UNITED STATES

NUCLEAR REGULATORY COMMISSION

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MEETING ON THE STRATEGIC PROGRAMMATIC OVERVIEW OF THE DECOMMISSIONING AND LOW-LEVEL WASTE AND NUCLEAR MATERIALS USERS BUSINESS LINES

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THURSDAY,

JANUARY 26, 2023

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The Commission met in the Commissioners' Conference Room, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, at 9:00 a.m., Christopher T. Hanson, Chair, presiding.

COMMISSION MEMBERS:

CHRISTOPHER T. HANSON, Chair

JEFF BARAN, Commissioner

DAVID A. WRIGHT, Commissioner

ANNIE CAPUTO, Commissioner

BRADLEY R. CROWELL, Commissioner

ALSO PRESENT:

BROOKE P. CLARK, Secretary of the Commission

MARIAN ZOBLER, General Counsel

NRC STAFF:

DANIEL H. DORMAN, Executive Director for Operations

ROBERT LEWIS, Deputy Director, NMSS

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

SHAUN ANDERSON, Branch Chief, Division of Decommissioning, Uranium Recovery and Waste Programs, NMSS

STEPHANIE ANDERSON, Senior Health Physicist, Region IV

DOUG MANDEVILLE, Senior Project Manager, Division of Decommissioning, Uranium Recovery, and Waste Programs, NMSS

KEVIN WILLIAMS, Division Director, Division of Materials Safety, Security, State, and Tribal Programs, NMSS

HUDA AKHAVANNIK, Intergovernmental Liaison Project Manager, Division of Materials Safety, Security, State, and Tribal Programs, NMSS

JOSEPH NICK, Special Assistant, Region I

P-R-O-C-E-E-D-I-N-G-S

9:00 a.m.

CHAIR HANSON: Good morning, everyone. I convene this meeting to hear strategic considerations associated with the decommissioning and low-level waste business lines and the nuclear materials users business line. It's important to keep the public informed and updated on the agency's activities, so I thank you all for supporting this meeting this morning and I'm looking forward to a great conversation between the staff and the Commission. This morning, we'll hear from two staff panels. We'll take a short break in between. And with each panel, we'll hold questions until the end, and then, we'll hear questions from the Commissioners to the panelists. So, before we start, I'll ask my colleagues if they any comments they'd like to make.

(No response.)

CHAIR HANSON: Okay. Dan, our Executive Director of Operations, I'll hand it over to you.

MR. DORMAN: Thank you, Chair, and good morning, Chair Hanson and Commissioners. The staff appreciates the opportunity to be here today to give you an update on our accomplishments and priorities for the decommissioning, low-level waste, and nuclear materials users business lines.

Next slide, please. Let me start by commending the staff in both business lines for their hard work, diligence, and commitment to achieving the agency mission-critical work in this dynamic environment.

As the Chair indicated, our first panel today will present the decommissioning and low-level waste business line. Our first speaker will be Rob Lewis, the NMSS Deputy Director. Rob will provide an overview of the decommissioning and low-level waste business line with key messages on the focus areas for the office.

He will be followed by Jane Marshall, the Director for the Division of Decommissioning, Uranium Recovery, and Waste Programs. Jane will present the accomplishments and priorities for the decommissioning and low-level waste business line.

Shaun Anderson, a Branch Chief in NMSS, will discuss how the business line has been working to align staff levels with an increased projected workload and how we are improving the guidance and transparency using risk insights with our stakeholders.

Doug Mandeville, Senior Project Manager, will share some examples of this year's mission-critical activities that have built a path forward for future engagement with fellow federal agencies and Agreement States to ensure the effective decommissioning of uranium mill sites.

And the panel will conclude with Stephanie Anderson, Inspector from Region IV, who will share regional initiatives in the Business Line Oversight Program to promote agility and consistency between the reactor and material decommissioning program areas. I'll now turn the presentation over to Rob Lewis.

MR. LEWIS: Thank you, Dan. Good morning, Chair. Good morning, Commissioners.

Next slide, please. I'm very grateful to be here today to have the opportunity to represent the great work and great people all across the agency that contribute to the agency's decommissioning and low-level waste business line.

The decommissioning and low-level waste business line is a small business line within NRC with roughly 83 full-time equivalent staff. About two-thirds of those 83 are in NMSS and the rest spread across several offices, most prominently, OGC, Regions I, III, and IV.

Our team ensures safety and security through our licensing and oversight work of 26 decommissioning power reactors, 4 decommissioning research reactors, 8 complex materials sites, 28 uranium mill tailing sites, and 5 uranium recovery sites.

We work closely with the Agreement States on their low-level waste activities and uranium recovery activities. Additionally, we support other agencies. For example, we support the Department of Energy for the processing of waste incidental to reprocessing at former weapons complex sites, and we support the Department of Energy's work on the naval reactors decommissioning.

The image here was taken -- okay, next slide -- the image here was taken just a few weeks ago. This is a decommissioned ship hull of - the reactor vessel from a ship. It's being unloaded at a low-level waste disposal site for final disposal.

Despite the relatively small size of the business line, we provide for public health and safety and for protection of the environment on

activities with traditionally very high levels of interest from the public, political representatives, and the Commissioners.

We view proactive and meaningful interactions through all the steps of decommissioning as essential for safe and effective decommissioning. These interactions not only increase stakeholder confidence, they also improve our regulatory decisions.

The NRC provides for opportunities for public engagement throughout public meetings in the vicinity of facilities where we receive the preliminary site decommissioning activities report and when we receive the license termination plan. The license termination plan is a formal license amendment which also provides the opportunity for members of the public to request a hearing.

I know you have each expressed a lot of interest in decommissioning and low-level waste, and we really appreciate you for your engagement and your support of our work.

Next slide, please. The last part of my presentation is designed to look forward at the drivers I see for our DLLW business line over the next three years or so. And I like to divide future drivers into three broad categories: workload drivers, workforce drivers, and innovations.

I'll start with workforce drivers. For workforce drivers, like the rest of NRC, this business line is focused on recruiting, developing, and retaining our workforce. The recent high turnover in Jane's Division illustrates how workforce has and will continue to be a driver.

Fifty-one percent of the people on its roster in 2019, shortly

after I arrived at NMSS, is no longer in the position they were in, and 26 percent of the current staff are also eligible to retire. We continue to hire and replace the people that have left. We had nine hires last year and seven the year prior. So, we've been keeping pace.

That helps us keep pace with respect to people, but we also need to maintain our technical skills. To do this, we've invested in cross-training and qualification programs and several knowledge management tools.

Finally, we emphasize modeling the values in leadership model behaviors to help ensure strong organizational culture. We're hiring a lot of people this year, and we're very committed to getting their NRC career off to a great start. Shaun is going to give you a firsthand account today of his use of our staffing plan and strategic workforce planning strategies.

Next slide, please. The main workload driver for decommissioning is the fact that multiple recently-closed reactors are requesting accelerated decommissioning schedules, based on new business models that incentivize earlier decommissioning work. This challenges our capacity to support simultaneous licensing and inspection activities. Jane and Shaun are going to present today on our planning, cross-training, standardization, and guidance development work to help mitigate this challenge.

Outside of reactor decommissioning, we also expect an increase in the uranium recovery area, based on world events and based on the need for a domestic uranium fuel supply. Doug is going to elaborate on how we proactively monitor and adjust to these expectations to be prepared

for potential new regulatory work.

The images here on this slide show the goal of our activities: safely completed decommissioning work. And it shows the Maine Yankee Site on the left and the Humboldt Bay former reactor site on the top and the bottom at the point of license termination.

Next slide, please. Innovations that will drive us include our internal focus on risk-informing and new ways of using technologies for decommissioning. We've recently invested in risk-informing and greater use of risk insights to focus our DLLW licensing and inspection work. We've issued licensing guidance and new inspection procedures, and over the next two years, we expect to see program changes from these investments. Stephanie is going to elaborate and give a personal account on how this complements her inspection work.

External to NRC, innovative technologies are being applied to decommissioning. For example, robotics are used by the licensee at Three Mile Island Unit 2 to reduce potential people's doses in assessing the higher contaminated areas that remain from the 1979 accident.

The images on this slide show a survey technique used at one of our sites where an all-terrain vehicle is pulling an array of detectors, as a new technique. Also, there's a person in the top picture. It shows a person using a survey instrument to map out building structures for the digitization of the building to aid work-planning.

These are areas that are ripe for learning from international partners. And I'll just give one example. In 2018, the Nuclear Energy

Agency created the Committee on Decommissioning of Nuclear Installations and Legacy Management, or CDLM, to provide a forum for senior regulatory authorities, research institutes, and other stakeholders to exchange experience and information. I'm the U.S. representative to the CDLM, and I've been mentioning this only because they've had a particular focus on how advanced technologies could be used worldwide to improve decommissioning, including robotics, digital twins, as I just showed; demolition techniques, remote sensing, and other innovations.

So, with my last comment, I just wanted to give a thank you, a huge thank you to Annie Ramirez, who's here. She, over the last three weeks, has done a ton of work to prepare the whole panel to be ready for today, and really, she should be speaking; she's so good. And we really appreciate what she's done. And with that, I'll turn it over to Jane.

MS. MARSHALL: Thank you, Rob. Good morning, Chair Hanson and Commissioners.

Next slide, please. Since promulgation of the dose-based license termination rule in 1997, the DLLW business line completed the safe and effective decommissioning of 27 power and research reactors, 51 complex materials sites, and multiple uranium mine and mill sites. In addition, the business line developed guidance documents, reviewed and approved decommissioning activities, and provided oversight to the license termination process for uranium mill tailing sites, military and non-military radium sites, and provided support to naval reactors decommissioning.

Over the past year, the staff completed a significant number

of actions in both licensing and oversight and the decommissioning uranium recovery and low-level waste programs. These accomplishments demonstrate our continued strong commitment to fulfill the mission within the business line in an effective manner.

If we can have this slide -- this slide shows some of the DLLW mission-critical activities. On the left is a picture of reactor internals at SONGS. Reactor internals are a significant focus during decommissioning inspection to ensure that the sectioned and removed pieces are appropriately categorized, packaged, and shipped. On the right is a picture of a decommissioning inspection team at Indian Point Unit 1 radiation waste control room.

A few additional accomplishments I'd like to highlight today are:

We've completed a total of 53 licensing actions across the decommissioning and uranium recovery programs, which included license terminations for reactors and materials sites.

We issued the Long-term Care Fee determination for Western Nuclear, Incorporated, Split Rock Uranium Mill tailing site to prepare for license termination and transfer to the Department of Energy for long-term care.

In 2021, the Division conducted a Waste Incidental to Reprocessing, or WIR, program assessment and identified that we needed to improve our guidance documents.

The WIR program assessment also recommended that we

develop a signature authority delegation for WIR documents that would be consistent with office procedures and similar to other licensees. The signature delegation was completed in FY22.

We issued two Technical Evaluation Reports related to Hanford WIR activities. We updated guidance for decommissioning program licensing and oversight, including issuing a NUREG on Consolidated Decommissioning Guidance.

And the final accomplishment I would like to highlight is that we are hosting the first participant in the Foreign Assignee Program since COVID.

Next slide, please. As Rob mentioned, several of our actively decommissioning sites benefit from a high local interest, and I'd like to take a moment to note some of the recent activities in this area.

We held two post-shutdown decommissioning activities report public meetings: the first at Diablo Canyon in July of ‘22 and the second near Palisades in September of ‘22. These meetings were hybrid. So, we have an in-person presence near the site along with a virtual option that allows members of the public to participate, even if they do not wish to attend the meeting in person.

We supported the first offsite Commission meeting in over 40 years, which was held in Grants, New Mexico. As some of you remember, the meeting provided an update to the local stakeholders on the interagency actions taken and lessons learned associated with remediation activities at former uranium mill sites throughout the West, and specifically, near their

homes.

In addition, the meeting provided an opportunity for a direct conversation between the Commission and the members of the Red Water Pond Road community on the impacts of uranium contamination on their community and on the Navajo Nation. The photo on the left of the slide shows the staff at the Shade House before the Commission meeting.

We published Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning Proposed Rule for comment and supported that rollout with six hybrid public meetings in different parts of the country, plus, presentations at conferences, to facilitate meaningful public comments on the proposed rule.

We also proactively reach out to engage non-government organizations, such as citizen advisory boards, in our regular work.

We created a new public website, "What's New In Decommissioning" to highlight upcoming opportunities for public involvement and draft documents that are out for public comment.

The last thing I would to highlight for our outreach is DLLW support for the 7th Review Meeting of the Joint Convention of the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management at the International Atomic Energy Agency in Vienna, Austria. NRC staff served as country group officers; presented the U.S. National Report, in partnership with the Department of Energy, and served as technical experts for peer reviews and other contracting parties. The photo on the right of the slide shows part of that delegation.

These activities are some of the examples of how the decommissioning and low-level waste business line are actively involved and actively invite public involvement during fiscal year '22, as part of our commitment to uphold the principles of good regulation. We are continuing to do this in FY23.

Next slide, please. The business line continues to expand its use of web-based licensing to track work. You might recall the business line completed the transition of all casework and non-casework to WBL in 2021. The business line is using that data to support agency decision-making. We're using WBL in a manner similar to other materials business lines. This approach supports standardization and reduces retraining as people change jobs within NRC. And ultimately, this is expected to further increase the use of data-driven decision-making.

This concludes my presentation, and I'll now turn it over to Shaun Anderson. Next slide, please.

MR. ANDERSON: Thank you, Jane. Good morning, Chair Hanson and Commissioners.

The Reactor Decommissioning Program is a mature program and will continue to strengthen for the foreseeable future. We need to continue to innovate and further streamline our licensing and oversight processes while maintaining public health and safety. Considering more plants are entering various phases of decommissioning, we need to also be able to educate, inform, and communicate effectively to various stakeholders.

Next slide, please. First, I want to thank the staff for their

continued support and substantial efforts to the program. While fairly new to the program, being here for just under a year, I am proud of the management of the workload, the challenging reviews, and the program support that's been maintained.

As you may be aware, due to COVID-19, there have been delays in some public meetings, and we have converted others to a web-based format. Our team worked hard to establish a variety of communication methods to keep the public informed and involved -- from onsite hybrid meetings related to the PSAR, virtual meetings, supporting various community advisory boards, and updating our web page with information that may be useful to the public.

The team continues to be recognized by the hard work and expertise in decommissioning by the frequent requests received to speak and participate at the International Atomic Energy Agency, the Nuclear Energy Agency, and decommissioning strategy conferences. The staff participates in bilateral cooperation meetings with specific countries on reactor decommissioning and provides reactor decommissioning technical seminars, as recently performed in November of 2022 with the Republic of Korea.

To build and maintain this team, we continue to leverage the efforts of the Strategic Workforce Planning Tool to inform our hiring decisions; specifically, the tool for the Branch, for the SWPT to provide any insights related to the gaps identified in the organization by technical skill set. It also provided me with a trend in gaining insights on how to move forward with prioritizing some of my hiring at various staff levels.

As previously mentioned, hiring remains a challenge across the agency and is no different in decommissioning. However, we continue to leverage multiple strategies to ensure we have the resources we need to maintain the workload, such as having staff cross-train as both project managers and decommissioning inspectors.

In the image on this slide, there are inspectors from Region I in the top right at Indian Point and Region IV inspectors at SONGS inside containment. And during many of these inspection activities, we try to leverage opportunities to provide on-the-job training, to support qualifications and site familiarization with headquarters staff.

And to bring staff onboard, we take advantage of our ability to data-mine through many of the resumes that are online. We also have hired and trained co-op students and provided them with meaningful work to support and enhance the program. We support the Nuclear Regulator Apprenticeship Network to develop and establish strong resources and add to the pipeline. We have also initiated steps to leverage contract resources to mitigate some of the near-term technical expertise necessary or needed in this area.

Next slide, please. Decommissioning licensing actions are different than many other NRC licensing actions, in that, once a license is terminated, there's no longer NRC oversight. We must have confidence in our reasonable assurance determination finding that the site is safe for future use. Only then can we terminate the license.

The staff has had a long history in decommissioning nuclear

facilities and has developed several guidance over the years. The staff has expended significant resources in developing technical documents that the staff accepts as one way to comply with the regulations for a wide range of licensee types.

NRC's guidance reflects the regulation that is risk-informed and performance-based with graded approaches to demonstrate reasonable assurance. The staff efforts have made the process more transparent and efficient, such as the multi-agency coordination to develop the sound survey approaches and the Multi-agency Radiation Survey Insight Investigation Manual. The staff continues to improve this guidance, both in the release of revisions to incorporate lessons learned or expand in areas of interest to the industry.

This past year, we released an updated volume of the Consolidated Decommissioning Guidance specifically for Characterization, Survey, and Determination of Radiological Criteria. The image in the top right is from Appendix J of this update to the guidance, showing exposure scenarios that should be considered for residual radioactivity that could bring the residual radioactivity to the surface, when a member of the public could be exposed. This established guidance has provided a predictable and clear path to license termination for a multitude for licensees since its initial release in 2000.

We've also held public meetings, public workshops on developing additional guidance for addressing subsurface radioactivity. Also, the next image is of table salt crystals, which was used to give perspective of DRP sizes during our DRP public workshop on managing

discrete radioactive particles during decommissioning, where we discussed DRPs as high-activity particles less than 1 millimeter in diameter. Table salt particles are generally of 350 microns. DRPs of concern in decommissioning have been found at sizes ranging from approximately 100 microns in diameter to over 1 millimeter in diameter.

And finally, the staff is monitoring the industry initiative to provide more standard information and format of license termination plans applications. This effort could improve the quality and completeness of applications, and thus, result in more efficient NRC reviews, as well as greater opportunities to provide risk insights.

And now, I'd like to turn the presentation over to Doug Mandeville. Next slide, please.

MR. MANDEVILLE: Thank you, Shaun.

Good morning, Chair Hanson and Commissioners. My name is Doug Mandeville, and I'm a Senior Project Manager in NMSS. I began my career here at the NRC over 15 years ago. During my time in this group, I've had the opportunity to work on projects related to uranium recovery decommissioning, as well as reviewing applications for new uranium recovery facilities.

Today, I will discuss the activities staff has undertaken with fellow federal agencies and Agreement States to ensure effective decommissioning of uranium mill sites.

Next slide, please. As you are aware, the legacy of past uranium mining and milling activities remains a concern in many places,

particularly in and around Native American communities. Staff is engaged with our federal, Agreement State, and tribal partners to address the challenges related to uranium mill site decommissioning. This includes activities at a programmatic level, as well as at the project level.

One specific example of staff's programmatic work with other federal, Agreement State, and tribal representatives is the collaboration with the Abandoned Uranium Mine Waste Group. This group includes staff from the Environmental Protection Agency, the Department of Energy, and several other federal agencies. The group also includes senior environmental regulators from the Navajo Nation, Pueblo Laguna, Ute Mountain Utes, and the Four Corner States.

While this group is focused on disposal options for uranium mine waste, it may identify solutions that could impact NRC-licensed mill sites. The group is in the early stages of its work. The staff looks forward to supporting this effort.

The graphic at the top of this slide shows the steps in the uranium recovery decommissioning process, which can require interactions with other regulatory agencies. Prior to the termination of the uranium recovery license, any public land within the long-term care boundary is withdrawn from use to facilitate DOE's role as the long-term care custodian.

The staff has increased collaboration with the DOE and the Bureau of Land Management on the public land withdrawal process. Staff is also actively working with the DOE and EPA on individual sites, and we believe we have a good interagency partnership.

One specific example is the Homestake Site. For this site, the staff participates in routine calls with our regulatory partners at the federal EPA and DOE and the State of New Mexico level. These calls are helpful in communicating the status of cleanup activities at the site, regulatory actions, and provide an opportunity to discuss technical issues.

The photo on the lower left of this slide shows one of the evaporation ponds which supports groundwater restoration activities at Homestake. The photo on the lower right shows a drilling rig at Homestake.

In October of 2022, staff participated in a workshop on uranium recovery decommissioning with fellow Agreement State regulators. The purpose of the workshop was to enhance communication between the NRC and the Agreement States on uranium recovery licenses that are in various stages of decommissioning.

Workshop participants recognize that further collaboration is needed to address complex groundwater contamination at these sites. Staff intends to conduct a subsequent workshop on uranium recovery decommissioning with fellow Agreement State regulators in the fall of 2023.

Next slide, please. Through our work with other federal agencies and Agreement States, we have identified several best practices. These include frequent communication with our partners, early interactions on challenging issues, and development of a schedule with dates for key milestones. These are all helpful practices to help support an effective license termination process. These practices are currently being implemented in the uranium recovery and decommissioning program.

The Rio Algom-Ambrosia Lake Site is one example where we have early interactions on a challenging issue. The map on the left side of this slide shows the mill tailings pile, the blue area in the center and the former location of evaporation ponds that supported groundwater remediation activities, the blue area on the lower right. Also show on this map are the location of several mines, the small squares, that supported Rio Algom and other mills.

The specific challenge at this site is distinguishing between mine waste, which is not regulated by the NRC, and milling waste, or 11(e.)2 byproduct material, which is regulated by the NRC. Developing a clear understanding of the extent of mining waste compared to milling waste will support an effective license termination process. Staff is working with EPA on this issue. The photo on the lower right shows equipment the licensee is using to conduct gamma surveys to characterize surface contamination.

There are two sites located in Agreement States that are making progress towards license termination. The Western Nuclear Site in Wyoming is on track for license termination this spring. The Hecla Site in Colorado is in the early stages of the public land withdrawal process. For both sites, the staff communicates frequently with the Agreement States and DOE to identify key dates in the termination process and provide status on specific reviews. Staff plans to continue these calls, as they help maintain an effective decommissioning process.

Next slide, please. As Rob mentioned earlier, staff is maintaining awareness of conditions in the uranium market to inform our

planning and preparations for the upcoming years. The price of uranium is one of the main factors that drives interest in new facility licensing. Staff maintains awareness of price trends in uranium. It is one of the markers we use to inform decisions about future resource needs in the business line.

The graph on this slide shows the price history of uranium in U.S. dollars per pound, based on information collected by the U.S. Energy Information Administration since 2000. The most recent report provided price data through the end of calendar year 2021. At the end of calendar year 2022, the spot price for uranium was about $48 a pound.

In addition to following market conditions, the staff has frequent conversations with our Agreement State partners and current NRC licensees to understand the status of operations and annual licensing activities. Based on these discussions, staff is observing some initial interest in resuming production and/or expanding existing facilities. Staff will continue to monitor market conditions and activities in Agreement States for planning purposes, so we can be prepared for new licensing work.

This concludes my presentation. I will now turn it over to Stephanie Anderson.

MS. ANDERSON: Thanks, Doug.

And good morning, Chair Hanson and Commissioners. My name is Stephanie Anderson. I am a Senior Decommissioning Inspector in Region IV, and I have been with the agency for 11 years.

Today, I will give an overview of the reactor and materials decommissioning inspection activities, including staffing and training for the

Decommissioning Oversight Program and some of our initiatives to transition our oversight guidance to a more risk-informed, performance-based approach.

Next slide, please. The Regions have been actively hiring decommissioning inspectors and cross-qualifying staff to support the increase of the decommissioning activities. Five new decommissioning staff have collectively joined the Regions in 2022.

With the recent update to Inspection Manual Chapter 1248, Appendix F, "Training Requirements and Qualification Journal for Decommissioning Inspectors," inspectors can now qualify in either reactor decommissioning, material decommissioning, or both. This has allowed the Regions to qualify inspectors specific to the area of decommissioning that supports their Region's current needs.

When an inspector starts a Qualification Journal, they will discuss with their supervisor which decommissioning track to pursue. Regardless of the chosen decommissioning track, all decommissioning inspectors must complete Appendix A of the Qualification Journal, which includes required basic-level training courses, individual study activities, and on-the-job activities, which includes a facility familiarization tour.

Appendix B focuses on the technical-level training needed to understand operations, regulatory requirements, and inspection processes of a decommissioning site. Even though there are differences between the two technical tracks, there are several cross-cutting areas. Five out of 17 individual study activities and all the required training courses are applicable

to both technical tracks; for example, the transportation of radioactive materials course. This practice has achieved consistency among both qualification tracks and expedites the cross-qualification process for candidates.

The Regions are focusing on knowledge transfer. Nuclepedia pages have been created. There are ongoing knowledge transfer sessions, and the inspectors took the initiative to create a cross-regional decommissioning inspector discussion, which is a biweekly meeting to discuss various decommissioning topics at the staff level.

Lastly, the Regions are actively exchanging inspectors with one another to support specific technical areas. For example, I assisted at Region I in a decommissioning inspection at Indian Point in 2022 and assisted with the training of recently hired decommissioning inspectors on fire protection at reactor decommissioning sites. The Regions' priority has been training staff to prepare for the future.

Next slide, please. In the past three years, there has been a significant drive to update various decommissioning oversight guidance to allow them to be more risk-informed and performance-based.

In decommissioning, the first Manual Chapter that was updated was Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program" and its associated core and discretionary procedures. It has been used for reactor decommissioning inspectors over the past two years.

I find the updated procedures improved greatly since it

focuses on risk-informing our inspection activities. It has also received positive feedback from staff across the Regions.

The revision includes clear and defined expectations which are easily quantifiable, which help inspectors planning and assessing the inspection program for completion.

The onsite inspection activities are commensurate with the associated risks. For example, I have focus on inspecting the reactor vessel internal segmentation activities ongoing at Region IV's reactor decommissioning sites.

A working group was established in February 2021 to update Inspection Manual Chapter 2602, "Decommissioning Fuel Cycle, Uranium Recovery, and Materials Inspection Program." The purpose of this working group was to update the Manual Chapter and its associated procedures.

To ensure consistency with Manual Chapter 2561, Manual Chapter 2602 now uses core and discretionary procedures. Core inspection procedures are those performed annually, as applicable at the decommissioning sites, and discretionary procedures are those used to augment the core inspection program and to assess specific technical areas, safety concerns, or aspects of the licensee's performance. This Manual Chapter was issued on December 15th, 2022.

Staff used the Be Risk Smart Principles to update the Manual Chapter and associated procedures to ensure the inspection guidance and procedures are risk-informed, performance-based; decrease duplication

of efforts, and incorporated operating experience and lessons learned from inspection activities.

Lastly, Senior Inspectors continue with this momentum and are currently in the process of updating the Inspection Manual Chapter on the Uranium Recovery Inspection Program. This update will include the addition of a new dryer inspection procedure and incorporate the NRC changes that are reflected in Manual Chapters 2602 and 2800. Inspection Manual Chapter 2801 is expected to be issued by spring of 2023.

This concludes my presentation, and I will now turn it over to Dan Dorman to close out this part of the briefing.

Next slide, please.

MR. DORMAN: Thank you, Stephanie, and thank you to all our presenters on this panel.

This concludes our presentation for the decommissioning and low-level waste business line, and we look forward to your questions.

CHAIR HANSON: Thanks, Dan. Thank you all for being here, and thanks for your presentations.

Jane, I guess I'd like to start with you. I don't know if it was you or Rob who kind of noted the turnover in the group and the 27 or 26 percent eligible to retire.

Can you talk a little bit about maybe the reasons for the turnover and what are the challenges that you've seen in hiring, either internally or kind of externally? And then, as you've had that turnover, can you talk a little bit about knowledge management in that area?

MS. MARSHALL: Okay. Thank you, Chair Hanson.

The reasons for individual staff departing, there are a range of reasons as individuals, the staff themselves, of course. Roughly half of the folks who have departed, as Rob mentioned in his remarks, half of those were retirement. The next biggest group were people taking different positions within NRC, and we see that as a positive. They're broadening; they're getting promotions, and still contributing to NRC.

And so, a smaller group leave the agency before retirement, and there are varied reasons. Some people wish to be in a different part of the country. Some people have different opportunities.

You also asked about challenges for hiring. We have been working with OCHCO to develop broad postings for areas where more than just DLLW business line has needs, such as project managers. And so, we have been aggressively hiring, as we can, using that method.

There are some areas that are harder to hire. That's not unique to NRC, but certain skill sets, such as health physicists, are in demand, and industry is having the same challenges that we are.

You also asked about knowledge management, which is at the front of our minds. I know Shaun mentioned it in his remarks. We have been making good use of Nuclepedia. So, when any staff does something new, they'll write a one-pager, put it in Nuclepedia, so that other staff can benefit from the lessons that they've learned.

Certain IT innovations, such as the shared documents that we all enjoy now, give us additional KM opportunities, because more staff

have access to the documents that they need.

Certainly, Teams has allowed mentoring very easily from Regions, from headquarters to Regions, you know, and across the NRC, more so than it used to be just within the office. So, that level of mentoring across the organization has been a great benefit for knowledge management.

I think that covers most of it. I don't know, Rob, did you want to add to that?

MR. LEWIS: Yes, to say, at the office level, so Jane's Division is a microcosm, but it's the same phenomenon at the office level for the retirement. I agree, if I remember, when I looked at the numbers, Jane's Division, about 60 people, so 30 left, and since 2019, not just last year.

CHAIR HANSON: Yes, yes.

MR. LEWIS: But about the same office-wide, roughly half left. The one thing I would say about retirement, I think a lot of people were in kind of wait-and-see mode during the pandemic, and then, when we started reentry, people that otherwise would have been retiring all along retired. So, last year, we had kind of a bump, and I think, NMSS-wide, we had lost about 50 people last year out of 300. In a normal year, we have 25 to 30. So, there was a little spike.

But the good news is we have been aggressively hiring. OCHCO has been a great partner at that.

And as Jane said, you know, rather than each Division posting a job, post one; get a cert with a lot of people. All the Divisions pick from it. That's been the single biggest thing last year, that improvement in

our ability to hire and onboard people.

CHAIR HANSON: Great. Yes, thanks very much. I appreciate that.

Shaun, can you talk to me a little bit about discrete radioactive particles and kind of how to manage this issue during decommissioning and kind of where we are in the guidance development process for DRPs?

MR. ANDERSON: So, DRPs, just to provide some context, DRPs may exist during the operations of the facilities, and obviously, during decommissioning. During cutting internals or concrete that's being demolished, we may develop some DRPs.

The licensee is required and is expected to maintain safety, isolation, and control while the facilities are being decommissioned. The concern comes up when there's a potential release of DRPs to the environment while decommissioning activities are happening.

So, I would say the one concern that we do have, one activity we had, is where there was a release of DRPs, and we do expect licensees to actually do extensive surveys, and then, remediation and removing the DRPs, any that have been identified. What we are planning to do moving forward is that, first, we recognize that this is a potential operational occurrence that could potentially happen. There was a request from industry for us to go develop -- a request for additional guidance on DRPs.

So, we established a working group and we had a public workshop last November. And within that public workshop, we started to

frame out what areas that we will cover within the guidance itself.

Moving forward, I think the guidance -- we know guidance development takes probably maybe five years or so. So, we're looking at opportunities to actually do some interim guidance documents and generic communications, as we start to fully develop the guidance itself. And we know that industry, NEI, is also working with the industry to develop their guidance on LTPs, which may also cover DRPs, as was presented in November. But we do believe that the guide itself will help strengthen the decommissioning program overall.

CHAIR HANSON: Yes, I think those interim steps and looking at ways, you know, obviously, applying risk insights in there, and given the amount of decommissioning that's going on, I could see how some nearer-term actions to provide clarity there I think might provide a benefit.

MR. ANDERSON: Absolutely. And I just wanted to mention that the staff has been working with the Office of Research to conduct additional research and provide additional risk insights that could be leveraged. But we do have guidance that we've established today, and we are looking at licensees' approaches to make any changes to our acceptance criteria.

CHAIR HANSON: Okay. Thanks a lot.

Stephanie, good morning.

MS. ANDERSON: Good morning.

CHAIR HANSON: You mentioned kind of an update to the Manual Chapters for decommissioning and the inspection procedures. I

know the reactor decommissioning procedures have been kind of in use the longest on this. Could you kind of talk about the impact of those revised procedures on the program and any kind of lessons learned that you guys have had about that, and whether or not those lessons learned have kind of been able to be applied to additional revised inspection chapters?

MS. ANDERSON: Absolutely. So, one example I can give you is fire protection used to be a discretionary procedure in reactor decommissioning. And with the update to 2561, it is now a core inspection procedure. So now, we are required to perform that inspection procedure annually at the reactor decommissioning sites where we have seen an uptick in hot work activities ongoing. Every active decommissioning site is supposed to become useful in identifying certain areas that the licensee should be focusing on when it comes to the area of fire protection and where we have identified violations across different licensees.

CHAIR HANSON: Okay. Yes, thank you.

So, that's, I guess, kind of about the core reactor decommissioning procedures that you've been able to kind of -- is there anything that you've learned so far that you've been kind of apply to subsequent Chapter updates?

MS. ANDERSON: So, yes. So, with having core inspection procedures now at 2602, which I haven't actually used them yet for an inspection. They just were implemented in December, but we'll be using them ongoing starting now in January.

With those, we've been putting risk modules into the

inspection procedures and looking at different focus areas when you're out doing inspection, as in management control, effluent, radioactive protection, with the new 2602, looking at material decommissioning sites.

CHAIR HANSON: Okay. Yes, thank you very much. I'll finish up with a brief comment for Doug. I appreciated your tracking the uranium price as kind of a signpost and marker for strategic workforce planning. Obviously, we have a lot of -- and I don't have a sense of the total universe yet -- but we have a number of licensees that aren't operating, right? They're kind of holding their facilities in abeyance. And I just want to make sure that, should those folks all decide to kind of flip the on switch, that we've got enough resources and people to go out and inspect those facilities and assure they're being operated in a way that protects the public and the environment.

So, I appreciate what you all do.

MR. MANDEVILLE: Yes, thank you.

CHAIR HANSON: Yes. All right.

Commissioner Baran?

COMMISSIONER BARAN: Thank you. Thanks for all of your presentations and for the work you're doing.

I wanted to start with the topic of remediation technologies. This most recently came up in the context of a company called Disa asking NRC about which regulatory framework would apply to a technology that could potentially reduce the uranium and radium content of mine waste. But I think there's a broader question here about remediation technologies more

generally.

In this case, though, the staff responded that a technology that aims to make mine waste less contaminated would need to be licensed as a milling facility. And the staff's position was that this was required as a legal matter, based on the definitions in the Atomic Energy Act.

Let's put the statutory interpretation question to the side for a minute. As a matter of policy or of the relative hazards of the two types of technologies, does the staff believe that the same framework is appropriate for traditional milling and remediation technologies?

I'll open that up to anyone on the panel who wants to weigh in.

MS. MARSHALL: Okay. I'll start, and then, if anybody else wants to weigh in.

So, we looked at this technology and Disa came; they gave a presentation walking through the technology and how it works. And it is very much a milling process. And we've looked at it and staff had a lot of discussions of, is there any other way to view this technology? And we keep coming back to, it concentrates. It takes ore; it takes material; it crushes it. It goes through a process -- in this case, a high-pressure ablation -- and then, you get a concentration of uranium and other minerals. That is milling. So, that's where the technical side --

COMMISSIONER BARAN: That's helpful. I mean, and Rob might weigh into it; I saw you going for your button.

MR. LEWIS: Yes.

COMMISSIONER BARAN: When I read the correspondence on this, it seemed very -- the staff's response and analysis seemed very kind of a statutory interpretation-type analysis and it wasn't as much of this kind of technical discussion.

So, I'm interested in what Rob has to say about this, but when the staff looked at it, the view was, from a hazards point of view or from a process point of view, this looked a lot like milling to you.

MS. MARSHALL: Yes.

COMMISSIONER BARAN: It didn't like something different?

MR. MANDEVILLE: Correct.

COMMISSIONER BARAN: Okay. That's interesting.

MS. MARSHALL: Rob?

COMMISSIONER BARAN: I hadn't gathered that from the --

MR. LEWIS: I remember one briefing I was in, I actually was challenging the team and saying, can this somehow be looked at as cleanup, you know, under Part 30 --

COMMISSIONER BARAN: Right.

MR. LEWIS: -- or some other part? But we kept coming back to the fact that it looked like milling, and also, it met the definition of byproduct material, and therefore, pointed us directly to Part 40.

So, we did try to explore all the options. We're working with that applicant, and any other applicants that might want to explore with us, to

try to find a path forward. But, yes, we did write a letter to them and said that this does appear, based on the definition in the Atomic Energy Act, 11(e.)2 byproduct material, we would have to regulate it as milling under Part 40.

COMMISSIONER BARAN: You know, if we take like a hypothetical example to kind of think this through, if a company wanted to go to a contaminated mine, run all the mine waste through whatever technology it was, and then, leave less mine waste behind that's less contaminated, as a matter of policy, I would think we would want to incentivize that, or at least provide a reasonable licensing path for it.

But if the remediation technology falls under the milling framework, then our Part 40 regulations, as I understand it, would require the licensee to pay for disposal and long-term stewardship costs, which would be -- that would be a big disincentive, right? I mean, it's hard to see how anyone would ever use a technology to remediate a site if doing so left them financially responsible for the site.

First of all, is that right in terms of the application of Part 40? But what's the staff kind of think about that?

MR. LEWIS: Yes, I appreciate the question very much.

Yes, so the first question is, what framework does this apply to? And Part 40 seems to be the answer, as described by the application we got.

The second question is, then, now that it is Part 40, how do we do our review? Can we risk-inform our review? Can we bring innovative technologies to it? Has it got to be reviewed like things were reviewed 20

years ago?

That part, we're definitely very interested in exploring, but the first question has to be answered first: what framework does it apply to, if that helps?

COMMISSIONER BARAN: Yes. And maybe we could talk a little bit about that question, a little bit in terms of the Atomic Energy Act and the definitions and kind of the more legal interpretation piece of this.

You know, as you mentioned, in the case of the Disa technology, the staff found that it produces byproduct material, and there were kind of three factors the staff pointed to there. It involves the concentration of uranium for the primary purpose of recovering the source material; from ore is the second factor, and then, produces tailings or waste. And then, of course, anything that produces byproduct materials is milling, you know, under the definition.

So, I'm interested kind of in hearing a little bit more about that. What I'm trying to figure out is whether we think, the staff thinks, that the byproduct material definition kind of leaves us no choice but to characterize this kind of remediation technology as milling or whether there are alternate interpretations that could give us more latitude to do something different, if, from a technical point of view, that would make sense.

Do you have any thoughts on that? I mean, like, for example, if I'm thinking of kind of those three factors, would it be reasonable to conclude that the primary purpose was remediation rather than recovering uranium, or do we have to call mine waste "ore"? And is running existing

waste through a remediation process the same as producing waste?

I mean, I think, to me, none of those questions seem like real clear-cut and obvious. Has the staff kind of thought about that? And maybe you haven't because you think milling is the right answer, from a technical point of view, about where it should fall. But I'm interested in kind of hearing any exploring you've done of those kinds of questions.

When I saw the correspondence, it felt very much like we're locked into this outcome. And when I looked at kind of the actual definitions and factors, it wasn't that obvious to me that we were.

MR. LEWIS: Yes, and Doug is looking at me like he has an insight.

(Laughter.)

He was part of the technical team.

And so, I would just say, you know, based on our technical review and working with our attorneys, we landed where we landed in the letter and tried to articulate that to the applicant.

It was just we reviewed what they applied, you know. So, it was, as presented in the application, this is where we came out. Perhaps the applicant could describe it differently, and we could have ongoing conversations. But my impression is we were pretty firm with where we landed, both from the technical side and the legal side, and let's talk more to the applicant.

COMMISSIONER BARAN: Okay. Doug?

MR. MANDEVILLE: Yes, I wouldn't have anything else to

add to what Rob said. I think the only point I would make is, right, this technology is relatively new and wasn't really envisioned when the Atomic Energy Act was written. So, we're kind of in a situation where there's been some different things that have developed that maybe wasn't considered when the legislation was first enacted. So, it's part of the headache here that we have.

COMMISSIONER BARAN: Yes. No, I appreciate that. And I appreciate all the thoughtful comments on this.

From my point of view, I don't know anything about any particular technology and whether it makes sense, but, as I think of a category, a potential category of technologies, so much of what we've seen kind of in recent years is trying to think through, okay, if someone comes up with something new that hadn't been contemplated that's innovative, are we making sure we have a framework that's going to fit for that? Or are we trying to jam it into a framework that may not be as well-suited for it? And I was just kind of struck here because it seemed like that was less the approach here and more, well, there's just kind of only one way to look at it, and here's what it is. But I appreciate all the discussion of that.

And maybe with my last little bit of time, I'll switch topics and ask, you know, the major ongoing rulemaking in the low-level waste area is the Part 61 and greater than Class C effort. Can someone give us an update on how that rulemaking is progressing?

MS. MARSHALL: Okay, I can start.

So, the Part 61 rulemaking working group is meeting weekly

and working through. I'd like to highlight that many of the staff experts on that rulemaking also have other projects that they're working on at the same time.

So, the staff is developing the proposed rule and expect to get it up by the end of the calendar year.

COMMISSIONER BARAN: Okay. Good. And then, maybe just with the last little bit of time, Stephanie, you mentioned the update to the Uranium Recovery Inspection Program. Can you walk us through just a little bit what changes are being contemplated there?

MS. ANDERSON: Yes. So, they plan to take the changes that were recently incorporated into 2602 and 2800, especially in the definition area, and incorporate those into 2801.

And the dryer inspection, there's not an inspection procedure currently to perform that. It's in various elements of different inspection procedures. So, they want to make one new inspection procedure to perform that inspection aspect.

COMMISSIONER BARAN: Oh, okay. Great. Thanks.

Thanks, everyone.

CHAIR HANSON: Thank you, Commissioner Baran.

Commissioner Wright?

COMMISSIONER WRIGHT: Thank you, Chair.

And welcome. It's been interesting so far, and Commissioner Baran raised some good questions. I kind of want to follow up on that a little bit. So, I thought he was spot-on in his questions and appreciate the way you laid that out.

Doug, I want to ask you a question I think, because this probably is more to you. And I've seen the response that Disa sent to the staff's letter. Okay? I've read that. And it points out what I think may be some compelling arguments, you know, considerations, because it does seem a little circular. Okay?

Tell me about the safety aspects of this. I get the benefits for public health, right, and the environment. I get that. And I think that that's obvious to everybody, that this is probably one of these things, if you look at and you trust the numbers that you've seen, that it actually does provide a huge benefit.

Tell me about the safety aspects about this, either if it were allowed to proceed, as the applicant would like to do, or if we have to go the long route, you know, the costly route.

MR. MANDEVILLE: Yes, I'll try to answer this quickly, right?

So, their process generates what they call an isolated mineral fraction and a clean coarse fraction. The isolated mineral fraction is where most of the uranium would go, and that would be sent on for either disposal or further processing. The clean coarse fraction would plan to remain onsite. And, you know, that does still contain some uranium and some radium, and other heavy metals. So, there are some potential hazards there that may still stay onsite.

So, from a safety perspective, when the facility operates, we'd be looking at things like dust control and just worker dose, and making

sure that things are contained. And then, for that material that stays onsite, if it's regulated as a mill, then it would need to meet the Appendix A criteria. And some of that clean coarse fraction, at least what we looked at from a technology standpoint, may not meet the soil cleanup criteria in Appendix A. So, that's kind of some of the challenge there. If it was regulated as source material, that clean coarse fraction, we would be looking at a dose assessment to confirm that it stayed under the 25 millirem.

So, that's kind of either option as far as how it would be regulated.

COMMISSIONER WRIGHT: Right. And so, I'm aware that EPA would really like to employ this technology.

MR. MANDEVILLE: Yes.

COMMISSIONER WRIGHT: So, the fact that they're willing to employ it and go forward with it really sends a signal that, to me, it's like, okay, you really need to pay attention here.

I know there was some early data that suggested maybe it was, after everything was over with, it might not be as clean. The more current data that I've seen shows that it's even stronger, it's cleaner. In fact, I'm not going to say it goes all the way back to greenfield, but it does get pretty close, if, indeed, their numbers are correct, right?

So, I guess what I'm asking, I'd like to know, it feels like maybe we might be a barrier here, potentially. And how do we get to "yes" on this under the current frameworks that we have? And how do we do that, especially if the safety benefits of what they are? And I get to the point of, is

it something that a license condition would be necessary for in order, you know, if you want to be sure that the numbers are safe? Is that something that's possible, too, I guess?

MS. MARSHALL: Thank you, Commissioner.

We have looked at it pretty thoroughly. We are very open to continuing to work with the applicant to see what other considerations we may be able to look at with this technology.

As Rob mentioned, he did challenge the staff pretty hard, and I did the same. I mean, it's I understand the appeal of the technology, and we are continuing to talk through it and work with our partners in OGC to see what other options we can look into.

COMMISSIONER WRIGHT: All right. And then, just the last comment. I know that there's another potential company other there -- there's another company. It's not a potential company; it is a company. But they're looking in Utah, right? And that's an Agreement State. And I'd kind of like to follow that as well.

But it looks like there's going to be probably competition in this area, you know. And the sooner I think we can solve this, the better, because we already knew about the 500 sites in the Navajo Nation, and we're talking 15,000 sites that could benefit from this.

So, this may be one of those opportunities where we can be innovative and transformative, and not be a barrier on things like that. So, I appreciate the questions and the discussion, and I thank you.

And I will stop and I'm going to come to something different.

Rob, I want to come back to the numbers a little bit.

And the Chair asked questions about the number of retirements, and things like that, right? And that raises a lot of concern, right? You have 51 percent who retired. You had another percentage that left the agency, that left, and then, half the people that were remaining at the agency were eligible -- or a quarter of those which were eligible to retire, which begs the question, to me, how long does it take to train someone up in this area?

You know, if we're losing so many people, and then, we're bringing on people. And maybe sometimes we're not net here, right? And if we're losing more people than we're gaining, and then, three years later, those new people are now the old people, okay, the senior people at the agency, that presents a huge problem. So, how long does it take?

MR. LEWIS: Of course, it depends on the person we hire, you know. Some people come with some experience and those are easier to qualify, or not easier to qualify, but they can get qualified quicker.

And so, we are looking at our qualification program. In fact, I think we're going to talk about it in the second panel. And that's materials-focused, but the same kind of concepts apply to this program.

And we're looking for ways to qualify people quicker, teaming them up with senior staff, going out and actually writing out the qual program. Each person gets a specific qual journal, if you will. And when I went through it, it took me two years. So, we think we can do better than that.

COMMISSIONER WRIGHT: Well, I get the two years on the qual, right, but, then, you've got to build the experience.

MR. LEWIS: Yes, yes.

COMMISSIONER WRIGHT: And how long does it take for you to be comfortable that they're gaining the experience?

And I ask this for this question: Right now, in this environment that we're in, I've heard anecdotally, in conversations with staff in the building, that some of the onboards, they haven't met people outside their branch. Okay?

MR. LEWIS: Yes.

COMMISSIONER WRIGHT: And in a virtual environment, that's going to be very hard to do. And even with presence with a purpose, that's going to be hard to do.

So, how do these people, the new ones, learn and feel comfortable enough to know where to go and who to ask, and how to get there?

MR. LEWIS: Yes. So, in our qual program, I'd just say -- and I think Dan's hitting the button on me.

(Laughter.)

MR. LEWIS: But the purpose of our qual program, so there's a technical qualification purpose and kind of we're confident that this person can go out and represent the NRC. And we do both pieces.

So, after you do your qual and you go through a board, and as a manager, I'm certifying this person's ready, that's what qualification means: he's ready, he or she is ready to go out and represent the agency in front of licensees and do inspections, or do licensing reviews as well.

So, that's our premise. It is the fact of remote nature of some workers; it does present challenges. A lot of the work, the face-to-face time, cultural time, if you will, of knowing the unwritten rules of NRC, that's harder, yes, no doubt. It's easier face-to-face, I should say. But it's manageable.

I think we've gone through the project. We have, obviously, agency-wide, the TPIWG report, and I know the Commission talked about that recently. And we're going to move forward with a pilot project and test those kinds of things in the future going forward.

COMMISSIONER WRIGHT: Are we sending any of these persons out with someone before they're qual'ed?

MR. MANDEVILLE: Absolutely. Yes, that's 100 percent part of our program.

COMMISSIONER WRIGHT: Okay. All right. Thank you. I'm really concerned about how we build the employee.

MR. MANDEVILLE: Yes, thank you for the question.

CHAIR HANSON: Thank you, Commissioner Wright.

Commissioner Caputo?

COMMISSIONER CAPUTO: Good morning. Thank you all for being here.

I'm going to follow on Commissioner Baran's comments and Commissioner Wright's on Disa, but I'm going to come at this from a slightly different direction.

Fundamentally, the scope of the cleanup here is significant,

and obviously, any technology that could be brought to bear would have a huge societal benefit in terms of safety.

But, fundamentally, any process, whether it's Disa's or any other technology, is going to take a material that's mixed and sift it, sort it, however it's going to function, into material that's of less concern and material that needs to be properly disposed of.

So, fundamentally, under the logic that you talked about in response to Disa, any technology that would address this type of remediation would end up falling under the definition of milling, under the way you're interpreting it now, right?

MS. MARSHALL: For technologies that I'm familiar with and have seen, I would say that that seems accurate. I am not going to comment on a technology that I'm unaware of. I do hope that there are additional cleanup technologies.

COMMISSIONER CAPUTO: But, in one way, shape, or form, you're going to be concentrating the uranium bearing more hazardous material for disposal.

MS. MARSHALL: Mm-hmm.

COMMISSIONER CAPUTO: I mean, shy of just disposing of an entire pile, you're in some way going to be separating out the uranium bearing more hazardous materials.

So, I guess what I'm struggling with here is, you know, I share Commissioner Wright's concern that the nature of how that's being interpreted makes us a barrier to innovation. Whether it's Disa's or anyone

else, the nature of how this remediation would fundamentally be conducted would end up getting caught in that interpretation.

So, I guess I'll stop there. I think this becomes one of those questions where perhaps it's incumbent upon us as a Commission to sort of think about whether there's any just sort of look at decisionmaking in OGC and whether there is room for risk-informing the nature of that decisionmaking in a way that enables an innovation that's going to bring significant safety benefits. So, that's just, I guess, something that I think we need to consider going forward.

Mr. Anderson, Ms. Anderson, you both talked about revisiting and revising a host of documents, both in guidance space and inspection space. Anytime you're dealing with that kind of a revision, it's pretty labor-intensive. It takes a lot of time and thought on the part of the people engaged in that effort.

So, I guess, while with any of these documents there's always going to be a need to sort of bring things current, but when you're going through those sorts of renovations -- renovations? -- revisions in these documents, there, hopefully, are a lot of ways to bring to bear the knowledge that's been gained over the decommissioning of 27 reactors, to do a significant amount of risk-informing, to learn from past experience where our inspectors can best use their time most efficiently, et cetera.

So, what sorts of efficiencies, given the scope of the workload that you see going forward and some of the personnel challenges going forward? What sorts of efficiencies are you expecting to now benefit

from in using these revised procedures going forward?

MR. ANDERSON: I think there will be efficiencies at least on the licensing and the review side of the house. One of the areas that we want to really focus on, and part of working with the Regions and inspections, is the coordination of activities in the LTP plans that we're receiving from licensees. They're making sure that some of the risk-significant activities do have the staff from the technical side of the house availability; for example, dealing with DRPs. A lot of the concern is documentation and making sure that we're aware.

We want to improve our processes and we improve our inspection guidance and communication to the licensees. We're making sure that's communicated to the inspection staff and make sure it's documented in such a way, such that, once we get to actual review of a final status report in the review, a lot of those concerns can be addressed ahead of time because we've already provided some guidance and documentation on how that should be documented, collected, managed, until we get to the time of license termination.

At least, conceptually, there's a lot of processes that can be gained and efficiencies that can be gained in the long term, but keep in mind decommissioning is a long marathon activity, but we do want to make sure some of the nuances and the amount of processes that we're actually improving in our inspection program is not just inspection; it's also the coordination with headquarters, and also, with the licensee, and making sure that the licensee's decommissioning schedule, which is very fluid, we want to

make sure that we're aware and we actually can adjust on the fly.

But, as that's going along, we are looking at contracts and being aware of how we can mitigate some of the initial concerns we have with the staff and resources, so that we can maintain focus on guidance development.

COMMISSIONER CAPUTO: Okay. I'll come back to you in a minute, if there's anything you want to add. But I'm going to make an observation.

MR. ANDERSON: Yes.

COMMISSIONER CAPUTO: You said the word "documentation" a lot.

MR. ANDERSON: Sorry.

COMMISSIONER CAPUTO: And that can be time-intensive in and of itself. So, obviously, there's a need for appropriate levels of documentation, but that itself can be pretty time intensive.

So, in the nature of revising these documents, is that something that was looked at? Because, you know, the less time our personnel have to spend documenting, the more time they can spend actually doing the inspections and doing the observations.

So, you know, obviously, everything needs to be documented because this, in the end, ends up with releasing a site. But I'd hate to spend -- I'd hate to have people spending one day working and four days documenting.

MR. ANDERSON: Thanks. Thanks for the clarification,

well, pointing that out.

What I really mean by documentation is, over the life of decommissioning, there are people who are going to retire and leave, and it's not necessarily for us, but it's for the licensee. So, we're looking at the corrective action program and making sure there's adequate documentation of anything that they may have found on the site itself.

When we talk about the 5075(g) reports, and the life of the operation of the plant, how can we access those files? Access those files, and is there a way that we can document that in a way that's not hard copies, but maybe electronically available for staff to be able to do more efficient reviews, once we receive it?

But the documentation was more for how we collect information on a site from the corrective action programs.

COMMISSIONER CAPUTO: Because, you know, documentation is the most fun --

MR. ANDERSON: Yes.

COMMISSIONER CAPUTO: -- things we do there.

(Laughter.)

MR. ANDERSON: Thanks for bringing it up.

COMMISSIONER CAPUTO: Anything you'd like to add, Stephanie?

MS. ANDERSON: No, thank you.

(Laughter.)

COMMISSIONER CAPUTO: Okay. That's fine. That's

fine. Mr. Mandeville, the Chairman asked about uranium recovery just given everything that's going on in the uranium market, et cetera. So I'd like to ask a question, a similar question, but slightly different.

The last two licenses that we issued for new uranium recovery sites took 9 and 10 years. Do you anticipate anyone coming in for a new license or do you pretty much exclusively anticipate simply restart of existing?

MR. MANDEVILLE: We haven't seen any indication of new licenses at this point. We have no letters of intent. We haven't had anybody that's even expressed interest to us yet. So at this point it would -- the two licenses that we've issued that -- have never operated. There's a possibility at some point that they may decide to go into operations. That would probably be the thing that would happen first before we start getting a new facility. At least that's my own --

COMMISSIONER CAPUTO: Okay.

MR. MANDEVILLE: -- suspicion.

COMMISSIONER CAPUTO: All right. Thank you for that.

MR. MANDEVILLE: Yes.

COMMISSIONER CAPUTO: And, Rob, one last question. Again, the Chairman asked about knowledge management. One of the things I think we're going to face as we go forward -- as long as we have a seven-percent attrition and we finally see this enormous set of experience that we have within the agency actually begin to retire -- knowledge management is an enormous challenge.

So there was discussion of knowledge management and the various tools that are being used. What I'm concerned about is do we have metrics in place or a way of determining which knowledge management efforts are actually effective? Because with seven-percent attrition one-third of this agency may swap out in the next five years, so knowledge management is going to be an enormous challenge.

And in my own personal opinion we need to do a lot more of what we know is effective and a lot less, if not nothing, of ways that we determine are really ineffective. But that's based on knowing which is which, what works and what doesn't.

So what ways do you have of determining what works and what doesn't?

MR. LEWIS: Great question. As a former performance improvement officer, I love metrics. So we have knowledge management happening in many ways. Obviously coaching new staff. The time I spend to mentor and coach new staff, that's knowledge management. The time all of our technical experts spend with new people. That's knowledge management.

Right now we treat that more like we treat the values. Like it's part of everybody's job. Everybody does it. We don't measure it. I know in our NMSS meetings people say, you know, hey, we're very busy. Our workload is up here and we're hiring all these people. We need time to spend with those people. It's got to carve out and some of our workload has to go down. So we're just embarking on that. In fact we were talking about that

last week at NMSS, with some staff I was talking about.

We also could measure how many -- we have a -- a knowledge management tool we have is our websites, not just Nuclepedia, but Nuclepedia included. But we have SharePoint sites. We have the Environmental Center of Expertise, which does a lot of work with this business line. Has like a one-stop shop for new people to get qualified, to find the right guidance, to find previous questions in a particular topic and how they were answered. It's great. Staff loves it.

So we could measure the time that people are spending going to those websites. And we know by each website which ones are used and then emphasize those, emphasize the positive, the ones that work let's spend more time on those. So we can do those kinds of things.

And Nuclepedia itself, we actually in NMSS last year had kind of -- it wasn't a metric per se, but it was an objective and key result to increase the use of Nuclepedia. I'm on the Knowledge Management Steering Committee, so again I love that idea. I wanted all of our staff to do it.

The way we started off, the key result was to -- each organization produce one Nuclepedia page a month. And we thought it was very low-bar. So you might tell people if you're coming to brief me, instead of giving me a briefing sheet create a Nuclepedia page and brief me with the Nuclepedia page, simple things like that. Nuclepedia is easy to use. Our goal was to increase use. Because just like Wikipedia the more and more people that use Nuclepedia, the better and better Nuclepedia is.

So our focus last year was to increase number of uses.

We actually at the end decided to give up on the goal of create one page a month because it was kind of counter -- people were creating pages for the sake of creating a page. It wasn't the right kind of positive reinforcement kind of metric that we want. So we got rid of that.

We still want to use Nuclepedia, but we'd emphasized it as far as counting the number of pages you generate.

And so I think Nuclepedia, the key metric for the agency and for NMSS, number of independent users, number of sites visited. And we can start tracking that and see where it's working and then double down on those areas where it's working so more and more people use it. Then it spreads the light, if you will, of using Nuclepedia as a central housing for all kinds of knowledge management.

COMMISSIONER CAPUTO: Well, I think that's important for us to track which of these processes are actually being used and useful.

Dan and I have had a conversation before of the old practice at the agency of interviewing somebody for a couple hours before they left and then pondering whether anyone actually goes back and looks at the video. And producing things like that takes a fair amount of time and effort, not just on the person that's leaving, but everyone that's developing the materials, preserving them materials, storing the materials so that somebody can find the materials.

So I think it's important for us to make sure that we understand what's being used and useful and focus on expanding that. So thank you very much.

MR. LEWIS: If I could just say one thought. I know ADAMS gets -- so ADAMS is great for housing information. Nuclepedia is great for finding information. And if you couple the two, it's a perfect world. So I think we got to do more and more of that across the agency, too.

COMMISSIONER CAPUTO: Okay. Thank you.

CHAIR HANSON: Thank you, Commissioner Caputo.

Commissioner Crowell?

COMMISSIONER CROWELL: Thank you, Mr. Chair. These business line meetings always end up being more excited than anticipated for some reason.

(Laughter.)

COMMISSIONER CROWELL: So thank you all for what you do. I think your side of the house does not get as much appreciation as it should for the job you do. And quite frankly the future of new nuclear is partly dependent on how well we do with the job on your end of the equation, because if we don't have the public trust that we're doing the decommissioning and clean up and those things correctly, we're not going to have the trust of the public to do new nuclear in a responsible way. So thank you for what you do.

Ms. Marshall, I just want to mention one thing. I really appreciated your comments about public engagement and the process you take. I think that the public engagement process on the back end seems to be somewhat more robust to me than it is on the front end. If that is correct, I don't think that the imbalance should exist. And perhaps some of the new

reactor and new licensees and license renewals, those processes within the department, could use some best practices from what you do, engaging citizens' advisory board and things like that. So thank you for what you do.

Mr. Lewis, what's the definition of low-level waste?

MR. LEWIS: That's a question for an attorney, but I think if I remember right it's in the Atomic Energy Act and the Low-Level Waste Policy Act. It's basically anything that's not high-level waste and/or transuranic waste.

COMMISSIONER CROWELL: So as a regulator responsible for managing these things do you find that absence of definition so to speak helpful or unhelpful in doing your job and protecting public health and safety?

MR. LEWIS: I think through Part 61 and our work with Agreement States I think we have a good handle for what's low-level waste. We haven't had issues in the sites that we licensed a long time ago, but also in the four Agreement State low-level waste disposal facilities, the waste getting shipped to and from utilities and other types of licensees to those facilities. There isn't often a lot of questions about what low-level waste is.

There's questions that do need to be worked through like concentration averaging. If you have a certain size source in a bigger low-level waste volume how do you average that out and decide if it's acceptable for disposal under that site's acceptance criteria? So there's those kinds of implementation issues. But the fundamental definition of low-level waste I think we've have a pretty good track record with.

COMMISSIONER CROWELL: Do you find it challenging at all in the work that you do that the interpretation of low-level waste is often different in the civilian space with the NRC than it is through the government or defense space?

MR. LEWIS: Yes, so DOE does have their own system for waste disposal. Obviously they have different types of waste streams than we do on the commercial -- than our licensees do on the commercial side. And again I think in the cases where waste is coming from Department of Energy's contractors and Department of Energy activities to commercial sites -- I think the waste acceptance criteria at each of those sites has worked to decide what can and can't be disposed at that site for both the DOE side and the commercial side.

I know that DOE is also looking at some revisions to the way they treat greater than Class C waste, and that ties into the waste incidental to processing work that Jane's been working. And we were very plugged into that. I wasn't personally, but I know the agency and DOE have been working together on that with our attorneys.

COMMISSIONER CROWELL: Thanks. I ask these questions in the sense of making sure you have what you need to do your job as well as you can and you think needs to be done.

Mr. Anderson, I need a little bit more education from you on these small radioactive particles and exactly where they come from during the decommissioning process and whether they are just an issue that needs to be addressed in the decommissioning process or if they're something that

persists after decommissioning is completed and that the public needs to be concerned about.

MR. ANDERSON: Sure. DRPs are -- again they exist in -- they could exist during the operation of the plant itself, but they are generated during decommissioning activities. That's something that we expect the licensees to maintain safety and management and control of the DRPs throughout the life of decommissioning. In a perfect world we don't expect to see any DRPs entered into an environment and we expect that the licensee is doing appropriate surveys to identify any DRPs throughout their process of decommissioning. And if they do identify any, they are removing them as appropriate prior to the termination of the -- the request for a termination of their license.

The concern or the issue we want to make sure that we get ahead of is the potential of release of DRPs into the environment. And if there are releases into the environment the licensee again is immediately taking actions to identify, survey, and doing any remediation as necessary to remove the DRPs so -- such that there is no concern for members of the public when they go for site termination or a request for site -- license termination, sorry. I think that answers your question.

COMMISSIONER CROWELL: Yes, it helps. I'm starting from scratch so it --

MR. ANDERSON: Yes.

COMMISSIONER CROWELL: -- gets me a little bit further down the line.

Mr. Mandeville, you talked about how your office uses the uranium prices to forecast work going forward, but you -- well, you said you use them to help determine what work you going to have going forward, but you don't really say how. And then I heard Commissioner Caputo ask a question a little bit about how you determine what's coming down the pike and it kind of seemed like it's what you'd hear from companies. But tell me more about how you use that price information, the market information with respect to uranium for knowing your workload.

MR. MANDEVILLE: Yes, thank you. We usually use that as like a qualitative piece of information to help us understand what's going on in the market. Like an increasing price trend would really cause us to engage more with the Agreement States and with our licensees to understand what their plans and what they're thinking, but that's just -- the price is just one piece of information.

So we would also look at -- base it on those conversations with Agreement State and our licensees. If we get letters of intent, if we're having pre-application meetings with applicants or licensees, those are all things that would help us judge that these licensee are serious and that we need to be planning and budgeting more strongly in those areas.

COMMISSIONER CROWELL: Is there a magic place on the spot price chart that triggers action or inaction?

MR. MANDEVILLE: No, there's not.

COMMISSIONER CROWELL: Okay.

MR. MANDEVILLE: I wish it was that easy.

(Laughter.)

COMMISSIONER CROWELL: And I'll just end with a comment here on -- the topic du jour that's come up today is Disa and these technologies. I tend to agree with my colleagues on this one that we're missing the boat in terms of being a modern risk-informed regulator and how we've assessed this. And we may not even be meeting the principles of good regulation, which I know are used as a determining factor around here as well in decision making.

So I want to make sure we're thinking about it in that context and that we're finding ways to do the right thing, not just what the black and white or old way of thinking is. And that applies across the board, but this is a key example and probably an inflection point for the agency in really proving that we're a forward-looking thoughtful agency that can be innovative and still protect public health.

That being said, we have to look carefully at these new technologies because the devil's in the details. And the more recent data from Disa was encouraging, but it's at one particular site and you can't necessarily say the same for each site that they are interested in doing the work at. So just something that we should all bear in mind about how we're going to apply this going forward. I think there's room to do the right thing, but it may not be a blanket approach.

So thank you, Mr. Chair.

CHAIR HANSON: Thank you, Commissioner Crowell.

We're going to take a short break. Let's reconvene as

close to 10:35 as we can. Thank you.

(Whereupon, the above-entitled matter went off the record at 10:28 a.m. and resumed at 10:36 a.m.)

CHAIR HANSON: Welcome back, everyone. The next panel will discuss the Nuclear Material Users business line and will be kicked off again by our Executive Director for Operations, Daniel Dorman.

Dan?

MR. DORMAN: Thank you, Chair, and good morning again, Chair Hanson and Commissioners. Our second panel this morning features our Nuclear Material Users, or NMU, business line. This business line participates with our Agreement State partners in the National Materials Program.

Next slide, please? For this morning's panel, Rob Lewis, the NMSS Deputy Director, will provide the overview of the business line.

Kevin Williams, Director of the Division of Material Safety, Security, State, and Tribal programs, will present and overview of the inspection planning and scheduling, how we are enhancing the security of radioactive sources and increasing our engagement with Tribal nations.

Huda Akhavannik, Intergovernmental Liaison, Project Manager in NMSS, will present on the future of the Nuclear Materials -- of the National Materials Program.

Joe Nick, Special Assistant from Region I, will discuss how we are harmonizing hiring, retention, and training in the National Materials Program.

And Melissa Ralph, Director of the Division of Resource Management Administration in NMSS, will discuss modernizing licensing, inspection, and source security through the Integrated Source Management Portfolio.

This concludes my opening remarks and I'll turn it over to Rob.

MR. LEWIS: Thank you, Dan.

Good morning again, Chair and Commissioners. My pleasure to be with you again now to talk about the Nuclear Materials Users Business Line, which is near and dear to my heart. I spent a lot of my career -- 30 years at NRC and about two-thirds of it are in this program, so I do find the work in this -- I love talking about it because I find the work very rewarding and fulfilling. The things we do in this program, like medical regulation, directly impact the lives of Americans. And we see that in our work, so it's a very rewarding place to be. I think the panelists and the whole staff agree with me. The whole panel's here today and grateful to be here.

Nuclear Materials Business Line leads the licensing and oversight of more than 18,000 materials licensees across the country in partnership with 39 Agreement States under what we call the National Materials Program. These licenses are issued for industrial, medical, academic, research and other uses, each with its own set of technical challenges.

Medical and industrial uses of radioactive sources is a very globally-natured business as well and has been for many years. Roughly 200

full-time equivalent staff at NRC support this business line, about 70 of whom are in NMSS and 25 to 30 in each of Regions I, III, and IV, and others across several partner offices.

As I did in the last panel I'd like to spend some time to introduce and offer my view on some drivers for the coming years for the NME Program in terms of workforce drivers, workload drivers, and innovations. Our remaining panelists' talks are designed to complement and amplify these areas and describe the related actions we're taking regarding those drivers.

Next slide, please? Just like with other NRC programs recruiting, developing, and retaining a workforce is an area that will need ongoing management focus for the next two to three years. In the Nuclear Materials Users Program health physicists is a particular focused area for NRC and for Agreement States. At last year's Commission meeting Theresa Clark presented our plans to increase recruiting, development opportunities, and develop a community, a sense of community amongst our health physicists. These plans expand beyond NRC. We're working with the states, with the universities, and with other professional societies.

This effort is still very active. Joe's going to give us an update today as well as a look forward.

With many new technologies, new licensee types, and an increasing number of Agreement States sharing our experience and resources across regions and headquarters will become increasingly important for this business line in coming years. Each region or state might not have the expert for a particular medical treatment, for example. We need

to rely on each other. We are modernizing our qualification process offering developmental and cross-training opportunities to deal with this.

I really like the image on this slide because it shows our progress working across the regions as well as our progress hiring and training health physicists. The picture shows a staffer from Region III with inspectors from Region I at Baxter Panoramic Irradiator in Puerto Rico. The pictures includes two people that are new to the NRC and are also health physics inspectors in training.

Next slide, please? Workload drivers. Over the next two to three years we do expect ongoing workload in the source security area. Kevin's going to elaborate on some of our recent progress including accelerating a source security rulemaking.

One of our key workload drivers I see for this business line for the foreseeable future is the continued high pace of development of emerging medical technologies. This image, for example, shows a new technology we approved just in December for lutetium-177 treatment of certain cancers. Other workload drivers for nuclear material users include working on alignment with Agreement State within the National Materials Program and increasing engagement with Tribal nations. Note that this business line serves as the central support function for the entire agency's activities related to Tribal nation liaison work.

Next slide, please? The National Materials Program has been investing in technology for several years, most exemplified by our work on what we call the Integrated Source Management Portfolio, or ISMP. In

fact a few months ago in the cafeteria we celebrated the 10-year anniversary of web-based licensing which is one of the components of ISMP.

Today Melissa's here to give an overview of that tool and how we're modernizing it and encouraging greater use by NRC and by Agreement States. Through that greater use of the systems that's the way that those systems are going to live up to their full potential to support the National Materials Program and database decision making.

We recently also performed a forward-looking thought project to look at increasing number of Agreement States. The goal is to look at the future of the National Materials Program with up to 50 Agreement States. What if all the states were Agreement States? And what innovations, decisions, and timing of those decisions need to be made as you walk along that path towards 50, and when did they need to be made by NRC.

So Huda is here today to present the results of her working group's project which fresh off the press.

So just to underscore the pace of innovation in these activities this program -- and the activities that this program regulates this picture shows a new type of gamma stereotactic radiosurgery unit. It's a brand new type of medical device that I think is currently in critical trials just as of a couple months ago.

This concludes my remarks and I'll now turn it over to Kevin Williams, but not before thanking, as I did in the earlier panel -- Candace Spore prepared all the panelists. She's a super star just like Annie and we wouldn't be successful today without her over the last couple of weeks.

Thank you very much, Candace.

MR. WILLIAMS: Thank you, Rob.

Good morning, Chair and Commissioners. I'll be giving you an overview of inspection planning and scheduling and how we are assuring the security of radioactive sources, and finally how we are enhancing our engagement with Tribal nations.

Next slide, please? This year we rolled out major enhancements to the tools we utilize to plan, schedule, and monitor materials. We issued a major upgrade to the inspection module in the web-based licensing system. The changes are aimed to enhance data accuracy and consistency and align with recent revisions to Inspection Manual Chapter 2800, and improved tracking and planning of inspections.

As part of our enhancements we recognize that data accuracy and integrity is critical for supporting our data-driven decision making. Currently there are three WBL-based oversight dashboards. One dashboard, Overview of Eligible Inspections, which may be used by inspection planners, branch chiefs, and inspectors in their planning of upcoming materials inspections. The image on this slide shows two parts of this dashboard that can be used with inspection planning. Another dashboard shows inspection timeliness which may be used by management and interested staff to analyze timeliness of inspections.

The Materials Inspection and Progress dashboard provides a snapshot of all the open inspections and the stage they are currently at, which is identified by a milestone in the systems. These tools are allowing

us to monitor the oversight program more efficiently and in supporting continuous coordination among the regions implementing the Materials Program to achieve the goals of the Materials Inspection Program.

Next slide? I would like to walk through an example that illustrates how the dashboards are helping us look ahead, spot risk, and plan work.

Through the pandemic we instituted measures to ensure that we met our mission with respect to inspection activities. We utilized the flexibility provided by our program to extend some inspections further into the second half of the scheduling window. This resulted in an increase of inspections close to their due date but not late.

This graphic shows the scheduling window which shows a plus or minus one year. Specifically inspections cannot be started until a year before they are due and can be extended by a year. This allows us to achieve our goal of cost saving and efficient use of staff time and travel. The regions worked collaboratively to prioritize the completion of inspections including sharing of resources to ensure inspections were completed on time.

While we worked across organizational boundaries to ensure all regions were managing the workload Region III had a higher number of inspections that needed to be completed.

One item that I believe would have been identified in a more systematic, reliable, and efficient manner using dashboards is the ongoing inspection planning that Region III is undertaking.

In July of 2022 Region III intentionally set aside 130 of their

lowest risk Priority 5 inspections to ensure that they could complete their higher priority inspections on time while onboarding and qualifying new inspectors. Examples of these inspections include academic and research licensees with calibration and reference sources, medical programs that do not use positron emission tomography radiopharmaceuticals and portable gauge users. This was a strategic and risk-informed approach that allowed our inspectors to focus on inspections at the most safety-significant facilities.

We are currently working across the regions to complete deferred Priority 5 inspections. In coordination with NMSS in other regions Region III is making a concerted effort to complete the deferred inspections. There's a chance however that our congressionally-reported 98 percent timeliness metric may not be met.

We have transitioned the tracking, mitigation, and decision making to dashboards. As a result regional staff are tracking this issue closely and providing regular updates to the Region III and NMSS management.

Next slide, please? The NRC and Agreement States have implemented a robust regulatory framework that ensures the safety, security, and control of radioactive materials used for civilian purposes in the United States. All licensed radioactive sources are subject to security requirements commensurate with the relative risk they pose to safety and security. In addition the NRC implements the International Atomic Energy agency, or IAEA, Code of Conduct on the safety and security of radioactive sources and provides the highest security for those Category I and Category II of the five

categories of sources.

The GAO recently investigated Category 3 radioactive sources and made several recommendations to enhance our program. As defined in the Code of Conduct, Category 3 sources if not safely managed or secured -- securely protected could cause permanent injury to a person who handled them or was otherwise in contact with them for some hours. Category 3 sources are considered to be less dangerous than Category 1 and 2 sources.

And to be responsive to the recommendation of GAO we issued an information notice, partnered with Agreement States, federal agencies, the international community, and other NRC offices to implement additional strategies for the safe and secure use of radioactive material and the requirements for license verification of Category 3 sources.

Through our communications licensees already have heightened awareness of the need to remain vigilant in license verification. We have shared methods to detect fraudulent licensees and tools to verify licenses. We have held public -- we have held meetings with the Source Security Working Group to inform the international community to be aware of the practices to detect and prevent fraudulent licenses.

It's been a longstanding requirement that NRC and Agreement State licensees report to their regulator events associated with radioactive materials. Since 1990 this information is collected and tracked in the NRC's Nuclear Materials Events Database, or NMED.

The Radioactive Source Security and Accountability

Rulemaking, which was provided to the Commission in December, leveraged rulemaking processes, process innovations, and focused our initial efforts on the License Verification System, or process, which is LVS. The proposed rule will require prior to transfer of Category 3 quantities of radioactive material license verification by either direct contact with the regulator or through the License Verification System. We believe these enhancements will continue to strengthen the regulatory framework and ensure the continued safe and secure use of Category 3 materials.

Next slide, please? We are enhancing our outreach and consultation with Tribal nations resulting in an increased collaboration with Tribal nations. We recently revised our procedure on processing an Agreement State application; that procedures is SA-700, to reflect early involvement with Tribal nations regarding NRC activities to ensure meaningful and timely engagement with Tribal nations regarding NRC activities to ensure -- such as; I'm sorry, advanced reactors, reactor decommissioning, and rulemaking activities.

As a result we engaged Tribal nations; the Delaware and Osage, as a part of the Indiana and Connecticut Agreement State applications.

In addition we facilitated discussions surrounding Pilgrim decommissioning with the Mashpee Wampanoag regarding pre-application reviews. We have engaged the Shoshone-Bannock regarding TerraPower. We also engaged the Navajo as we prepared for the first Commission meeting in New Mexico.

To highlight the importance of Tribal engagement we developed a first-of-a-kind Tribal program video highlighting the work that the NRC does and the importance of meaningful and timely engagement with Tribal nations as we implement the Tribal Program and the Tribal Policy Statement.

We are leveraging the Tribal Radioactive Materials Transportation and Nuclear Energy Tribal Working Groups. These groups engage Tribal nations regarding a broad spectrum of activities related to the shipments of spent nuclear fuel, advanced reactors, emergency preparedness, and environmental issues that may have an impact on Tribal nations.

This will allow us to enhance our understanding and to obtain Tribal input regarding NRC activities. We are partnering with other federal agencies to obtain additional insights regarding our continuing engagement with Tribal nations and to strengthen the Tribal Program.

This concludes my remarks and I now turn it over to Huda Akhavannik.

MS. AKHAVANNIK: Okay. Good morning, Chair Hanson, Commissioners Baran, Wright, Caputo, and Crowell. My name is Huda Akhavannik and I'm an intergovernmental liaison project manager at NMSS and co-chair, along with Augie Ong of the New Hampshire Agreement State Program, of a Joint NRC and Agreement State Working Group called The Future of the National Materials Program. Our working group consists of staff from NRC headquarters, regions, and various Agreement States.

Next slide, please? Today I want to provide a high-level purpose and overview of our working group efforts. To start, the National Materials Program, or NMP, refers to the partnership between the NRC and Agreement States to regulate nuclear material.

In this partnership the 39 Agreement States currently regulate around 88 percent of the nation's total material licenses. This does not include Connecticut and Indiana who have submitted letters of intent to become Agreement States as well.

In addition to these states it's possible that other non-Agreement States will also submit letters of intent in the future.

In this working group we assess hypothetical increases in the number of Agreement States and how those increases might affect the way the NRC and NMP currently approach issues.

In addition to evaluating the number of Agreement States our review also evaluated the types of licensees including considering emerging technologies. As part of our analysis we leveraged work that was done by a similar working group in 2001. Like that 2001 working group our working group also observed that technical experience with current and emerging technologies will increasingly be with the Agreement States.

Our working group believes that we can promote this -- I'm sorry. So therefore it's important to promote the consistent exchange of technical and regulatory information.

Our working group believes that we can promote this consistency by emphasizing knowledge management activities,

communication, and collaboration. Although the number of states may increase our working group envisions that the NRC would retain some NMP duties like regulation development and implementation of the Integrated Materials Performance Evaluation Program, or IMPEP, which is a peer review program that we use to ensure adequacy and compatibility of the Agreement States and NRC programs.

Next slide, please? The working group reviewed Radiation Control Program elements that you see on this screen defined in the Agreement State Program Policy Statement and selected those most impacted by an increase in the number of Agreement States and emerging technologies. The NRC will continue to review applicable Agreement State regulations for compatibility, perform IMPEP activities, and provide Agreement State training for an increasing number of Agreement States.

As mentioned in the last slide we will need to continue to drive for consistency through our knowledge management activities, communication, and collaboration.

Efforts to support various information exchange initiatives such as joint working groups to develop new regulations or new guidance for licensing, inspection, and IMPEP will increase with emerging technologies. The working group expects that the current levels of effort associated with updating current guidance and rulemaking activities will continue.

With fewer NRC licensees NRC staff will have fewer licensing and reciprocity reviews, fewer inspections and event responses, and fewer allegations to process. However, the NRC will continue supporting the

National Materials Event Database.

These are examples of the types of issues that the working group believes would be factored into staffing and resource planning decisions, but the working group did not identify any immediate staffing, work planning, or communication changes that it believes are warranted based on the current 39 Agreement States and states planning to become Agreement States.

Next slide, please? Our working group found that the NMP continues to be successful. Our working group will offer some recommendations for management related to strengthening our partnership with the Agreement States and increasing consistency. Some of our recommendations include supporting knowledge management activities through the continued creation of centers of excellence, providing tools to increase collaboration on joint NRC and Agreement State working groups and IMPEP teams, and to more efficiently obtain Agreement State input for guidance and emerging technologies.

We have ideas to better leverage information technology to advertise NMP opportunities for the NRC and Agreement State staff. We also want to utilize available tools to better provide for real-time collaboration on important documents and issues.

Currently the NRC leads government-to-government meetings describing important NRC updates. We would like to use this venue to hear more about other areas of the NMP as well.

Like any other organization the NMP's continued success is

supported by a strong safety culture. By sharing experience the NRC and Agreement States can continue to strive for increasingly better and cohesive cultures.

As part of refining our recommendations the working group completed multiple outreach activities such as engaging in multiple discussions with the NRC regional offices and presenting at the Organization of Agreement States and Conference of Radiation Control Program Director annual meetings.

This past December we also held a public meeting to discuss our working group findings as well.

Our working group is drafting an information commission paper that provides our analysis, findings, and next steps which we hope to get to you by spring of this year.

Next slide, please? So thank you for your time. I wanted to just take a moment and acknowledge the working group members whose names are on this slide. Their efforts will help ensure the continued and future success of the NMP. And I will now turn the presentation over to Joe Nick.

MR. NICK: Thanks, Huda.

And good morning. Make sure I get picked up here. Good morning, Chair and Commissioners. Good to be back in the same room with you again after a few years. My name is Joe Nick and I'm currently a special assistant to the Deputy and Director of the Division of Radiological Safety and Security in Region I. I spent most of my 30 years in the NRC in Region I in

various positions and places, but I've also been the Deputy Director of the previous Division of Nuclear Material Safety in Region III until late-2022.

Next slide, please? Today I'd like to talk about how we're partnering to implement innovative and cross-regional strategies to hire, retain, and train NRC and Agreement State Materials Program staff.

Within the NRC hiring and retaining key staff is still a very high priority. We're using the strategic workforce planning. We've targeted key positions such as health physicists of licensing and inspection activities. We try to hire individuals with technical experience or education in the health physics area, but sometimes we also hire new graduates with minimal technical experience.

We have made significant progress by hiring many new staff over the past year. Many hiring strategies have been successful and we continue to share postings and position descriptions between regional offices and NMSS. We coordinate and join together on agency-wide postings for various locations with current openings and we are continuing to hire ahead for anticipated attrition with our staffs.

Our NRC grants for research and faculty-student support excite people about the radiation protection work and develop them for potential NRC and Agreement State positions. We continue to strengthen our recruiting connections with universities, the Health Physics Society, and the federal partners.

This slide shows a small group of newly hired individuals being sworn in in the Region II Office. And I think Jack Geisner presented

this to you in December, but as an example Region III has hired over 40 total new staff in the past two years.

As an example of the regional staffing programs, the Nuclear Materials Users Program area alone -- this includes Regions I, III, and IV -- about 18 staff have been hired in the past two years. This represents approximately 20 percent of the regional Nuclear Materials Users Program budgeted. So that's just the budget for the regions.

Next slide, please? We're very conscious the need to continue our training to cover evolving technologies and to qualify increasing numbers of these newly hired staff efficiently and effectively. We're looking for innovative ways to update our processes to shorten the time required for initial training and qualification while maintaining that high quality and confidence for success.

The newly chartered NRC and Agreement State Working Group will be updating the Qualification Program Manual chapter, and even more importantly adding cross-regional and other innovative efforts to make qualifications more uniform and focused. We're continuing to leverage technical training center resources for classroom and online training as well as world-class facilities and experts to develop staff across the NMP.

This slide shows the NRC instructors overseeing students leading -- learning survey techniques and equipment, and that's combined with classroom instruction at the TTC.

Another important emphasis involves the development of existing staff. We are providing opportunities including cross-regional

support for existing staff to grow in their careers and remain engaged in meaningful work. This ensures that our staff are fungible and can support work in different areas of the agency as our workload changes.

We've also developed a health physics community, a grass roots effort that provides for knowledge sharing and community building across the agency.

Next slide, please? In addition to increasing access to NRC training programs across the National Materials Program we are also exploring possible ways to share resources and experiences that are necessary for qualification and to support intermittent periods of high workloads across the National Materials Program.

Then NRC is working with the Conference of Radiation Control Program Directors, CRCPD, to develop methods to share expertise and work products between states. Some areas of interest include sharing resources for licensing actions and staff for licensing and inspection activities. We continue to use our existing framework to identify best practices while recognizing differences in implementation of state regulations and practices while maintaining compatibility with the NRC regulations.

An excellent example of collaboration across the NMP is the IMPEP program that we've talked about. We are enhancing the roles and responsibilities of Agreement State members. For example, the IMPEP review of the NRC was led by an Agreement State director and the majority of the team consisted of Agreement State members.

We are training Agreement State members to be team leads

as well. As shown in this slide -- if we could put that up -- thank you -- an IMPEP team working together during the review of the state of Wyoming was comprised of members from the Agreement States and the different NRC offices.

We may be able to use some of these collaborative efforts to come up with other ways to share our resources.

This concludes my portion of the presentation. I'll now turn it over to Melissa Ralph.

MS. RALPH: Thank you, Joe.

Good morning, Chair and Commissioners.

Next slide, please? The Integrated Source Management Portfolio, ISMP, is increasingly a nationwide asset as the NRC and many Agreement States use it for daily inspection and licensing work, dashboards that support data-driven decision making, and a Homeland Security asset that supports source tracking and license verification.

The key systems that comprise the ISMP include the National Source Tracking System, NSTS; the Web-Based Licensing System, WBLS; and the License Verification System, LVS.

The radioactive material tracking information on all NRC and Agreement States -- sorry. The integration of these systems forms as comprehensive program to ensure the security and control of radioactive material by tracking all information on NRC and Agreement State licensees and approximately 80,000 high-risk radioactive sources possessed by approximately 1,100 licensees.

Next slide, please? The National Source Tracking System is essential for national security. It is a secure user-friendly web-based database designed to track Category 1 and 2 radioactive sources regulated by the NRC and Agreement States. The tracking spans the life cycle of the source from manufacturer through shipment and receipt, decay and burial. NSTS meets the U.S. Government's commitment to implement a national source registry.

The License Verification -- oh, next slide, please? The License Verification System, LVS, is envisioned as a national verification system for Category 1 and 2 transfers that ensures that only authorized licensees obtain radioactive materials in authorized amounts. The staff has a rulemaking proposal with the Commission to expand verification to Category 3 and LVS is ready to meet that demand.

LVS enables authorized licensees to verify certain information about licensees authorized to possess, use, or ship radioactive materials. The system allows licensees to confirm that: (1) a license is valid and accurate; and (2) a licensee's authorized to acquire quantities and types of radioactive materials being requested.

Next slide, please? The Web-Based Licensing System is perhaps the best known of the ISMP tools. This platform helps the U.S. and a growing number of Agreement States comprehensively manage all inspection -- licensing and inspection information. The tool also includes inspection planning and project management features and is now used across all materials and waste programs to manage byproduct materials, licensing,

inspection, spent fuel and facility licensing, decommissioning and waste activities, and special projects that are essential to include for proper workload management through a single portal.

Next slide, please? We've modernized ISMP significantly over the last few years thanks to the continued Commission support of this suite of tools. In FY '19 we introduced the inspection planning module. This module includes imbedded Google Maps functionality which helps inspectors identify licensees due for inspection within a certain geographical area in addition to by date.

We've created new dynamic dashboards using data from the inspection module that help us plan inspections much more easily than the previous manual systems using various pre-populated reports.

We started using WBL to directly generate inspection reports which makes the process much easier for our staff and improves data quality.

We also linked WBL directly to ADAMS so that these reports and other documents like licenses can be profiled and made public if appropriate within minutes. This linkage was the first of a kind for an NRC system.

Next slide, please? This year we're transforming WBL into an asset for licensees as well as regulators. Our applicants will be able to directly submit applications into WBL and get their information requests live status and final license right through the system. This transparency is a huge leap forward for our licensing process and will help keep us accountable as

we conduct our mission work.

We're also creating online forms for licensees to report source transfers and other NSTS transactions. This direct data entry should eliminate many errors that have occurred with stand-alone forms providing more accurate source security information and freeing up staff to take on more challenging mission work.

Next slide, please? To summarize, our investments past and future have made it a tremendously valuable tool for our agency and co-regulators, licensees, and our nationwide security posture. All four Materials and Waste Business Lines are seeing benefits from the economies of scale of using one coordinated licensing and inspection system and were able to leverage our consolidated data and dashboard to obtain immediate information on milestones and performance. This helps us keep tabs on program health routinely and on demand because we can immediately see how we're doing on our congressionally-reported and other important performance measures, and we can take prompt action to assure we meet our mission.

We're also saving a lot of time with these improvements. We've already seen benefits to regional staff who plan inspections when they can readily see when inspections need to be scheduled and use Google Maps to visualize where inspectors should go in one efficient trip. The time saved through our NSTS improvements has already been notable particularly in the annual inventory reconciliation dashboard that has been highlighted in previous Commission meetings, as well as the future to reduce the errors

through online forms.

This concludes my remarks. I'll turn it back over to Dan.

MR. DORMAN: Thank you, Melissa.

And thank you to all the panelists.

I'll add my thanks to Annie and Candace for their leadership in preparing and for all the staff who helped prepare for the meeting.

This concludes our remarks and we look forward to your questions.

CHAIR HANSON: Thanks, Dan.

All right. So I really appreciate that NMSS has undertaken this effort to kind of look at the future of the National Materials Program.

Huda, I really appreciated your presentation in particular. And obviously we've got 39 Agreement States now. We've got kind of Connecticut and Indiana. That will bring us to 41. There may be some others out there that are kind of thinking about this as well.

And when we get to that 41 number, right, the number of licensees directly to -- of NRC licensees is going to be about 1,900, which is about the same size as kind of our largest Agreement States. So in a way we're kind of like the 42nd Agreement State.

But I do worry about this potential phenomenon where we kind of have a decreasing number of licensees that are supporting kind of the overall NMP. And I'm particularly I think concerned about kind of how do we fund that going forward?

And so can you discuss -- do we have a -- Huda, you said

in your presentation, eh, we don't have any immediate actions. Okay. Like next month. But in a year or two, or five years, kind of what's that -- is there a threshold there? When do we approach that threshold? And how much can we do ourselves before we have to kind of go seek additional authority or guidance from Congress? Can you kind of talk a little bit about that?

MR. WILLIAMS: Yeah, so why don't I start and we'll see where we get from here. But, you know, while I haven't actually seen the report that Huda and her team had put together, one point that she emphasizes, the existing tools that we have serve us well. You know, they allow us to predict, you know, where we're going and what we're doing.

You know, the Agreement State program itself is off of the fee base. But when you look at other activities, right, you know, we'll have -- we already have tools that we'll utilize to be able to move those things forward. And so we can analyze that, you know, when we get to that point and we continue to look at that.

As we're building out, you know, our budget for the following year, we do take into account those types of activities.

CHAIR HANSON: That's okay. You're good. You're good, Rob. If Kevin covered it. No, thank you, and again, I look forward to seeing the report and I really appreciate that forward look and kind of working with -- you know, all of the Commission working with the staff on making sure that the program is well-situated for the future.

Joe, I'm wondering if we can talk a little bit about kind of -- I

don't know what to call it. You had mentioned academic programs or support for academic programs. You know, as I travel around not only the United States but internationally, the need for radiation protection people, radiation safety folks, certified health physicists is universal. It's really remarkable.

And you had mentioned some faculty development and kind of university touchpoints. Could you expand on that a little bit?

MR. NICK: I'm actually probably not the best person to expand on that because I haven't really experienced too much with it. I know it is helpful. And we over the years in the regional offices have tried to keep touchpoints with different universities for recruiting purposes. That's part of it.

But that's not a financing type of situation where we might finance grants or other, you know, things to enhance people's initiative to get into those programs.

CHAIR HANSON: Yeah, the pipeline.

MR. NICK: Basically, right, right. So I can't really speak to how those grants are working individually, but I do know they are working.

CHAIR HANSON: Yeah, well, so here's my -- part of my concern. I was out traveling in think sometime in the last year, and I stopped at a major research university and was talking to the head of the nuclear engineering department. And I brought up this issues about CHPs and you know, what role did that play in his program.

And he was -- he was very direct and said, well, not so much because there's not a lot of research dollars there. And these big programs

are driven by research funding. And I thought, okay, you know, here's a potential gap where we may not be able to kind of look at some of these bigger programs to help us fill this need.

And we may have to think more creatively about kind of other schools in the ecosystem. And I'm just, I'm kind of trying to get a sense of, you know, to what extent are we doing that, or is that an area that we should maybe explore more as we think about, you know, building the pipeline and other kinds of assistance to schools out there.

MR. NICK: I believe personally that that would be helpful if we did build that more and develop it more, yes.

CHAIR HANSON: Yeah, Rob.

MR. LEWIS: Well, I was just going to thank you. That's a great observation. And, you know, we do work with Ray and the NRC's grant program. And, in fact, NMSS has benefitted greatly. A lot of people coming out the schools that have those grants are coming into NMSS. And, thank you. And I think -- and there's room to grow there.

And also, for the first year, this year we put NMSS people on the grant proposals review project, working with Research. So we are investing in that. I think, you know, as you said, one of the things that Commissioners could even help is, as you're traveling out to a reactor site, pop by the university and talk to the students. Because, you know, we can actually hire a wide range of degrees right out of college and then train them to be health physicists. That's kind of the Agreement State model, and we do that as well.

And we need mid-career health physicists, certified health physicists, medical physicists, all of those skills as well. And we got to work through Health Physics Society to develop that pipeline to make -- make them aware that NRC is a place that they can look.

And I know Theresa Clark, I know you're all aware, has done a tremendous amount of work in that area working with the University of Denver, I believe. A good connection there, and then we brought that person to the RIC.

So in the coming year we have a lot of promise. It's going to take time and effort and focus and sustained effort to build that pipeline.

CHAIR HANSON: Yeah, no, thanks. And I agree about Teresa's work in this area. It's really, it's been remarkable. And you're singing my song on university visits, so I'm happy to help in that regard too. So thanks, and hopefully we can find some places for the Commission to help in this area. So thank you.

And then I guess I'll just kind of finish up, I didn't have a lot. You know, I don't know, Rob, if this rises to the level of a workforce driver or not, but I just wanted to take the opportunity to mention kind of and support and highlight NMSS's work in the -- in the international realm.

And the potential, you know, growing need for that, right. Where you know, oftentimes internationally the new reactor development and reactor safety is the thing that gets a lot of attention.

But as I said, you know, the need for personnel and capacity-building in order to enable the safe and secure use of radioactive

materials for medical, agriculture, industrial uses for kind of human health and development supports, you know, U.S. overall policy goals.

And I know NMSS has been doing a lot of work in this area. And really hope we can do more, so thank you for that.

And with that, I'll hand it over to Commissioner Baran. Thank you.

COMMISSIONER BARAN: Thanks. Well, thank you all for the important work you do and for that of your colleagues. Both panels talked a bit about web-based licensing. And I know there's been Agreement States interested in moving to WBL over the years.

Could someone give us an update on WBL adoption by Agreement States? Where do things stand on that these days?

MS. RALPH: We currently have nine states who are active users of the system and eight more in progress. And of course we stand ready and available to help any other Agreement States that might be interested in onboarding to WBL.

COMMISSIONER BARAN: And for the eight that are in process, talk a little bit about that. How long does it take to kind of get them on to WBL and what does that involve on our end?

MS. RALPH: Thanks, Commissioner Baran. That's really going to depend a lot on the Agreement States themselves. Sometimes there are very small programs. And so the resources that -- and time investment to train their staff might be different than a -- than an Agreement State with a larger program. So that's going to be -- it's going to vary widely.

But again, the NRC's here to help. We have resources devoted to helping the Agreement States come on board and get up to speed in a rapid manner as much as their programs can capacitate.

COMMISSIONER BARAN: Great. And then as was mentioned earlier, Indiana and Connecticut have expressed interest in becoming Agreement States. Can we get an update on those efforts?

MR. WILLIAMS: Yeah, so you know, the adoption is a pretty tried and true process. It probably has about ten steps, right. And so the first thing is to give a, you know, letter of intent. And then the next part is for the state to build its program. And then the third part would be, you know, the staff will review and then the government will submit a letter of intent.

So as far -- and there's other steps. But where we're at right now is Connecticut is, you know, they're on track to be done by 9/30 of 2024. And we expect to have their, you know, that submittal of their program probably, you know, late this fall.

COMMISSIONER BARAN: Okay.

MR. WILLIAMS: And then when you look at Indiana, they're a little bit -- they're in the stage of developing their program. And then -- but they're also on track, you know, to have their program in place by fiscal year '25 as well.

And as we continue to engage, you know, so they're at that status but we're engaging at the staff level. You know, we've had a number of interactions with the, you know, with tribal nations as well as we go along with this process. So they're coming along, they're moving there, and we

continue to engage.

COMMISSIONER BARAN: Great. Well, and I really appreciate the -- it's kind of been a new trend towards doing more tribal interaction and engagement on these Agreement State -- I'll call them applications, you know, processes. And I think that's a great development.

NRC is doing a lot more external hiring now than we have in recent years obviously, and it's hiring that's necessary to offset attrition and to do our work. Of course, hundreds of new employees means a lot of training. And meanwhile, Agreement States depend on NRC to provide much of their training.

How are we making sure that we're able to train all of the new NRC employees without displacing the Agreement State employees who benefit from our training programs?

MR. WILLIAMS: So let me take that one. You know, so we have -- it's a great partnership with the Agreement States. And one of the things that we have set aside for the Agreement States is they give us 60% of the -- of the seats in the class.

And we recognize and we've been -- actually, we just had a counterpart with the Division of Radiation Safety and Security division directors, and we talked about the need to qualify our own people, right.

We're hiring new people and we're trying to find that balance. So we've been working with the TTC, one, to add more classes. You know, a lot of these do come from subject matter experts from the NRC that teach like their root cause analysis and inspection-type classes.

But we're also partnering with the states. We're saying hey, you have subject matter experts, why don't you come get qualified and you assist us in teaching the courses. That way we can have increased offering of the courses and we can find that balance of training our people as well as training, you know, the Agreement States.

And it actually has worked well with us. I think the amount of collaboration that we have going on with, you know, we even have the TTC come and brief the -- the Organization of Agreement States board on what we're doing to enhance our training process.

And the person from my staff, I'm going to mention her name because she does such a fantastic job, is Karen Meyer. She schedules all of the training for Agreement State and works -- and the staff -- and works very diligently to make sure that we have a very good balance. And so it actually has worked well.

And so we're continuing to engage and keep our, you know, our eyes on the pulse and pace on where we need to provide training for both Agreement States and NRC staff.

COMMISSIONER BARAN: Great. Well, it sounds like we're really on top that, that's terrific.

In terms of health physicists and the shortage, you know, kind of nationwide and maybe globally in that area, you know, Rob and Joe, you talked a little bit about the need for hiring there because they're just critical to our mission. And it sounded like we're having some success with that.

I'm just interested in kind of how that -- how that's been

going. How challenging is it, you know, in this market to get folks in? And I think that's my question, just how challenging it is. It sounds like there's -- you've some success.

MR. NICK: So I'll give you a regional perspective. We have had success, as I said, I think partly because we don't just focus on pure health physicists. We also look at people we can develop into health physicists. So that's been kind of the help -- helping hand, because there aren't true graduates of health physics programs that are very available.

And again, this is across the industry and across the Agreements States and across NRC. So we've all recognized this issue. Personally, for example, I'm an engineer from my degree and background, but I was brought through the NRC as a health physicist and developed more as a health physicist there.

So the programs that we have and the training we have actually help us. The training center has extensive programs in health physics that can take somebody who has a good basic scientific background and develop them for health physics. So that's one of our coping strategies, if you will, because of the shortage of actual health physicists.

We also try to look for those people with experience. Like I said, we try to keep a balance of people that we can develop and people that have that experience so that we don't rely on just one or the other.

COMMISSIONER BARAN: Great, yeah, Rob.

MR. LEWIS: And just from an NMSS perspective, you know, we've had some success in the last year. We hired, I can think of two,

I don't know the exact number, but I know we hired two external mid-career health physicists. One of them's actually the agency Radiation Safety Officer right now.

And one of the big improvements, I alluded to it earlier, is you know, we used to write position descriptions. We need a health physicist that's uranium recovery person. We need a health physicist that's a medical bent or slant. And a source security health physicist.

We got rid of all that now. Now we just need health physicists. We do the in -- and so we have one position description, one job posting, and several divisions pick from it, that -- and for external jobs.

That model is much better, in my opinion, because the specifics of the area, yes, we need to be experts. And the health physicist that's working in one of Kevin's branches does need medical expertise. We can get that through the qual program.

MR. DORMAN: The one he didn't mention was reactor health physicists. And you know, recall that 'til recently our regions were structured with the Division of Nuclear Materials Safety and the Division of Reactor Safety. And we had health physicists in both and they never crossed much.

So over the, I'd say over the last four to five years, there's been an emphasis on cross-training between the materials and reactor health physicists and manifested in your -- mentioned in several of the discussions here, the Division of Radiological Safety and Security in the region, which combined all the health physicists into one division. And so that gets to the

adaptability of these resources across business lines.

COMMISSIONER BARAN: Great. In the medical area, we have a couple of significant rulemakings in the early stages, one on extravasations and one on emerging medical technologies. How does the staff plan to sequence those rulemakings, and what's kind of the latest thinking on timelines for those two rules?

MR. WILLIAMS: So, what we've done is we have prioritized extravasations over emerging medical technologies. And now we're in the process of developing what's that impact, how does that look in terms of the timing and all of that. And we are going to provide that to the Commission in terms of our scoping. And we'll receive the impacts and the timeliness.

And what we're going, and we definitely want to look at what efficiencies we can gain through this process without having an adverse impact on public health -- on public comments. So we're going to factor that into our process as well, and we will provide that to the Commission.

COMMISSIONER BARAN: Sounds good, I look forward to it. Thank you.

CHAIR HANSON: Thank you, Commissioner Baran. Commissioner Wright.

COMMISSIONER WRIGHT: Thank you, Chair.

This is one of my favorite business line meetings of -- all year, I wait for it. The ones that we do, and because really, I appreciate what you do in every area. Because part of it really affected me personally, right.

And then coming through as a, you know, to the statehouse and then working my way up through PUC and then up to here, you know, has been -- it's opened my eyes in a lot of areas. But there's one thing that, you know, that sticks out that I really love, and that's the value that the states have for us and what they provide to us.

And your expertise is wonderful. And I've been to the OAS meetings every year, I've gone to the CRCPD meetings every year. You all do a fantastic job. The relationships, Kevin, that you all have, you and John and Rob and Huda, your presentation at this year was really good because it's exactly what the Chair was talking to you about earlier at the panel.

As we get bigger with the Agreement State program, what we do -- how we've been doing stuff's got to change, and it's going to change. And we're going to be more focused I guess on training, on the rulemaking stuff and more the policy things. And which, that's critical to the states.

And so, to that end, as I've been traveling around, and especially during the last year, I really started doing this last year, I make it a point as I can when I'm going to visit a reactor site or a waste facility or something like that, I will go to the Agreement State and meet with them. Meet with the public health people, meet with their staff. You know, I've done it in North Carolina, I did it in Arkansas, I did it in Utah, and I've done it in South Carolina.

And I don't just meet with them. If they want me to, I'll meet with the people they report to, right. It could be their department head, it could be the agency head, it could be -- or cabinet official or whoever.

Because I think it's really important that the -- because there's a lot of turnover at the level too, right, in the legislatures and stuff like that.

So it's important to me that the states understand just how valuable their programs are to us, right. And why they can do it better, they can do it cheaper than we could, right. So, but as I travel, I hear things, right. And I have reported back to you.

And one concerns is the HPs. Another concern is training. We've had access to portals that they, you know, whatever. You all handled all of it, and which I think is good. And then you know, I get to meet with some of the people they license, right, hospitals and things like that.

And we've been able to have some success in questions that they've raised. So I really value what you do and I thank you for it. But I'm concerned, going forward, about the HP program and what the pipeline is. I think that's a critical thing.

And are we utilizing the two-year programs? Are we using the, you know, the minority-serving institutions that have programs, you know, or may, could implement programs. So I mean, South Carolina State's one in my state, right. But are you all -- are we working those things? Are we -- I know that on the national level -- and this is an international thing too, right. And then there's concerns, because we don't have enough, there's poaching going on, right. Some states pay more than others, so they're going to go there, right. Some agency has an opening, they pay more, they go there.

That's a problem, and it's going to be a problem. And

what's the plan to address that too?

Because we can't, you know, when I meet with the states, if they're out of whack, I say look, you know, you're losing people because, you know, they're getting paid $30,000 more in Virginia, you know, than in your state. So what's the plan to kind of -- to stem that tide?

MR. WILLIAMS: So thanks for that. I think one of the things I do want to point out is when we look at the National Materials Program as a whole, we focus in on great collaboration. You know, it's the NRC and it's the Agreement States. We agree, it's a partnership.

So one of the things that we've taken on -- I have biweekly meetings with the OAS board. And one of the things we talk about, and we've actually talked about this with CRCPD as well, how can we better partner to recognize the challenge that we're having with HPs as a whole.

One of the efforts that Joe is undertaking is he's working with CRCPD and he's on a working group. And we're saying, okay, how can we institute best practices. How can we -- you know, like when we, NRC, put out a posting, if we're not going to hire somebody, how can we share that with the Agreement States. How can we share that with others, such that we're, you know, we're trying to increase the pipeline.

I will also say there's people that when we talk about going out to, you know -- I'm a university champion. There's a person on my staff who's a university champion. And they're going out, they're actively recruiting.

They're going to things such as, you know, like Blacks in

Government or the Health Physics Society, and they're bringing -- they're getting resumes and they're bringing them back to us. Matter of fact, I just got one last night. Can we go through something on the direct hire? And if we choose that we can't do that, let's share that information.

Our grants program, I've been saying this because it did work, Nebraska hired somebody off of the grant program. We need to be able to leverage those things more. And so we are communicating and we are engaging, you know, we're getting, initially making these steps.

But it's -- we recognize that it's a challenge for Agreement States, it's a challenge for the NRC. But we're all trying to work collaboratively to make sure that we communicate effectively, and we provide those opportunities.

COMMISSIONER WRIGHT: That's great. And Huda, I would love for you to comment at all about maybe what you -- you don't have to tell us what the report all says, but there are things, there are highlights, you know, that, or takeaways from that that maybe would benefit the public that's listening in today at this as well as the people at this table.

MS. AKHAVANNIK: With respect to staffing and hiring? So --

COMMISSIONER WRIGHT: Or the future of what the NRC's going to look like when the Agreement State program gets a little bigger, right, you know.

MS. AKHAVANNIK: Sure. So a lot of our recommendations, the majority of them are on consistency. And so, you

know, we look at for example trying to, within the NMP, trying to create opportunities where, you know, we talked about -- Joe talked about how we have Agreement State staff joining our impact teams.

We already have Agreement State staff as part of our joint working groups. And so we're looking to really increase that, especially with like upcoming guidance for emerging technologies. Even updating current guidance. You know, I talked about how they, the Agreement States are the ones that have most of the experience with various, you know, uses of nuclear materials.

And so we want to definitely leverage that experience. One of our recommendations, for example, is formalizing that process of being able to get folks on these working groups, then being able to like advertise these as opportunities.

And so across the NMP it's more easily, more access for people to be able to come and say hey, you know, I'd be interested in joining this working group. I'd be interested in joining this IMPEP.

That's the kind of stuff that's like cross training. We talked about knowledge management earlier. I mean, it doesn't get better knowledge management than that, in my opinion, to have folks actually, you know, as part of these teams.

Another tool that we could use in terms of, like, knowledge management and being able to like advocate for more consistency is -- I'm trying to remember my recommendations. So, I talked about joint working groups and advertising those.

For example, we could -- for example, I have -- let me look at my recommendations a little bit, sorry about that. So, one tool, for example, is for training, we can talk about training.

And so we mentioned some of the successes in training, how Kevin talked about how for the -- at the OAS annual meeting, we got feedback from Agreement States and how -- and there was a discussion of being able to have more Agreement States be able to actually host trainings.

That's an example of like a success of how the NMP, you know, us working together we can increase. Since training would be a challenge since there would be more Agreement States, having the Agreement States focus on providing trainings is an example of a success for that.

Another recommendation that we have for training is providing alternate methods for qualification. And so already the IMC for that allows for alternate methods.

But this would be, again, kind of formalizing it and making -- making it more clear so when the Agreement States themselves want to be able to qualify their staff, there's less of an inconsistency there. There's more -- there's more like surety on what that means of my staff being qualified.

COMMISSIONER WRIGHT: So I'd like to indulge me, if my colleagues will indulge me here, because this is important follow-up on what you're talking about. So in the travels, we've heard that training's an issue, right. And not every state's the same, right. Some states have employees that are ready to roll, staff is ready to roll.

It still takes three years to get them trained up in most of these states the way, you know, to go through the program, right. They don't -- they have needs right now, today. They can't get in the programs because the NRC staff is filling up the programs because we've got to have training too.

So I guess we're looking for more opportunities on the training front and ways that we can simplify or speed it up, right, using -- hosting things, combining states together. I know these are things you've talked about. But are -- are we looking to roll some things out to meet some of these needs earlier?

MR. LEWIS: Exactly. I was going to mention, in fact. So we are working closely with OCHCO. Yes, there's a surge of hiring health physicists. A lot of our training classes at the TTC are health physics-type classes. And so Kevin was kind of alluding to it as well, that we have a train the trainer approach, that's one thing we're doing.

But also perhaps an Agreement State could host a class. And then states nearby could come over, that could help manage travel costs or the state's burden. So we are exploring all those, those are all doable.

Can I add one more thought about program health overall? Because you know, a lot of people are listening, I'm sure, and I want to get -- I want to make sure we leave the impression that, you know, we have the IMPEP program. Of course that's every couple of -- up every for four years, for good-performing programs maybe more often and for a program that had findings.

But, through that, the first indicator in that program is

reviewing the staffing and qualifications of that program and their turnover rates and things like that compared to the number of licensees and the types of licensees in that program.

And so that's our basic program to decide programmatic, what we see nationwide. And we closely monitor that. And that tool also lets us work with the states that need help and letters of support to the governor, letters of support to the health director, up to and including probation, where we monitor the improvement and the -- and heightened oversight as well.

So that's our performance management program, if you will, for the National Material Program. And it's peer review, so. So the other states, not only us look at the states, but the other states look at each other as well.

And final thought, so that's a more of a yearly basis. But on a daily basis we have in each region radiation -- regional state agreements officers, who keep daily contact with states. If a state's experiencing a particular problem, that's their first point of contact. Get them help. NRC can go out and help.

One of the unique things Kevin's group's exploring right now, sending an NRAN, an NRC NRAN student on rotation to an Agreement State. So a lot of tools we can use to help states that need it.

COMMISSIONER WRIGHT: And I do know that when the states are reaching out to us and just expressing that hey, we have a need, they're trying to get ahead of the problem, right. So it's not an IMPEP problem,

and which I appreciate very much, too. So thank you so much.

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

COMMISSIONER CAPUTO: Kevin, I have a question. You're magnet for the question this morning, which makes life easier on the rest of the panelists. But I'm going to, like my other colleagues, I'm going to delve into the health physics, health physicist issue. But I'm going to do with a trip down memory lane.

So in the mid-90s, when I was graduating with a nuclear engineering degree, the job market for nukes was abysmal. And I was half a step away from being a nuclear-grade barista fresh out of school.

There were a host of premature closures, which as we heard from the earlier panel, a chunk of those 27 decommissioned units. There were university programs that were closing, there were research reactors that were being shut down. So you know, it was -- it was not a good look in the mid-90s.

But within five years, there was a recognition that there was a whole swath of experience, excuse me, in the nuclear industry that had started their careers in the heyday of the 70s or not long after and were heading into retirement.

So even just within five years of my graduation, utilities were offering, you know, signing bonuses for graduates and so on. And there was just a recognition that the need was only going to escalate as more of that previous generation retired. And trying to get through enough graduates

through fewer programs was a growing challenge.

So Department of Energy started with research. How many programs, how many graduates are we getting, how do we look at increasing the number of enrollments, which you know, of course my reaction at the time was sort of, well, enrollments doesn't always equal graduates in a challenging program.

But the focus was how do we grow that pie. Because even once you get those enrollment numbers up, that's still three, four, five years before you see them in the workforce. So for the problem that we have now, this problem's going to grow.

And so I guess my question is given how DOE's mission on nuclear energy has expanded so significantly, have we had any conversations with, say, the Office of Nuclear Energy, at looking at the need for health physicists in light of what was done in, you know, 2000 with regard to specifically tracking how many are graduating, what programs are out there.

This was the origination of the university program, was to try and find ways to use research to support university programs and keep them afloat, more or less. So are there -- are we having conversations with DOE looking at sort of reprising that effort in this area.

Because like I said, I feel like this is only -- this need is only likely to grow. And any fix that gets implemented now, you know, we don't see the benefit for several years. So there's no time like the present to get started.

MR. WILLIAMS: Yeah, sure. I think one of the things that

we've been focusing on, and we'll go back to, you know, the work that Teresa's been doing, right. We've worked internally, she's also worked externally with others. You know, as Rob mentioned, she's engaged the Colorado University.

But we've also worked with OCHCO to try to look at what are we doing as university champions. How are trying to, you know, to make sure these programs focus on health physicists and what can we do to make sure that we're doing it.

I think we could easily expand that, right, to reach out to DOE and to reach out to our other federal partners. Because we're all looking at this from a perspective of what do we do now, how do we keep -- how do we move the program forward, and what activities can we do to make sure that we can solidify it and increase our bench strength.

And so through that process, I think we need to engage and partner better with the Office of Research as well as DOE to look at what can we do to make sure that people are aware, and what can we do to recruit.

And then how do we, you know, reach back to our staff here to retain, to make sure that we have that knowledge and how do we engage appropriately to work across the organizational boundaries.

COMMISSIONER CAPUTO: Okay, well, I definitely, I definitely agree that I think we should be talking to DOE about reprising that effort, because this is certainly something as big as an effect as it has on us, like the Chairman talked about, there's competition, and Commissioner Wright. You know, there's competition and there's poaching, and this is a

limited resource that's just getting more limited.

So anything DOE can do to sort of preserve the programs that are out there and create funding and so on to spur -- to spur graduates would be I think important for the future.

Kevin, another question for you. So the proposed rule on sources has -- proposes that we, at the Commission's direction, start including Category 3 sources in the license -- licensing verification system. How -- given how many Agreement States we have, how does this affect the nature of their role?

Because I know with web-based licensing, it takes a certain amount of time, training, and resources for them to implement that. Is there any impact here on Agreement States? Or is this strictly an activity by the licensees?

MR. WILLIAMS: Well, yeah, we already have the Agreement State licenses, you know, in WBL itself. And so what we're advertising is the use of LVS. And so to expand it to Category 3, you know, of course Agreement States, just like when we actually recognized what GAO was doing, we issued the information notice.

And we issued that to the Agreement States so the Agreement States could inform their licensees. So yes, there will be some impact, but it's really focusing on, you know, one, recognizing the number of Category 3 sources that we have out there.

But the bigger issue is that we're here as a resource, whether it's Agreement State, whether it's the NRC, and we can use this to

verify licenses to make a -- make, you know, the verification process easier. And that's the goal.

And so we've been partnering, we've been engaging OAS to ensure that we limit the impact. But I think as we focus on, you know, the work that we do and the work that the Agreement States do, we'll have to assess through, you know, as we go through the rule, how do we engage the licensees to see what the impact on licensees are.

But from a process perspective, WBL can do it right now. And one of the things that we've talked about is can -- you know, how easy is it to do that. Extremely easy. People can call us right now. We have a help desk that we said hey, reach out to us. If you need to verify we'll point you in the right point of contact, such that we can actually address these types of issues in a timely fashion.

So we've been looking at the impact, trying to minimize the impact, but recognizing that, you know, we look at it from a balancing perspective. We believe that we're focusing on the right aspects from a safety and security perspective.

COMMISSIONER CAPUTO: Okay, so if the rule -- if the rulemaking goes forward the way the staff has proposed it, and correct me if I'm wrong, let me just start with how many Category 3 licenses are we talking about? How many are there total?

MR. LEWIS: I think, so our best estimate, we don't -- there's Agreement State licensees we don't have a daily track of.

COMMISSIONER CAPUTO: Right.

MR. LEWIS: But our estimate is around, there's 4500, compared to 1500 Cat. 1 and 2.

COMMISSIONER CAPUTO: And so in the proposed rulemaking, these Category 3 sources are going to shift from general licensing to a more specific license, correct?

MR. LEWIS: Yeah, and what we proposed -- so not all those 4500 are general license. Most -- the vast majority are already specific license.

COMMISSIONER CAPUTO: Okay.

MR. LEWIS: But there are some general licensees that possess Category 3 sources and maybe in the order of a dozen or so. And those would have to get a specific license.

COMMISSIONER CAPUTO: So what's the licensing burden associated with that shift? Do we have a feel for that? Because that's, you know, potentially work on their side, but also work on our side. Do we have a feel for that?

MR. WILLIAMS: So I would think we would have to engage, you know, with that licensing community to make sure we fully understand the burden on them. Why we think this is a, you know, I don't want to oversimplify it, but we do believe that transitioning to LVS to incorporate Cat. 3 we do think is a relatively simply process.

But we want to engage our licensees, and as we go through that process, we really want to understand does this work for you, what's the impact, does it increase any burden.

And we would do the same for Agreement States. We've been engaging them as well. And some of them have already been addressing this in some fashion.

COMMISSIONER CAPUTO: Okay, all right. So Huda talked about the future of the National Materials Program and the work of the working group. And heard several times this morning about the number of Agreement States, you know, increasing yet again.

So Rob, given the decrease in the number of licenses that we will be overseeing as an agency, does this free up personnel looking forward a year, two year, three years out? Does this reduce our workload somewhat so that we can redeploy those resources and that expertise?

And then also do we have an idea of what sort of what the minimum staffing is? I know there's -- there's work in the working group looking forward, you know, for various scenarios. What's the minimum staffing level to just maintain this infrastructure in this program?

You know, I guess postulating if everyone was an Agreement State. There's still going to be work that we have to do, and I'd like to know what that minimum head count would look like.

MR. LEWIS: Yeah, so our budget has two parts. It's the fee-based part and the -- for licensing and inspection, and then the off-fee-based part. So when an Agreement State becomes an Agreement State, I went through this in Pennsylvania with Joe actually, so the number of NRC licensees in Region I went down.

We build our budget for the fee-based part, you know, a

number of licensees times the number of applications we get based on their renewal cycle and amendments. Factor in the complexity of various types of applications and determine a number of hours per year and then translate that to FTE.

For licensing and inspection, it's basically a formula, number of licensees crank out the FTE. And so when Pennsylvania became an Agreement State, that went down and Region I adjusted.

The people that are affected by that, so the budget's three years ahead, obviously. So the people that are affected to that, some found other jobs in NRC. Some may have retired, some may have left the agency.

But we don't get to the situation where because of the time scales, we don't have a situation where, oh, you know, there's several people here that we can now redeploy to another group. We do that over time throughout that year.

Your question's a great one. It's almost, you know, you can imagine a line that goes down with the number of licensees and then number of Agreement States. When it gets to 50, the line flattens out.

And that remainder, that asymptote or whatever, that is kind of the National Material Program in another sense. That's the national program that needs to happen even if we have zero Agreement States.

We will be one of the biggest licensing organizations, even with zero Agreement States, because of the federal licensees. So that's one point.

But the items, the training, the IMPEP management, the

program management, the existence of the radiation safety officers, we call those the Agreement State Program that we currently have off the fee base. So we would envision we'll continue that for -- through the future.

There may need to be some adjustments as we get more and more states, but I think that Huda's project is telling us is you know, for the foreseeable future, the current model works for us. And we have order of years to -- before we need to start making some harder decisions.

COMMISSIONER CAPUTO: Okay. Well, it certainly when -- whenever we're looking at those sorts of issues with decreasing workload in the agency, having an amount of time to deal with it I think it just so important. Because if you can manage it through retirements, as sorry as we are to see those folks head off into very well-earned retirements, you know, it's so important for us to preserve the expertise.

And if the workload is shrinking is this area, I think there are probably a number of people who have -- who have grown expertise in just a range of areas. So it's incredibly valuable and very useful to the agency elsewhere.

So I'm glad to hear that we have the time necessary to sort of make those -- make those adjustments. Thank you.

CHAIR HANSON: Thank you. Commissioner Crowell.

COMMISSIONER CROWELL: Thank you, Mr. Chair. Thank you to all the panelists today for your presentations. And if anyone's stomach is growling like mine, I promise not to go beyond my allotted time.

So my first question, in part, anyone can jump in and grab,

but Ms. Akhavannik, part of it goes to you, at the very least. But for Agreement States, is a poorly performing agreement -- is oversight of a poorly performing Agreement State preferable to the agency just continuing to conduct those responsibilities for the state?

And then the second part of the question is I'm curious about your, one of your recommendations on centers of excellence and how those factor into that equation. So, anyone can take the big question.

MR. WILLIAMS: Why don't I take the big question and then, Huda, you can talk about the centers of excellence?

So, you know, as we look at the Agreement State programs, there are two -- you know, there's a couple programs that are on probation or heightened oversight. The things that we factor on there in terms of what would get there is what would it cost to take that program back for the agency, what does that look like.

You know, when you look at it from a fees perspective, what are the fees? Is that sustainable for the program to come back? And it's not, you know, what's preferred. It's where do we see the program at from a public health and safety perspective.

And we have processes and we have tools to say, you know, you're either going to put somebody on heightened oversight probation or you're going to suspend the program. If you could make a decision to suspend the program, those are a number of things that we have to address and provide to the Commission in terms of level of oversight.

And so if we don't get to that spot and we believe that, you

know, probation is the preferred method, then we work with them to get their program back to a state of where -- where it needs to be, in terms of whether it's staffing issues, a licensing inspection process.

And that is the, you know, when I say the preferred method, what we try to do is -- the National Materials Program is only as strong as, you know, for lack of a better word, you know, the weakest member, or perceived weakest member. Our job is to make sure that the national program is moving and performing well.

And as part of that, we have our processes and procedures that we implement to get people back to there. So that's having, you know, monthly meetings. Looking at, you know, having them do a performance improvement plan to get the program back to where we believe is, you know, an acceptable manner. That's what we focus on.

And so I think that's what we need to do going forward as we -- as we look at those programs.

COMMISSIONER CROWELL: Okay, and I assume a poorly performing Agreement State is not that way intentionally, it's probably a resource issue and the bandwidth and budget and who knows what's going on at a given time.

So how about centers for excellence? And I know that there are some existing and maybe a recommendation for more. How do those factor in?

MS. AKHAVANNIK: Yeah, so for the centers of excellence, I guess I just want to make a clarification that, you know, at the

NRC we have like a Center of Excellence for Rulemaking. So for us, the word center of excellence means kind of like a group of NRC and Agreement State experts.

And so we look for, you know, when we looked at the program elements that I had up on my slide, we looked at those areas and said, okay, what would be good areas that for the sake of knowledge management, when it comes to questions, instead of only using the resource that Rob was mentioning of the RSAO, they could, you know, the states and NRC could just have dialog with each other and go through these centers of excellence. And it would be just a like to have more widespread sharing of information.

And so the areas we're thinking about for centers of excellence, one would be like event response, pre-IMPEP, like preparation for IMPEP. Licensing, risk informing inspections.

Like these are the -- oh, rule adoption, especially when it comes to emerging technologies for example, kind of having questions and answers of being able to, you know, like understand what that means and what are better ways to kind of implement.

So it's just, it's like a knowledge management idea.

COMMISSIONER CROWELL: It's collaboration to keep everyone's game high.

MS. AKHAVANNIK: Exactly.

COMMISSIONER CROWELL: Okay, good. We've talked a lot about health physicists today. And I've never met a health physicist I

don't like, but they also tend to think they can do everything. There's got to be some other areas of expertise that we need help in. And what would those be, what other areas of qualifications are we looking for?

MR. LEWIS: Yeah, thanks for the question. So health physicists is our focus area simply because they're hard to find and -- and there aren't many even when you do find them. So in NMSS we're a big proponent of the agency strategic workforce planning process.

So we go through that every year. And the divisions meet with me and present their results. I think the materials areas, health physicist was number one gap. You know, in strategic workforce planning we look at what skills we have today, the workload, the skills we'll need in five years and the workload, and what are gaps or surpluses.

So health physicist was the number one gap, health physicists of all different kinds. Project managers was very close. But project managers are relatively easy to find and train. So they aren't the hiring priority, although we want to hire project managers as much as we can immediately.

The other areas in materials I think very distance trailer but there are gaps is mechanical engineers. Because we do sealed source and device reviews. So I would say, you know, if we need ten health physicists, we might need two mechanical engineers.

But again, those are the -- the sheer number of them that are available to us is much, much higher, so that's why our focus is health physicists. But thank you for the question because I didn't want anyone to

leave today with the impression we only want health physicists.

COMMISSIONER CROWELL: My last question, which maybe is going to be a Dan question, but Mr. Nick, I'm curious about your perspective as well, given your long tenure at the agency.

So in health physics or any one of the other disciplines that we need expertise in, you know, there's a lot of expertise from universities and in the private sector and elsewhere from across the country, including the western half of the country, including just like California. I mention that just because how many universities they have and the big population they have.

But I haven't met many people from California that are excited about moving to any of the locations of the regional offices or maybe the DC area. And I think we're undermining our talent pool, the availability of our talent pool by not finding ways to recruit and retain employees from other areas of the country.

I mean, we've managed to implement a resident inspector program where employees are located elsewhere. Why can't something similar be done in the materials space?

MR. DORMAN: Great question. So I'll start with the resident inspector program and I'll speak to my experience in Region I, where we had several sites along the northern shore of New York state and Lake Ontario that is not the most popular place to go.

So we recruit at Rochester Institute of Technology and we recruit at RPI. So we get people who are from that part of the country who want to go there. I think as you come to the HPs and look at the talent pool

on the western half of the country generally, but and in particularly in HPs, I don't know why they don't want to come to our locations. All our locations are great.

But it's -- one of the tools that we have available to us when we have critical needs in key skillsets that are hard to fill, like health physics, is remote work. We've just got to document that and capture it, and then we're working through expanding our guidance to leadership and management on recruiting TBD location.

So, in general, our positions go out naming our locations of business. But when we have a critical need, we can put TBD in there as a location as well.

COMMISSIONER CROWELL: And I only have a minute, I'm going to break my own promise because if Joe wants to jump in, I'm still going to let him.

But I know there's not a direct parallel to the resident inspector program, but we could also think about, you know, housing these health physicists or materials folks in, you know, the offices of an Agreement State that they have state office or county office, or at a medical facility or an academic institution. Those kinds of arrangements are done all the time.

And so I want to make sure we're thinking creatively about how we're recruiting and retaining folks. Because it makes a difference, and there's a large swath of the country that's not within 50 miles of an existing office. You know, give it a shot.

MR. NICK: The one thing I will add is that we do have

successful full-time teleworkers out in the field. And it actually helps in some situations. They may be closer to the areas that we need reactive inspections for example, or a specific need spur of the moment.

So yeah, it is a model that can work. And I agree with you, we just need to work through the agency policies and use it -- utilize it as much as we can.

COMMISSIONER CROWELL: Thank you. Thank you, Mr. Chair.

CHAIR HANSON: Thank you, Commissioner Crowell.

All right, we have reached the end of our time together. Thank you all again. Thanks to the staff for your presentations, and for the information. Thanks to my fellow commissioners.

I think we, you know, plumbed the depths of a number of really important issues before the agency. So thank you all again, we're adjourned.

(Whereupon, the above-entitled matter went off the record at 12:06 p.m.)