understand that their focus should also be greater in these areas  
18 placing emphasis on the identification and reporting of medical events and  
19 incident investigation. NRC's presence during such procedures often offers  
20 an opportunity for the licensee staff to engage with us, to seek additional  
21 information and ask questions.

22 Risk-informing performance observations ensures that  
23 value added activities are prioritized and that less emphasis is placed on  
24 compliance-based record only reviews. Inspectors have flexibility to delve  
25 into a detailed records review if observations result in concerns regarding the

1 extent of condition.

2 For the past few years I have had NRC and State trainees  
3 accompany me to learn how to perform risk-based inspections. This one-on-  
4 one training is invaluable, and the establishment of the risk modules amplifies  
5 what the trainees experience when accompanying an experienced inspector.

6 Next slide please. One example of how focusing on higher  
7 risk activities produces evaluated findings is relative to high dose rate remote  
8 afterloader timer linearity. HDR, or HDR. HDR is a device that utilizes  
9 brachytherapy to treat primarily gynecological cancers, but can also be used  
10 for breast, prostate and skin cancers.

11 Timer linearity is important to the designated treatment  
12 times, times accuracy. By focusing on the details of the licensee's HDR  
13 programs, inspectors identified a difference in how the NRC interpreted the  
14 performance of HDR timer linearity checks and how the licensee was  
15 performing that evaluation.

16 By discussing the issue with others we were able to  
17 determine the different HDR units utilize different types of timers. And at the  
18 American Association of Physicists and Medicine, or the AAPM, recommends  
19 a different approach to timer linearity evaluation. The AAPM accepts timer  
20 linearity determined over the longest dwell time, while the NRC's interpretation  
21 applies to the total treatment time or the sum of the dwell times.

22 As such, determining compliance with this requirement  
23 requires a deeper look into what the licensee is doing. This time is well spent  
24 given the overall high risk profile of this procedure and how safety may be  
25 impacted by the NRC's evaluation of the issue. As a result of this review,

1 inspectors received a more thorough understanding, and the NRC  
2 incorporated this information into the curriculum for the TTC's medical  
3 technology class.

4                   Next slide please. Another area of focus for medical  
5 inspectors and license reviewers is the growth of new emerging medical  
6 technologies. The licensing and inspection of new technologies is  
7 challenging because of how technical and complex the technologies are.

8                   For example, one of the fastest developing areas is  
9 theranostics. Which is a personalized approach to treating cancer, which is  
10 using both diagnosis and therapy tools as part of the treatment. The most  
11 common of these treatments that we have seen in the past few years involves  
12 Lutathera and Pluvicto, which are radiopharmaceutical, radiopharmaceuticals  
13 utilizing Lutetium-177. And these radiopharmaceuticals are used to target  
14 specific cancers.

15                   Both therapies have been categorized under the existing  
16 Part 35 regulations. However, the implementation of Lutathera therapies  
17 differs significantly from the previously existing 35.300 therapies. Other Part  
18 35.300 treatments, such as I-131 thyroid outpatient therapies and Radium-  
19 223 for palliative treatment of bone metastasis, did not require any special  
20 equipment or holding area for the patient.

21                   As you can see on the slide, for Lutathera administrations  
22 dedicated equipment and a dedicated space for isolating the patient during  
23 the administration is used until they are safely released.

24                   Next slide please. I have benefitted greatly from the  
25 medical team monthly calls where inspectors discuss findings and license

1 reviewer challenges. I have also learned much about the development of  
2 emerging technologies and new devices by attending various medical  
3 professional society meetings. I am grateful that the agency supports  
4 attendance at these valuable meetings.

5           Inspectors and license reviews depending heavily on the  
6 medical team to provide the information needed to successfully license and  
7 inspect emerging technologies as they surface. The headquarters medical  
8 team has developed 16 guidance documents to ensure the safe and secure  
9 use of radioactive materials.

10           Three of these documents were added in the past year, and  
11 four are under development. The medical team's efforts enhance  
12 consistency across the regions in how we license and inspect these new  
13 technologies. The TCC provides ongoing formal incorporation of the  
14 emerging modalities and to staff training and recently updated the class to add  
15 all the current licensing guidance.

16           Additionally, as mentioned previously in the HDR example,  
17 changes are made as they are identified. There is certainly no shortage of  
18 topics for medical license reviewers and inspectors when considering how to  
19 meet their ongoing training needs.

20           I appreciate your attention in support of our mission, and  
21 look forward to addressing any questions you may have. This concludes my  
22 remarks, and I turn it over to Joey Rolland. Next slide please.

23           MR. ROLLAND: Thank you, Robin. And good morning,  
24 Chair and Commissioners. My name is Joey Rolland. I'm a mechanical  
25 engineer in the material safety and licensing branch. I have been with the

1 agency for almost two and a half years, and completed my sealed source and  
2 device reviewer qualification in May of last year. I appreciate the opportunity  
3 today to provide you with awareness of an important effort the division is  
4 leading to revise the material's license reviewer and inspector qualification  
5 guidance.

6 Next slide please. Inspection manual chapter 1248  
7 provides the qualification guidance and cards for various disciplines under  
8 NMSS oversight. The scope of this effort I am presenting today is for the  
9 disciplines that are within the business line. It involves the manual chapter  
10 and its appendices that cover qualifications for materials health physics  
11 license reviewers, materials health physics inspectors, exempt distribution  
12 license reviewers, and sealed source and device reviewers.

13 Since the last revision of the materials qualification  
14 programs the materials program has experienced changes to training  
15 offerings, more use of technology as a learning tool, in an increase in hiring,  
16 and higher turnover, and positions with qualification requirements. As an  
17 example, my team of four sealed source and device reviewers has  
18 experienced, including myself, four new hires, three departures, and one  
19 return since I came onboard. For these reasons we initiated the current effort  
20 to aid individuals for preparing for qualification in a more efficient manner with  
21 updated guidance.

22 Next slide please. The working group includes  
23 representation from Regions I, III and IV, and the Agreement States. I  
24 wanted to take the opportunity to highlight the team members in my slide on  
25 the screen. This team has been working to update the qualification process



1 to be even more adaptable and efficient when it is appropriate.

2                   Next slide. Collaboration among the working group,  
3 coupled with stakeholder outreach, is critical for incorporating past experience  
4 into this revision and promoting consistency in the qualification process. It is  
5 important that the qualification guidance retains the flexibilities it currently has  
6 for crediting prior experience and waiving certain qualification requirements to  
7 account for prior knowledge and skill set of any individual seeking qualification.

8                   While working group drafts the qualification guidance, they  
9 also developed an interim guidance document that provides illustrative  
10 examples on the existing flexibilities in the manual chapter and the templates  
11 for memoranda informed use to support the qualification process. The  
12 working group plans to incorporate those into the final Revision 2.

13                   Since Agreement States are required to have a compatible  
14 qualification program, the revision not only involves working group members  
15 from the Agreement States but it also prioritizes the importance of outreach to  
16 the states. Reflecting on the collaboration that we have fostered through the  
17 years, the revision will provide expectations for greater collaboration among  
18 the NMP to support each other in preparing individuals to license and  
19 inspection byproduct material across the nation.

20                   One way we have leveraged the knowledge and experience  
21 across the NMP is when individuals undergoing qualifications have been  
22 provided the opportunity to work in an Agreement State program, to obtain  
23 licensing and inspection experience. Similarly, we provide qualifying  
24 individuals accompaniment opportunities with subject matter experts in the  
25 NRC, and in Agreement States, to foster on-the-job experience.

1                   This is something I was able to take advantage of in my  
2 qualification journey by accompanying several inspections, which helped me  
3 gained perspectives on the products that I review. The revision will be explicit  
4 on the benefits of collaboration across the NMP. A reinforcement of tools that  
5 we have at our disposal for training and qualification purposes.

6                   Next slide please. Additionally, we are considering a basic  
7 qualification card that is consistent with other qualification programs in the  
8 Agency. The staff anticipates that this will assist supervisors to be better  
9 equipped to credit prior experience of candidates who have already completed  
10 the basic qualification card in other programs in the Agency.

11                   The basic card training activities are expected to help  
12 develop and awareness of the Agency's main functions and programs to  
13 accomplish its mission in a candidates role as an inspector or license reviewer.  
14 We anticipate that once an individual has completed the basic level program  
15 they can perform limited scope inspection or licensing activities under  
16 supervision.

17                   The technical proficiency qualification cards are being  
18 revised accordingly to focus on training activities that build technical  
19 proficiency and autonomy. The revision also emphasizes the usefulness of  
20 interim qualifications during the candidates qualification journey.

21                   While interim qualifications have been in use for many  
22 years, we are facilitating their use by developing guidelines and templates for  
23 employing them more efficiently. This allows organizations to better manage  
24 workload while boosting employee's productivity in a supportive learning  
25 environment.

1                   We're also considering incorporating a common signature  
2 authority process into the qualification guidance in the manual chapter in an  
3 effort to ensure greater consistency across the business line in granting  
4 signature authority and to facility alignment and expectation discussions  
5 between newly hired employees and their supervisors.

6                   Lastly, it is expected that by the end of this fiscal year we  
7 will publish the revised qualification guidance. Thank you for the opportunity  
8 to brief you today. And this concludes my remarks. And I will now turn it  
9 back over to John.

10                  MR. LUBINSKI: Thanks Joey. I would also like to take an  
11 opportunity to thank all of our panelists today. Also, I would like to thank  
12 everyone in the NRC, Headquarters, Regions, Technical Training Center, as  
13 well as folks in the Agreement States that help support this business line and  
14 the National Materials Program.

15                  With that, we have completed our presentation and  
16 welcome any questions. Thank you.

17                  CHAIR HANSON: Thank you, John and the rest of our  
18 panelists, very much. I really appreciate the presentations and as you said,  
19 John, at the beginning I think a lot of the business lines, other business lines  
20 may get a little more attention, but this is one that really touches people where  
21 they live every day and I think deserves some focused attention here on the  
22 part of the Commission.

23                  I guess I want to just start off, John and Theresa, and I know  
24 a lot of others in NMSS had really put a concerted effort into bringing more  
25 certified health physicists into the agency and it was really a focus of a

1 particular hiring push and I want to commend you and the folks in OCHCO  
2 and everybody who was really a part of that effort.

3 I have gotten to meet a few of those folks as I have gone out  
4 to the Regions and other places of people that have come into the agency. I  
5 know it will be an ongoing need.

6 As Joey mentioned, there is some turnover in the program  
7 and so forth, but we seem to have made a real dent in that and I just want to  
8 thank you for the attention and congratulate your success there.

9 MR. LUBINSKI: Thank you, I appreciate it. If I can, it  
10 really is across the agency and across NMSS as well. The last business line  
11 we talked about hiring in HP, so it's a big part of that.

12 I want to give kudos to Theresa Clark who has been leading  
13 that for NMSS as well. Thanks.

14 CHAIR HANSON: Good. Thank you. So, Theresa, you  
15 mentioned a lot of the training that the agency has done, I think 900 training  
16 classes, I guess one of my questions is, and I don't remember if you and I  
17 were together in the room in Region IV where I got some feedback on some  
18 of the training and qualification processes, I think folks really liked the classes,  
19 thought they were intense, rigorous, but almost intense, I don't want to say to  
20 a fault, right, it crammed a lot of information into a very short period of time  
21 and I think one of the things I heard was just a concern about retention, right,  
22 like we've gone down this road, we've done this class, it's been super intense,  
23 but how much knowledge retention or expertise did they really felt like they  
24 retained say three, four, six, a year down the road.

25 Is there -- Have you heard that feedback as well and kind of

1 how are we evaluating maybe the longer-term effectiveness of some of the  
2 training programs that we have got in place?

3 MS. CLARK: What a great question, I will say that. So,  
4 you know, your career is not cramming for a test and so I think, you know,  
5 some of that feedback that we heard, you know, it made me reflect on when I  
6 took the reactor series and that really is a lot of information crammed into a  
7 short amount of time.

8 I think some of our classes, like when you take the medical  
9 class online, you're learning a lot of information about a lot of different topics,  
10 but that's why the on-the-job reinforcement of these skills is so important.

11 You might not remember every equation that you ever  
12 learned in class, but they give you that foundation of terminology and then  
13 when you are really doing your job, when you're accompanying an  
14 experienced inspector like Robin and seeing these things in the field that gives  
15 reinforcement to what is most important or what is most significant of the  
16 many, many things you learned in all of these fundamental training courses.

17 I think that's sort of what Joey is talking about in his  
18 presentation on the Qual Program writ large, it has training components, but  
19 it has personal study at your desk components, it has on-the-job components.

20 You do all of that and then you continue to hone your skills  
21 through refreshers, through the conferences that Robin mentioned and that  
22 kind of thing, you know.

23 The NRC has always been very supportive of continuing  
24 training, external training opportunities and that sort of thing and that's why I  
25 think, you know, even if it feels really tough at the beginning you are getting

1 precisely what you need as injects throughout that time.

2 CHAIR HANSON: Thank you. That's really helpful. It's  
3 not a one thing, it's a both/and in terms of building that expertise and capability.

4 You know, Theresa, one of the other things you mentioned  
5 was the work you have done and the agency has led on the international front  
6 in, you know, material safety and security.

7 It's so important, particularly for developing countries, as  
8 they try to bring in and implement more medical technologies, more industrial  
9 technologies, etc.

10 I wanted to make the connection back to Robin because we  
11 are talking about risk-informing some of those inspection processes.  
12 Certainly in a lot of the places, not just Agreement States, but, again, also kind  
13 of some of these developing countries are resource limited and so really need  
14 to focus their efforts.

15 I guess I am wondering if there is a connection between  
16 these two things or can there be or how do we, what are some thoughts  
17 between the two of you about potentially incorporating that more into our  
18 international assistance activities in this area?

19 MS. ELLIOTT: Well I think that we definitely can gain  
20 something from the risk-informing and saving time, which equates to money,  
21 so teaching international partners how to focus on the most risk-significant  
22 areas is definitely going to be beneficial.

23 MS. CLARK: And I'll add to that a couple of the specific  
24 things that we have been doing in assistance. You know, over the past year  
25 we helped teach two assistance workshops in Africa where we sent out our

1 experts who do this stuff every day and I am quite sure that they share those  
2 sorts of on-the-ground insights of what we do.

3 CHAIR HANSON: Right.

4 MS. CLARK: And then through the international meetings,  
5 like the one that I talked about, I am actually going to one next month in Mexico  
6 City that is focused on Latin American and the Caribbean, and those countries  
7 who are interested in full, you know, implementation of this guidance want to  
8 hear what each other are doing, want to hear what the U.S. and Canada in  
9 the same hemisphere are doing, and so it's an opportunity to share amongst  
10 ourselves and help everyone make lasting changes in addition to these  
11 political commitments.

12 CHAIR HANSON: I see. Thank you. I really appreciate  
13 that very much. I wasn't aware of the New Mexico thing, or the thing in  
14 Mexico City, but aware of the workshop in Mauritania I think a year or so ago  
15 and I understand that was a big success, so certainly thank you for that.

16 Sherrie, if I could, I wanted to ask a little bit more about the  
17 working group in terms of improving the IMPEP assessment and I am also  
18 interested to hear, you know, in terms of what are the strategies, the  
19 performance metrics, the tools to improving that, how do we know that we  
20 have been successful, what improvement in that process really looks like, and  
21 then how does, what does it mean to risk inform the IMPEP process kind of  
22 as a whole, could you kind of expand on that?

23 MS. FLAHERTY: Wow, that's a great question. It covers  
24 the entire working group.

25 CHAIR HANSON: Yes.

1 (Laughter.)

2 MS. FLAHERTY: Okay. So let me pick it apart. Talking  
3 about the multiple recommendations and you're asking about metrics, so  
4 starting with metrics.

5 The current metrics that we are using were kind of a catalyst  
6 to get us to where we are now and give us an opportunity to take a look and  
7 see how can we make those metrics better in getting out in front of things and  
8 being more proactive.

9 So what the working group has done, they don't have a  
10 specific metric in mind, the idea is to this is going to be an NMP metric so let's  
11 have the NMP develop it.

12 So the recommendation is to have senior management take  
13 a look at it and see if this is something they would support implementing,  
14 bringing the Agreement States and the NRC together to develop a meaningful  
15 metric for a proactive way to look at how we are assessing performance and,  
16 again, trying to get out ahead of the challenges.

17 Now to go back to the other parts of your question. Some  
18 of the ideas for implementation, some of the things that are in there for senior  
19 management consideration are self-audit tools, is there a way to develop  
20 something.

21 Again, we are trying to look at a proactive approach to  
22 identifying problems or issues and challenges before they become larger  
23 concerns, and so the development of an NMP-wide self-audit tool is one  
24 possible implementation item.

25 The other thing is to look at, have senior management



1 decide if evaluating the current periodic meeting in between IMPEPs is that,  
2 got a way that we could improve that to add to, again, our ability to get out in  
3 front of things like this.

4 So in terms of implementing and then looking at this and  
5 seeing if it's successful, that is in the works. It's all for senior management to  
6 take a look at and evaluate and make a decision on which of these are tools  
7 that are worth implementing. Does that answer the question?

8 CHAIR HANSON: Yes. No, that's very helpful. Yes, no,  
9 I really appreciate that kind of additional context.

10 MS. FLAHERTY: Did you want to add any more to it, John  
11 or Theresa?

12 MR. LUBINSKI: I would just add is the biggest challenge I  
13 think that the working group has in doing this is we look at metrics as simply  
14 that, a metric, it is not a report card.

15 CHAIR HANSON: Right. Right.

16 MR. LUBINSKI: And getting that communicated out to  
17 folks is very important because we want to have a relationship across the NMP  
18 with the Agreement States and the NRC where we are open with each other,  
19 that we are able to say here is an area that we are struggling, here is where  
20 we need more assistance, here is where we need that, and we don't want to  
21 have an unintended consequence from a metric being a leading metric that  
22 someone thinks, wow, I just, you know, I got marked down on my report card,  
23 where that's not the way we're looking at it.

24 We want to look at it positively to say we're glad you initiated  
25 this conversation early and were able to determine what the significance is in

1 moving forward.

2 I think that's one of the biggest struggles, as Sherrie said, in  
3 developing what these leading metrics look like that they don't turn into  
4 something that has an unintended consequence.

5 CHAIR HANSON: Thank you. I want to -- I've got 12  
6 seconds left. I want to sneak in one quick thing that I think is hopefully  
7 confirmatory.

8 Theresa, you mentioned the Staff is working on an  
9 enhancement to the NRC licenses that could easily enable kind of license  
10 verification and validation.

11 I don't want anyone to be left with the impression that by  
12 working on that that somehow that obviates the need for the radiological  
13 source security rulemaking. That's correct, yes?

14 MS. CLARK: Yes.

15 CHAIR HANSON: Okay. Thank you very much. With  
16 that I will hand it over to Commissioner Wright.

17 COMMISSIONER WRIGHT: Thank you, Chair. If you've  
18 got any other questions that you haven't asked you might want to pass them  
19 because you've already asked a lot of what I had.

20 (Laughter.)

21 COMMISSIONER WRIGHT: Oh my goodness. Good  
22 morning and thank you. I really enjoy this meeting every year myself.

23 John, one question that wasn't asked I guess has to do with  
24 staffing, right. You had mentioned that the Nuclear Materials Users Business  
25 Line is essentially fully staffed, right, and I wanted to dig into that just a little

1 bit more.

2 Does that mean that we are staffed in this business line for  
3 now or we're close to being fully staffed? I mean if we are fully staffed are  
4 we going to be able to continue to hire, especially in areas where we have  
5 critical needs, you know, like HPs?

6 MR. LUBINSKI: Thanks. I am going to let Theresa give a  
7 much more detailed answer, but I am going to tee it up for her and say that  
8 when we say that we are essentially staffed, where you look at our staffing  
9 plan and I said there was about 200 FTE in the program, do we have 200  
10 people in those slots today the answer is no, it is less than that 200, and to  
11 supplement that we have a lot of rotations that come into the program and in  
12 going forward, again, we wouldn't want to put a metric in place that we say  
13 success is just targeted by saying you're right at your budget number and have  
14 those amount of people in the seats.

15 I will let Theresa talk a little more about what she is doing  
16 because she has gotten the program to the success. Thanks.

17 MS. CLARK: Yes, thanks. So we don't like to deal in  
18 absolutes so that's why some of these words come in, you know, it's natural  
19 to have ins and outs of the system and people get promoted and, you know,  
20 choose to retire and that sort of thing.

21 We have done a lot for hiring and particularly for making  
22 investments in hiring early in areas where we expect losses. That is  
23 something we have done especially in health physics and the Commission  
24 has supported this. We really appreciate that.

25 That allows us to have people come in, start the qualification

1 program, you know, accompany experienced folks before we lose those folks,  
2 and so that's been a really important investment in our future.

3 You know, we've hired a couple dozen health physicists  
4 each year over the last couple years, which is great, and the Chair already  
5 acknowledged that.

6 We need to keep our foot on the gas because, you know,  
7 again, we need to -- It's an experience that's sometimes a little bit hard to find  
8 and even if they are coming from outside with a lot of technical experience  
9 they need to learn how we regulate and that takes some time. So that's an  
10 area that I am focused on.

11 Also, you know, Joey mentioned the sealed source and  
12 device reviews and the turnover there. Because that's such a small program  
13 that is one where we have to take a lot of care and make sure that we have  
14 staff in time to get them trained before they move on to better and brighter  
15 opportunities.

16 So we're trying to take a big picture approach to that and get  
17 ahead of these challenges.

18 COMMISSIONER WRIGHT: Right. Thank you. I am  
19 going to stay with you, Theresa. You know, one thing I love about the people  
20 that are in the room here, you know, Kevin is in the back over here, you're at  
21 the table, and, John, you're here, and, Sherrie, you've been a part of this, the  
22 whole Agreement State Program and how we work, how closely we work, and  
23 how well we work with them and it is appreciated, right.

24 So where are those -- To delve into a little bit more of the  
25 rulemaking process, Theresa, how do we work with the Agreement States

1 during the rulemaking process? You know, what's the communication  
2 process like, can you give me a little bit of detail --

3 (Simultaneous speaking.)

4 MS. CLARK: Yes. Thank you for that question. It's an  
5 area where we have really grown over the last few years and how deeply we  
6 embed Agreement State staff into our rulemaking process and it starts from  
7 the beginning, kind of the ideation stage, when we are thinking about what  
8 rules we need to put into our prioritization, what's coming down the pike and  
9 where we need to prioritize.

10 They are involved even at that early stage. Then as we  
11 develop rulemaking plans they comment on those before they come to the  
12 Commission. In the actual rulemaking stage they are in all of our working  
13 groups.

14 You know, I think I mentioned fusion during my talk. They  
15 are a key component of the core team for that rulemaking because we know  
16 that they are going to be the implementers of this rule and in some cases the  
17 first mover, so they are just like everybody else on those core working groups.

18 The states as a whole in addition to those individual working  
19 group members get the opportunity to have a first crack at commenting on the  
20 documents that we prepare.

21 So we have already thought through their comments before  
22 we send the document to you for your review. It's a lot of coordination  
23 through OAS to have -- They have a rulemaking director, they help us identify  
24 people for our working groups, and then those individual people are really  
25 adding a lot of value to the process.

1 COMMISSIONER WRIGHT: Right. So you brought up  
2 fusion. Can you -- So give me a little bit more on that. In your opinion maybe  
3 what are the biggest challenges for us to get ready here, you know?

4 MS. CLARK: Yes, thanks. And we have been thinking  
5 about word "getting ready." So there is an aspect of readiness and an aspect  
6 of optimization as well.

7 You know, we have licensed fusion in this country already  
8 using the framework that we have, so in some sense we are ready for that,  
9 but technological readiness, understanding the diversity of the 30-something  
10 U.S. companies that are working on fusion know enough about it now to  
11 develop the framework and then developing the in-depth understanding when  
12 they actually come to us or to a State for licensing.

13 We have some time to get some of that together, but that's  
14 a key part of the plan, and then optimizing how we do our licensing reviews  
15 for fusion just as we have for many other technologies so that we can to the  
16 extent possible have coherent decisions made across the National Materials  
17 Program, particularly as we see the potential for these to be licensed, you  
18 know, nationwide in lots of different applications.

19 That's really what we are focused on in addition to, you  
20 know, keep cracking on the rulemaking to get that to you this year.

21 COMMISSIONER WRIGHT: Right. Thank you. I am  
22 going to ask one broad question, John, and maybe, Theresa, you have  
23 something to say on this.

24 So we know we have had issues in Agreement States with  
25 poaching from different states, you know, employees was we get them trained

1 up and they go to someplace that makes more money and sometimes they  
2 came to work for us, that we poach, too.

3 So outside of that part the States are sometimes resource  
4 constrained, right. Are we seeing any kind of an imbalance that is something  
5 that we should be concerned about, you know?

6 I mean we've talked about we want to get ahead of things,  
7 right, we want to know early and we're really encouraging that and we want  
8 States to know that, hey, we're not going to ding you if you come and ask for,  
9 you know, say, hey, we're having a little issue here, but are we paying attention  
10 to that, John?

11 MR. LUBINSKI: So I think the short answer to that is yes  
12 and I think Sherrie's group has that on their radar.

13 You know, one example that I look at as very much a  
14 positive, and I mentioned in my talk was, that the State of New York decided  
15 to return its sealed source and device program, and the idea there was it was  
16 a small part of their program, there was not a lot of work activities.

17 COMMISSIONER WRIGHT: Right.

18 MR. LUBINSKI: Keeping people trained and qualified  
19 there just didn't seem to be worth the effort to do that.

20 So something like that and having it returned, other States  
21 have contracted out to have people work in programs like that, which is  
22 another way to do that, that helps kind of draw mini centers of expertise to do  
23 that, so I think that helps to balance it.

24 You know, one of the challenges we do see in the hiring  
25 area in States is what turns into the State budgets and the cost of living in the

1 States and that is an area that we definitely need to pay attention to.

2 As part of our indicators with the IMPEP we do look at  
3 staffing, training, and qualifications, we look at turnover, and that's an area  
4 that I think will continue to get attention to say are we, you know, in an even  
5 place there going forward.

6 I believe, you know, the folks in the States right now  
7 understand that program and also understand when they have these kind of  
8 challenges the benefits of communicating early with our Regional State  
9 Agreement Officers.

10 COMMISSIONER WRIGHT: Right. And I have been --  
11 When I go around I talk with the States about this, too, but one of the things I  
12 think sort of is an advantage in the program is the fact that States will ask for  
13 help from other States and they get that help freely, right, and they are  
14 communicating that with us.

15 I just want to be sure that whatever we can do as  
16 Commissioners and, you know, I can do as Commissioner, to help keep that  
17 thing moving forward I want to do it, but I don't know unless you all tell us,  
18 right.

19 So if you see something, you know, that we can help with,  
20 you know, please let me know.

21 MR. LUBINSKI: Thank you. We will do that whether or  
22 not it's just the continuing to support program, visiting the States, and the  
23 importance of the program, and then, also, as Sherrie's group finishes her  
24 project if there is any actions that we think require either, one, Commission  
25 engagement or, two, Commission support, we will definitely inform the



1 Commission.

2 COMMISSIONER WRIGHT: I really appreciate what you  
3 do in this area. Thank you so much.

4 CHAIR HANSON: Okay. Thank you. Commissioner  
5 Caputo.

6 COMMISSIONER CAPUTO: Good morning. I am going  
7 to continue on the line of questioning that Commissioner Wright started with  
8 regard to fusion.

9 I think we as a country are in this situation with fusion where  
10 at some point there is going to be a breakthrough and maybe it's in the next  
11 year or two, maybe it's ten years from now, it's tough to say, but I want to just  
12 start by confirming, and you mentioned this and I want to just make sure that  
13 we have this very clear on the record, there are fusion systems that have  
14 already been licensed and are being regulated by Agreement States and there  
15 may be others that are licensed before the end of the rulemaking, so I just  
16 want to confirm NRC is ready and able to license fusion technologies today  
17 while the rulemaking continues?

18 MS. CLARK: Yes.

19 COMMISSIONER CAPUTO: Good. Can you talk a little  
20 bit, you mentioned the vision and strategy for fusion, can you talk a little bit  
21 about how you envision fusion commercial deployment and in particular if a  
22 fusion company has a business model for mass producing machines and  
23 selling them to users how does the framework anticipate or enable that kind  
24 of a manufacturing type business model?

25 MS. CLARK: Thanks for that question. It's one that we

1 are actively pondering and we had a really great brainstorming session on it  
2 just this week.

3                   So we're developing the rulemaking and the guidance to  
4 make the framework very clear. As you mentioned, you know, licensing has  
5 already happened and could continue to happen, but we want to optimize that  
6 process.

7                   If this takes off in a way that the companies certainly hope  
8 that it will and there is this mass manufacturing approach, we already have  
9 mechanisms in other parts of how we license radioactive materials that we  
10 may be able to take from and apply to enable this.

11                   So, for example, in medical technologies we issue guidance  
12 documents for how you can license medical technologies, we talked about  
13 that, and those are certainly very widely used and those guidance documents  
14 that are technology specific really promote consistency of decision making  
15 across the program, so that is one insight that we can take and apply.

16                   Another insight that we might be able to apply are sealed  
17 source and device reviews where we review a device once and we or other  
18 State programs determine that it is safe and we register that device and so  
19 that can then be used and referenced across the country.

20                   A little bit different in fusion, it's not a sealed source, it's a  
21 much more complicated system, but these are the exact sorts of things, so  
22 there are already innovations that we have thought through and how can we  
23 apply those to a new approach so that we reduce the barriers and reduce the  
24 need for multiple reviews across multiple jurisdictions.

25                   COMMISSIONER CAPUTO: Because I am firmly of the

1 opinion that if at some point given the level of investment into fusion as soon  
2 as one of these companies has a breakthrough the demand is going to be  
3 massive.

4 The desire to scale is going to be massive and there will  
5 immediately be a lot of focus on this agency, like a laser in this area. So while  
6 it may be a little hard to predict I think this is something where I am glad to  
7 hear that we at least have some structure in place.

8 In keeping with the rulemaking, Part 30 currently has no  
9 backfit provision, so in terms of a licensing framework once license are issued  
10 desire to change regulatory requirements in the future should really in my  
11 opinion be assessed based on safety benefit, safety significance, etc.

12 Other materials licensees do have backfit protection, such  
13 as Part 70 Fuel Cycle Facilities. So how is NMSS addressing the need for  
14 backfit protection in the case of fusion facilities, fusion machines?

15 MS. CLARK: Thanks for that. That is a topic that we are  
16 considering as we develop the rulemaking and as we look at really every  
17 rulemaking in this area where as you state correctly there are not backfitting  
18 provisions in Part 30, however, the mindset of ensuring that our regulations  
19 are needed, that they are cost beneficial, is inherent in how we look at the  
20 regulatory process.

21 So we do a regulatory analysis for every rulemaking, we'll  
22 be doing one for the fusion rulemaking to make sure that it's worth doing, and  
23 I certainly think that it will be, and we also developed internal guidance that  
24 we use within the agency to help us think through very similar sorts of  
25 questions that you would think through in a backfitting evaluation even for

1 these types of licensees that don't have it so that we -- We have the mindset  
2 of thinking through methodically, you know, why do we need this, what's the  
3 safety benefit, what is the cost to the licensees, and we have developed and  
4 issued that guidance to our staff so we would intend to continue to use that.

5 MR. LUBINSKI: Theresa, if you don't mind me adding, I  
6 appreciate you bringing up the philosophy that we have of again the principles  
7 that undergird our backfit rule are the principles that we follow in all the  
8 decisions that we make and we have communicated that with the Regions.

9 Also, you know, from a background standpoint is we did  
10 consider as an agency back in the '90s of whether to expand back the  
11 protection to Part 30 licensees and other licensees that are not covered.

12 The Commission at the time made a decision not to do that  
13 and I just want to express we are not trying to provide backfit protection to  
14 anyone without coming to the Commission.

15 If we decide to provide for a backfit protection formally it  
16 would part of a rulemaking as we would continue to go forward. As Theresa  
17 said, we are looking at fusion under Part 30 right now, but whether we do that  
18 is case-specific to fusion, whether it would be Part 30, whether it would be  
19 beyond Part 30 into Part 40, and other licensees that don't have that would  
20 have to be a Commission decision and we would have to bring that to you.

21 COMMISSIONER CAPUTO: So I recognize that the  
22 mindset of focusing on cost benefit may be there and there may be principles  
23 and guidance underpinning the nature of our processes.

24 I personally think that we should have it enshrined in  
25 rulemaking text in regulation for the sake of regulatory predictability and

1 stability for these licensees.

2 This is going to be potentially a large, new area of work for  
3 us and I think providing regulatory predictability here is crucial and if we are  
4 so confident that cost benefit underpins the nature of our decision making now  
5 and the framework as exists then it's not much of a leap to actually provide  
6 that measure of certainty to these applicants, so I believe personally that this  
7 should be included in the rulemaking.

8 Theresa, you mentioned that there was a 2-day seminar on  
9 fusion basics. How is NRC Staff capturing the technical expertise and license  
10 experience within the Agreement States to support these conversations and  
11 seminars to sort of present the practical experience that already exists and  
12 build on that?

13 MS. CLARK: Thanks for that question. So the licensing  
14 to date has been research scale, quite small scale, and it's still useful to know  
15 about, but one of the things that are doing right now, there is active pre-  
16 application and application work going on in the States.

17 So in Massachusetts, in Washington State, and in  
18 discussions with other States, applications are already being reviewed and  
19 those are the people that we're already talking with, you know, for example,  
20 the person in Massachusetts was working with us on our fusion rulemaking,  
21 so we are talking right now to make sure that we see how they are reviewing  
22 those applications using our existing guidance, pulling those insights into the  
23 guidance that we are developing, and certainly to ensure that the decisions  
24 that we would make are consistent across the program.

25 So right now I would say it's at the informal working group

1 level in addition to these more formal trainings that we are taking and  
2 recording and that the Agreement State people are participating in. I hope  
3 that answers your question.

4 COMMISSIONER CAPUTO: Okay. So they are not  
5 necessarily -- If there is a 2-day seminar they are not necessarily in a speaking  
6 role presenting their lessons learned and their expertise?

7 MS. CLARK: So the particular seminar that happened last  
8 November was on technology, you know, what is fusion, what's a tokamak,  
9 what are these different types of technologies, and it was taught by MIT and  
10 had a lot of very deep technical information.

11 I certainly could see the value in some knowledge  
12 management seminars, for example, as the Massachusetts review progresses  
13 to share those insights seems like a great idea. They have only just started  
14 their review, so that's something that we will keep an eye out for in the future.

15 COMMISSIONER CAPUTO: Thank you.

16 CHAIR HANSON: Thank you. Commissioner Crowell.

17 COMMISSIONER CROWELL: Thank you again to all of  
18 the panelists, appreciate the presentations. I will take a quick second to  
19 correct the record on something I said.

20 I mentioned that your business line isn't always as sexy as  
21 the NRRs, but I forgot about fusion and you are certainly --

22 (Laughter.)

23 COMMISSIONER CROWELL: You are certainly giving  
24 them a run for their money there, so keep up that healthy competition. I am  
25 not going to ask anymore questions on fusion because it's ground well

1 covered, but it's to be noted regardless.

2 John, I'll start with you but others can jump in. I appreciate  
3 you and others on the panel highlighting the Tribal Relations Team and your  
4 focus on enhancing our tribal engagements.

5 Sitting here at the beginning of a calendar year what is our  
6 tribal engagement and/or consultation look like for the balance of 2024?

7 MR. LUBINSKI: Thank you. I am going to turn to Theresa  
8 rather quickly here because she has some of the more specifics, but let me  
9 say, you know, we don't always look at it based on calendar year in setting it  
10 up, right.

11 You know, it's day-to-day we're looking at going forward.  
12 We do have routine meetings set up and hopefully Theresa can help with the  
13 acronym here, NETWG that we have routine meetings, TRMTC, which again  
14 have tribal interactions in both those meetings, and they are on our calendars  
15 every year to have roles in speaking there.

16 We continue to look at our licensing actions, not just in NMU,  
17 because, again, we have the tribal program for the entire Agency, but also  
18 looking forward in some of the reactor areas as well and making sure that we  
19 are proactive in engagement.

20 You saw in the earlier session we had outreach with the  
21 Navajo Nation as well as the Mountain Ute Tribe, and we do have additional  
22 interactions with them coming forward talking about from another business  
23 line a new fuels application in-house and making sure we are communicating  
24 with the Navajo nation and that's on our radar, but I will ask Theresa to talk  
25 about a couple more specific items that we are addressing.

1 MS. CLARK: Thanks for that. We are also planning to  
2 work with the Shoshone-Bannock Tribe out west. They had some important  
3 insights about how our Tribal Protocol Manual, which is kind of a sub-tier  
4 document to the Tribal Policy Statement, how we could enhance that, and so  
5 we want to gather their insights as we embark on a revision there.

6 The Connecticut and Indiana Agreement State applications  
7 are of interest to some tribes. One of them that springs to mind is the Osage  
8 Nation. So we continue to share information with them and make sure that  
9 we are meeting their needs.

10 And then, you know, we kind of see ourselves as a service  
11 organization so whatever things crop up, there is a meeting that needs to be  
12 publicized, there is a new rulemaking that kicks off that we want to highlight to  
13 the tribes, we're there to do that work and to share the information.

14 COMMISSIONER CROWELL: That kind of leads me to  
15 another question about I guess you've got the responsibility for tribal  
16 engagement writ large for the agency, how is the internal cooperation with  
17 other business lines working in that regard, is it a good relationship, do you  
18 encounter obstacles in trying to exercise your tribal responsibilities within  
19 other business lines?

20 MS. CLARK: I think it's something where we have really  
21 built strong relationships over the, you know, last several years as we have  
22 built our program up.

23 Now that we have this team and we have Dee as kind of the  
24 face of the franchise here we have increased our number of coordination  
25 meetings within the agency so that our regional counterparts, the regional



1 state liaison officers, know what's going on and they are a key local supporter  
2 to our program and we have seen a real uptick in the number of requests that  
3 come into us from staff and other organizations to say, hey, I have this meeting  
4 going on can you share some information.

5 That is really encouraging when we see people coming to  
6 us in addition to us going out to the organization to say here is what we can  
7 do for you.

8 COMMISSIONER CROWELL: Okay. You can leave your  
9 mic on I'm going to stick with you. You deserve a raise today as well.

10 (Laughter.)

11 COMMISSIONER CROWELL: The Chair had mentioned  
12 the license verification system and I just was hoping you could help put that in  
13 context for me.

14 You know, right when I was, you know, over the past couple  
15 of years and certainly right before I came on board at the NRC I was following  
16 with interest some of the GAO reports about source security issues and  
17 specifically license verification issues.

18 Does the license verification system address the issues that  
19 GAO has raised? If not, what doesn't it address or does the combination of  
20 the license verification system plus the source security of rulemaking kind of  
21 capture a holistic response to concerns, legitimate concerns raised by GAO?

22 MS. CLARK: Thanks for that. So the radioactive source  
23 security and accountability rulemaking would require before you transfer a  
24 Category 3 quantity of materials that you, you know, if you are the person with  
25 those materials, that you verify that the person you are transferring them to

1 has a legitimate license through our license verification system.

2 Now right now in the license verification system, or through  
3 a call to the regulator if there are licenses that aren't in the system, right now  
4 our license verification system is a very secure service, and so there are some  
5 log in requirements and that sort of thing.

6 What we are looking at as a possible enhancement to our  
7 licenses is a way that there could be a verification directly on that license, you  
8 know, leveraging some things that we saw the FDA use, and so they might be  
9 able to, for example, scan something on the license and directly receive  
10 something through the license verification system without needing a separate  
11 log in, but that's a way of implementing the potential requirement to verify the  
12 license, just an easier way of implementing that.

13 COMMISSIONER CROWELL: Thank you. I appreciate  
14 that. Do you want to add, John?

15 MR. LUBINSKI: If I could add, thank you, because you  
16 talked about where GAOs -- We have not specifically talked to GAO about  
17 what we had as far as whether or not it would meet all the requirements that  
18 they have.

19 We have had the conversations, thank you, Theresa, of  
20 Whether or not it would meet exactly what they are saying from, I don't mean  
21 the license verification, but, again, tokenizing our license.

22 Also, you know, we're early in that conversation. It's a  
23 great idea and we are looking at what we have learned from FDA, but we  
24 would have to look at what the cost would be.

25 As we said there are 17,000 materials licensees in the

1 United States, it would be a subset of those. Now you are looking at going  
2 back and retrofitting licenses going back, so we have not looked at all of the  
3 costing of that yet either.

4 So I just wanted to caution we are very early in looking at  
5 how that would be implemented and there would be a lot of decisions that  
6 would need to be made.

7 COMMISSIONER CROWELL: Yes. To put a fine point  
8 on it, I know we are making progress in this area but's painful for all of us when  
9 we get hit year after year with either GAO or other, you know, investigative  
10 efforts on this stuff and if we just could have some confidence that between  
11 the verification system, the rulemaking, and other efforts that we are going to  
12 hopefully nip that in the bud so that we are little bit more immune from criticism  
13 by having a modern program.

14 Switching topics here for a second, and I think, Sherrie, I am  
15 coming to you with this, you had mentioned that over the past five years that  
16 there have only been two Agreement States that have been on probation or  
17 heightened oversight.

18 Can you give some flavors as to why those States were on  
19 probation and heightened oversight and if there is any commonality there or if  
20 it's notable in terms of what we should be mindful of with other Agreement  
21 States that may have issues or is it just totally unique, each State?

22 MS. FLAHERTY: It's kind of unique with each of the  
23 programs. There were two programs that just, you know, had challenges that  
24 kind of overwhelmed their entire programs.

25 They are both -- One of them has since come off probation

1 I think or -- Have we got through that one?

2 MR. LUBINSKI: Mm-hmm, just recently.

3 MS. FLAHERTY: Yes, just came off probation. And then  
4 the other one is getting ready for a follow-up IMPEP here in the next couple of  
5 months so we can assess where they are at.

6 The working group did not feel that that was indicative of a  
7 trend. That was one of the charges that we had in our charter was to really  
8 make sure is this just a blip or is this something that we need to take a deeper  
9 look at.

10 Based on what our analysis was it appeared to be just two  
11 programs that had struggles at about the same time that really rose to our  
12 attention.

13 So, yes, again, the purpose then of the working group is to  
14 take a look and see is there some way that we can get ahead of this before  
15 the challenges become overwhelming for the programs.

16 COMMISSIONER CROWELL: Yes. Yes. And to tie it  
17 back to the what my colleagues had raised, once you add fusion to the mix it's  
18 a real high bar in terms of expectations. Thank you.

19 Robin, I am going to give you a softball hopefully as my last  
20 question. If there is one or two or whatever things you want to identify that  
21 would be most applicable to hiring more people like you what would those  
22 things be, how do we get more health physicists in our workforce?

23 MS. ELLIOTT: That's a great question. I guess the first  
24 thing that pops in my head is sharing the opportunities that exist.

25 I think the opportunities at NRC far outreach most other

1 employers because the Agency is so large and health physics spans so many  
2 different areas, so I think that's probably the best one, and then the work  
3 environment.

4 COMMISSIONER CROWELL: Yes. I actually think you  
5 are right in terms of using those as tools for recruitment, but we don't highlight  
6 those things as well as we should have, be it for health physicists or otherwise,  
7 the unique nature of what you get to do a government agency and the  
8 perspective you have there and the culture goes a long way, too, and it can  
9 oftentimes make up for lower pay if you really enjoy where you work and the  
10 variety of work you get to do and every day is a new adventure that can make  
11 up for some of those other things and make it worthwhile, but we really have  
12 to consciously sell ourselves as to having that culture and something that  
13 people want to be a part of.

14 So we can just start replicating you and others. Thank you.  
15 I appreciate it. Thank you, Mr. Chair.

16 CHAIR HANSON: Thank you, Commissioner Crowell. I  
17 think that's a great way to end, right, the emphasis on our people and our  
18 mission and how important those are and certainly quiet competence is our  
19 brand here at the NRC, but there is certainly more we can be doing to highlight  
20 some of the really outstanding aspects of our work and the people who do it  
21 and the importance of our mission to the American people.

22 Thank you all for your service and your presentations this  
23 morning, it is deeply appreciated. Also, to our first panel and the folks who  
24 are hanging around still from that, also a great conversation.

25 Thank you to my colleagues for their thoughtful questions

1 on this. With that, we are adjourned.

2 (Whereupon, the above-entitled matter went off the record

3 at 11:44 a.m.)