

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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34TH REGULATORY INFORMATION CONFERENCE (RIC)

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TECHNICAL SESSION - W20
NRC OVERSIGHT AND INSPECTION DURING
PERIODS OF SITE INACCESSIBILITY

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WEDNESDAY,
MARCH 9, 2022

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The Technical Session met via Video-
Teleconference, at 3:00 p.m. EST, Mike King, Deputy
Office Director for Reactor Programs, Nuclear
Regulatory Commission, presiding.

PRESENT:

MIKE KING, Deputy Office Director for Reactor
Programs, NRR/NRC

MARK FRANKE, Director, Division of Reactor Safety,
RII/NRC

JARED JUSTICE, Security Specialist, Security
Oversight and Support Branch, Division of

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Security Operations, NSIR/NRC

CHERYL GAYHEART, Fleet Regulatory Affairs Director,

Southern Nuclear Operating Company

EDWIN LYMAN, Director, Nuclear Power Safety, Union

of Concerned Scientists

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P R O C E E D I N G S

3:00 p.m.

MR. KING: Good afternoon and welcome to the RIC session where we're going to discuss NRC's oversight and inspection during periods of site inaccessibility. So if that doesn't sound familiar to you, you may be in the wrong virtual room. And now's your chance to sneak out the back before anybody notices.

Hi, I'm Mike King, and I'll serve as your chair for this session. I'm currently the Deputy Office Director for the reactor safety programs within the Office of Nuclear Reactor Regulation at the NRC. I've got responsibility for the NRC's licensing oversight and inspection programs for the existing fleet of power operating reactors in the United States.

So during this session, our panelists will share their perspectives on adjustments we made as an agency to our regulatory approach to providing oversight and conducting inspections during the COVID-19 pandemic. We'll be discussing lessons learned from conducting our inspections during the pandemic such as vendor and quality assurance

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inspections, operator license examinations, inspections conducted by our resident inspectors that are assigned at each facility, and inspections conducted out of our four regional offices. We'll also be discussing ideas for future changes to our regulatory framework that could be implemented from the lessons we've learned.

Our panelists include two NRC staff and two panelists from outside the agency. Our first presenter is Mr. Mark Franke. Mark is the Director of the Division of Reactor Safety in the NRC's Region II office in Atlanta, Georgia. Since joining the NRC, Mark has gained significant experience through a wide range of positions across multiple regional offices and the headquarters office.

At Region II prior to his current role, he served as the Deputy Director for the Division of Reactor Projects and as branch chief of reactor projects, operator licensing, and engineering branches. He also has experience serving as a senior resident inspector at Perry Nuclear Power Plant. So he has practical experience to share implementing the oversight program during the pandemic from the perspective of a senior executive in a regional

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office.

Our second presenter is Mr. Jared Justice. Jared is a security specialist in the Division of Security Operations within the Office of Nuclear Security and Incident Response at the Nuclear Regulatory Commission. Since joining the NRC, Jared has also worked in NRC's Region II office as a physical security inspector. During that time, Jared led numerous security inspections both prior to and during the COVID-19 public health emergency and participated in multiple working groups to capture best practices and lessons learned related to the staff's implementation of security baseline inspection program during the health emergency.

Our third presenter is Cheryl Gayheart. Ms. Gayheart is the fleet regulatory affairs director at Southern Nuclear Operating Company responsible for compliance, support, and oversight in all operating fleet licensing actions. She has over 30 years of experience in nuclear industry, starting out her career at Braidwood Station as an engineer and then transitioning to senior reactor operator, working both in the main control room and in staff positions at Braidwood and Bryon Stations as well as in the

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corporate role at Exelon. She's held positions as work management director, operations director, operations corporate functional area manager, plant manager, and site vice president. So she has perspective seeing the impact of the NRC's oversight program during the pandemic across Southern Nuclear's entire fleet of reactors.

Our fourth and final presenter is Dr. Edwin Lyman. Dr. Lyman is the Director of Nuclear Power Safety at Union of Concerned Scientists in Washington, D.C. Dr. Lyman earned a doctorate in physics from Cornell University. He's the author of the book, Fukushima, the Story of Nuclear Disaster, and is a recipient of the 2018 Leo Szilard Lectureship Award from the American Physical Society, his perspective as a nonprofit organization observer from the NRC's oversight during the pandemic.

We've allowed a few moments or a few minutes for questions following each speaker's presentation. And we've provided time at the end so we can have a more open question-and-answer session period. But be aware there's no live audience audio.

So it'll be important for you to submit your questions through the portal using the question-

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and-answer box provided. And you can direct your answers to me or any of the panelists. There's a drop down to do that.

And we're going to try our best to answer as many questions as time allows. And I'd encourage you don't wait until each Q&A session. If you've got a question, go ahead and submit it so you can get it in the queue and give us time to go through it. So I'd recommend you submit your questions as soon as you can.

So before we get started, I want to take a second to express how incredibly humbled we are by the courage of the Ukrainian people and our college and the state nuclear regulatory inspector of Ukraine who remain focused on preserving nuclear safety under incredibly perilous and stress conditions. Our support and thoughts are with them. So with that, I'm excited to present first panelist, Mark Franke. Mark will be discussing lessons learned, performing oversight of facilities during the pandemic. Mark?

MR. FRANKE: Thank you, Mike. Good afternoon everyone. My name is Mark Franke. I'm the Division Director for the Division of Reactor Safety in the NRC's Region II office located in

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Atlanta, Georgia.

In collaboration with our regional and headquarters counterparts, we provide inspection oversight of operating reactors in the southeastern United States. And we participate in inspection oversight for fuel facilities and new construction reactors. Our other responsibilities include operator licensing and incident response.

Today, I'm here to speak to you about the NRC's lessons learned from performing oversight of NRC licensed facilities during the pandemic. In this presentation, I'll touch upon some of our key oversight functions and our response to the COVID-19 public health emergency. I'll provide a high level summary of our initial lessons learned effort and I'll discuss our follow-on lessons learned efforts that are in progress. Next slide, please.

Adapting to the COVID-19 public health emergency. The NRC performs its safety mission by maintaining a variety of functions carried out by regional and headquarters staff. These functions include but are not limited to events assessment, to include situational awareness, and incident response, licensing to include operator licensing, inspection

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to include supplemental and reactive inspections, enforcement and responding to and investigating allegations.

Performance of these functions typically involve interpersonal interactions and local site presence. The NRC has accomplished this in a number of ways. We have resident inspectors designed to operating reactor facilities, new reactor facilities under construction, and to fuel facilities.

These inspectors live in the local area of the site and report to work at the site. They maintain a local presence and interface routinely with licensing staff and management. Resident inspectors are typically assigned to a site for four to seven years.

They serve as first responders to events, and they develop a depth of knowledge of a facility and its operations. Regional and headquarters based inspectors travel to the sites to perform inspections individually and as teams. NRC operating license examiners travel to the sites to perform licensing examination and licensing through qualification inspections.

Managers will visit facilities and NRC

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staff will also travel for investigations and allegations follow-up. In response to the COVID-19 public health emergency, the NRC made adjustments to help assure personnel safety for NRC staff, licensing staff, and the community while continuing to perform our staff mission functions. These adjustments included but were not limited to establishing guidance, including social distancing and mask protocols, expanding the use of remote work practices, increasing the use of technology to enable remote communications and information sharing, developing flexible approaches to inspection timing and team interactions, and expanding virtual incident response capabilities.

During the COVID-19 public health emergency, resident inspectors continue to complete their duties with a reduced onsite presence. Other regional and headquarters-based inspectors performed inspections remotely and on site as local area conditions permitted. Operator licensing examiners conducted their functions onsite with safety protocols in place.

NRC headquarters in conjunction with the regional officers develop guidance to help protect

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the health of inspectors and site personnel while maintaining oversight that supported the reasonable assurance of adequate protection of public health and safety. Next slide, please. Initial lessons learned. Early on, the NRC set out to assess its response to the COVID-19 public health emergency and the continued oversight of licensing facilities.

This included early reviews to identify lessons learned and best practices. Early lessons learned and recommendations included a focus in three key areas: one, information technology capability and reliability, two, remote inspection practices, and three, inspection guidance enhancements. In the area of information technology, or IT capability and reliability, the recommendations included updating agreements on memoranda of understanding with licensees to improve inspector access to information and identification of best practices that the staff could use to communicate with external stakeholders.

An example of this would be the use of videoconferencing. Recommendations included continuous or continued NRC IT capability improvement and training for NRC staff and enhancing our capability to use common technology platforms.

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Recommendations also included improved access to information for security inspectors and designated headquarter staff members to support security inspection activities.

In the area of remote inspection practices, the NRC considered exploring the use of remote work practices, resident inspectors, and region-based inspectors, and enhancing team inspection practices for improved efficiency and effectiveness. In the area of inspection guidance enhancements, the NRC considered better defining activities that are appropriate for remote, partially remote, or onsite implementation and memorializing best practices and guidance from the COVID-19 public health emergency. Here's some of the results of our initial lessons learned efforts.

Many of the best practices identified in their early reviews were in the area of communications. Best practices included but were not limited to increasing the frequency of the NRC internal communications, both vertical and horizontal in the organization, maintaining a central staff access point for guidance as they develop, using town hall style meetings and inspector seminars to discuss

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pandemic guidance and related topics, maintaining information dashboards to monitor key indices, including local and site conditions, establishing direct communication contacts between NRC and licensee counterparts, staggering team member -- inspection team members onsite, and establishing daily phone calls between NRC and licensee inspection contacts to facilitate information flow. Next slide, please.

Follow-on review. Since the initial COVID-19 public health emergency lessons learned reviews began early in the pandemic, Agency has accumulated additional experience. As a continually learning organization, it is important for the NRC to fully explore the impact of practices used during the pandemic on our oversight processes. This is in order to make informed decisions about what long-term improvements can be made for both future emergencies and non-emergency conditions.

As the year 2021 drew to a close, the NRC began a follow-on lessons learned effort. This effort is informed by broader interactions among the NRC staff and industry and members of the public and the results of previous assessments. The value of

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having NRC inspectors onsite to conduct inspections is not in question.

But there are potential opportunities for inspection modernization that the NRC is exploring more fully through this effort. A multi-disciplinary working group with representation from all four NRC regions and NRC headquarters staff is currently working to identify additional lessons learned and best practices. We are looking at practices established with licensees and other stakeholders during the pandemic that could be beneficial for routine use and for future events that limit or prevent normal access to nuclear facilities.

The team is working to establish a shared understanding what practices worked and how they were affected and successful in achieving reasonable assurance of safe operations. The follow-on effort includes a series of public meetings. These meetings involve both internal and external stakeholders. The first meeting took place in January of this year. The information from these meetings will help inform our processes and supporting guidance and procedures and our interactions with stakeholders. Next slide, please.

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Path forward. Our current lessons learned efforts recognize that the public health emergency remains in effect. We recognize that longer term impacts of the pandemic and the responses to the pandemic may be more fully realized over time. Through our interactions with industry, we found a general agreement that field inspections are important. We are reviewing best practices used by the NRC and industry to protect employee health and safety and to respond to the public health emergency.

We learned through common experiences that opportunities exist to enhance both effectiveness and efficiency in conducting field activities. We are currently exploring best practices in communications, scheduling, and in the resourcing of expertise that were used during the pandemic. We're also exploring best practices for information sharing and technology use.

We are assessing these for future use during times of emergency and non-emergency conditions where they may benefit our public safety mission. In this presentation, I discuss some of the NRC's key oversight functions and its response to the COVID-19 public health emergency. I discuss some

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results from our initial lessons learned efforts, and I outline the follow-on efforts that are in progress.

We expect to hold our next public meeting on this topic in April time frame. And more information will be forthcoming. We look forward to your participation. Thank you.

MR. KING: Okay, great. Thanks, Mark. Now we have a couple of minutes available for us to take some questions. So if you have a question for Mark, please feel free to submit it. And Mark, we do have one already. So the question is, how was the NRC able to complete the inspection program in 2020 and 2021 given the COVID conditions?

MR. FRANKE: So the NRC in '20 and 2021, we were operating under COVID-19 pandemic public health emergency. And the NRC completed the inspection program through a combination of onsite and remote activities. It's important to remember that our inspection program, in particular for the reactor oversight process, has many different aspects.

The reactor oversight process includes performance indicators and includes baseline inspections and supplemental inspections. So

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there's flexibility within there and flexibility within the numbers of inspections and the samples that we take to allow for adjustments. I think the short answer to the question as our inspectors press forward through a combination of onsite and remote activity using technology and leveraging it to complete those samples that were necessary to complete the program.

MR. KING: Great. Thanks, Mark. And I'll just add a little bit of perspective as the program office. We did have to adjust our inspection guidance. In fact, early on in the pandemic when there was a lot of uncertainty as to the severity of the pandemic and we were seeing a spike in exposures, we did provide guidance to the regions to give them some additional flexibility.

If you're not familiar, our inspection program is sample-based. So we sample different areas to do our inspections. And it provides a range of samples.

And a sample is what we want to watch a licensee do a surveillance test of a piece of equipment. We have a certain number of a year that we'd like to target as a nominal sample. One of the

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flexibilities we provided was to instead for shooting for nominal samples to shoot for the minimum number of samples.

And we were largely able to do that across all four regions with a few exceptions. But as Mark mentioned, we had other diverse ways of monitoring licensee performance there. But we have subsequently -- middle of last year, we did provide an updated guidance to return to nominal inspection programs. So we're back to a nominal program.

So just maybe one more question, and I'll tee it up here. We did get a question about was any document published on the lessons learned that we can access. And so just a point of clarification, we did an initial lessons learned early on in the pandemic based on about six months of experience.

That report is publicly available. And in fact, the ML number in ADAMS is ML20308A389. And that was issued, I believe it was in January of last year of '21.

But as Mark mentioned, he's leading a follow-on, more encompassing, broad reading lessons learned effort that's not just focused on lessons learned we can apply for future pandemics. But it's

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focused on lessons learned for longer term changes even outside of pandemics. So any other thoughts on that?

(No audible response.)

MR. KING: If not, I think we're ready for the next speaker here. So our next presenter is Mr. Jared Justice. Jared will be discussing the security inspections during periods of site inaccessibility. So Jared, the floor is yours.

MR. JUSTICE: Good afternoon, and thanks for the introduction, Mike. Again, my name is Jared Justice. I'm the security specialist with the NRC's Office of Nuclear Security and Incident Response. As the title states, this portion, we're going to talk about security inspections during periods of site inaccessibility. Next slide, please.

The COVID-19 public health emergency created a need for our agency to adapt to ensure continued and effective oversight of licensee performance and the security cornerstone was not immune to this. At the beginning of the pandemic in March 2020, I was at the time working as a physical security inspector in the Region II office. The night before I was scheduled to travel for a security

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inspection, my branch chief called and told me we were going to have to cancel it because of the various COVID-19 restrictions that were about to be implemented across the country.

In the week prior to the inspection, I had already received the licensee' procedures, various records, and corrective action reports in an electronic format. And I remember thinking to myself that though the inspection procedures couldn't be completed entirely remotely, there were at least some elements I could complete from the office to help reduce the number of items that would need to be completed during an onsite inspection once restrictions eased. I discussed the plan with my branch chief.

And at 10:00 a.m. the next morning, I was holding an entrance meeting telephonically to begin one of the first partially remote security inspections we would conduct during a huge period of uncertainty. In the following slides, I'll share some of the difficulties, successes, and lessons we've learned during a period where we really had to examine our routine inspection processes and adapt to ensure we maintained continued and effective

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oversight of licensee performance. Next slide, please.

From this slide, you can see some of the challenges we faced in approaching security inspections from a remote perspective. For the first, a large portion of our security inspection procedures requires our inspectors to be onsite, observing licensees performing various security functions such as vehicle searches, intrusion detection, system testing, and WiFi or range qualification activities. All of these require some level of onsite inspector presence to complete which really placed our inspections into the hybrid category. That is, some were completed remotely with the remainder being completed onsite at a later date.

Regarding information sensitivity, a substantial portion of the information we normally review or need to discuss with the licensees during onsite inspections deals with varying levels of information sensitivity such as safeguards information which can't be discussed on unsecured communication lines and even personal medical information during our fitness for duty inspections. In approaching remote inspections, our inspectors had

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to be keenly aware of potential information sensitivity aspects associated with each inspection item and determine which were best to reserve for onsite inspection. Force on force inspections were a major hurdle due to the number of personnel involved and concerns with close contact.

We'll touch more on this item in more depth later in the presentation. With respect to remote inspection techniques, techniques such as video review were simply not viable or reasonable options for the majority of our inspection activities. As an example, for protective strategy inspections, you can theoretically have a licensee conduct a video tour or all their internal security folks and discuss responder duties telephonically to assist with completing certain inspection requirements.

While this may seem like it would work, information sensitivity then becomes a major factor and you're running the risk of capturing potential vulnerabilities on video when a well planned and precise onsite inspection would be a better and more secure option while also allowing for immediate corrective action if issues are identified. And last

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but certainly not least, an inspector presence. During the public health emergency, remote inspection techniques were explored and leveraged to allow some onsite portions of the inspections to be performed with fewer inspectors onsite at a later date.

While this was necessary at times to minimize exposure to both the NRC inspection staff and licensee staff, it resulted in having fewer boots on the ground available for security officer and security staff interactions. These interactions provide our agency with a deeper understanding of a site safety culture and items such as being able to view tasks like search activities performed multiple times by different officers. Over the course of the entire inspection week, add additional value to the program beyond simply completing an inspection procedure.

The inspection staff was fully aware that presenting this aspect of inspector presence when conditions were safe to do so was vitally important to the effectiveness of the program. Next slide, please. So how did we adapt? We started first by looking at each inspection requirement and our inspection procedures to identify what could be

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completed remotely and what would require at least some level of onsite presence to complete.

In this first example, you can see the procedure requires inspection staff to verify that the licensee has an implementing procedure. And it describes what is required by regulations, in this case, the areas of the vehicle that must be searched. Compare this to the requirement next to it which requires staff to verifying the licensee's conducting activity and in accordance with their implementing procedures and regulations, in this case, again, a vehicle search.

It's clear that the second item requires observation of the task being performed which can't be completed through a simple document review or plant interview. You can certainly review their implementing procedure in a remote environment which is a technique we use. But to actually complete it, you have to watch the activity being performed.

This is also an example of an item that couldn't reasonably be conducted through something like a video review due to concerns related to capturing flaws or vulnerabilities in the licensee search process on camera. The second bullet is an

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example of an inspection requirement that's just more prudent to complete onsite. This inspection requirement is from our access authorization inspection procedure, and it requires our inspectors to verify licensees, evaluate all background information on an applicant, and making an access authorization decision.

While it might appear that this could be completed by requesting a copy of the applicant's access authorization file, these types of records are packed with personal information such as past criminal records, prior addresses, credit histories, and even commentary for previous employers. Out of respect for the sensitivity of this information and recognition of the potential harm should the record be mishandled, inspection requirements such as this were better reserved for onsite inspection. Next slide, please.

These last two items address other aspects of reactor oversight process we're able to leverage. By completing some inspection activities remotely as a team, there are cases where smaller number of inspection staff were able to be deployed to the site at a later time to complete their

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remaining inspection items because of the work that had already been completed remotely. This was valuable from an inspection scheduling standpoint and also limiting exposure to both our staff and licensee staff and would not have been possible without a remote work that had already been accomplished.

For the second item, all of our security inspection procedures are required to be completed at different frequencies, ranging from annually to tri-annually. This allowed additional flexibility to reschedule some inspection activities when gaining onsite access was not immediately possible due to increasing case counts. Next slide, please. As previously stated, force-on-force inspections were particularly complex due to the number of personnel involved, both internal to the licensee and external to the NRC inspection and support staff and often in confined areas such as close conference rooms, bolt resistant enclosures, and alarm stations.

To address this, we developed two variants of the inspection activity that leverage smaller drill and exercise scopes, allowing us to resume oversight of licensee protective strategy capabilities, while recognizing that COVID-19

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mitigation was a factor that had to be considered during both planning and execution. Additionally, licensees were permitted to exercise various flexibilities, simulations, and artificialities within the bounds of published regulatory guidance and their own internal force-on-force testing programs with an understanding that these additional flexibilities can be removed once safe to do so. These actions result in a reduction in the total number of exemption requests in 2021 for annual force-on-force training requirements and a lot of inspections have to resume these important oversight activities. Next slide, please.

Lessons learned. Regarding inspector presence, while the staff showed a tremendous ability to adapt as well as flexibility, the ability to present onsite carries advantages that go beyond successfully completing an inspection sample. Person-to-person interactions such as speaking to officers on the job, observing hands-on applications, security tasks driven by procedures, and the ability to work through issues of concern onsite add value to the program and enhance ongoing professional relationships. Communication, the importance of

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effective and clear communication cannot be understated, and this applied both internally and externally.

Because the concept of partially remote inspections in security was new and consisted of many moving parts, NRC inspectors need to communicate with licensee staff early and often to ensure success. And crisp communication among inspection staff by any means necessary to ensure effective turnover and thorough sample completion in cases where one inspector might complete the remote portion and another inspector might decide at a later date to complete the onsite requirements. And then finally our last item, taking a do nothing appropriate during this time was not an option.

So the staff adapted well to leveraging inspection techniques not previously used before to accomplish the mission. In some cases, though, remote inspection required additional resources for both NRC inspection staff and licensing staff when during normal conditions an activity such as a walk down or a hands-on demonstration would be both better suited and more efficient. The picture on this slide depicts an armory and also demonstrates an excellent

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example of an item that is more efficient and reserved for onsite inspection.

Being present in the armory, reviewing weapon maintenance records, observing the condition of a weapon, and being able to talk to the armor in person while performing these activities collectively provides far more insight and perspective when compared to reviewing the records remotely, interviewing the armor by phone remotely, and then returning to the site sometimes months later to finally be able to walk down the armory to complete any remaining inspection items. While many remote inspection techniques employed the end result in some efficiencies, this wasn't necessarily the case for every inspection item. Next slide, please.

This concludes my presentation. I do appreciate the opportunity to share these perspectives with you. And my contact information can be found on this slide right here if you have any follow-on questions that we don't get an opportunity to address during today's session. Thank you all. And Mike, back to you.

MR. KING: Great. Thanks, Jared. Got a couple minutes for questions, and we've got one

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already. So obviously, you made some -- you presented a lot about some adjustments we made to our inspections in the security area. What impacts did it have and how did the NRC assess the impacts of COVID on licensee security staff?

MR. JUSTICE: So one of the things that we saw initially in the public health emergency was licensee staff was very aware that once one officer potentially got COVID-19, there was a chance that it could balloon outward and balloon outward very fast. So one of the things that we saw licensees do actually was create a pod concept where for a given site, say they had a number of posts. What they would do is they would cluster security officers in groups of three and four, and those officers would rotate among each other in order to reduce exposure to other officers who were also moving around in their own pods.

As far as impacts go, we did monitor that very closely with our licensees at the beginning of the pandemic. We did see some spikes with licensees. One of the things that we saw licensees doing though being proactive was they would actually get their security trainers trained up to be able to perform

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security duties and some of their other security staff that they had working just administrative jobs trained up and qualified so they could actually step in and perform as security officers because manning was a major concern during this time. And there was an obvious drive to maintain their commitments and their security plans.

MR. KING: Okay, great. And why don't we reserve the remaining questions in that area towards the end. I want to make sure we're staying on track to leave plenty of time at the end. So thank you, Jared. Next, I'd like to go ahead and transition to our third speaker. And so Ms. Cheryl Gayheart will be discussing the industry's perspective on long-term improvements and oversight and sharing important safety information remotely and some of the capabilities we leveraged during the pandemic. So Cheryl, it's all you.

MS. GAYHEART: Good afternoon. As Mike said, my name is Cheryl Gayheart. I am the fleet regulatory affairs director for Southern Nuclear, responsible for regulatory compliance, regulatory licensing, environmental, and nuclear oversight. Today, I'm here to discuss the utilities perspective

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of NRC oversight and inspection during the World Health Organization pandemic COVID'19. Next slide please.

So about a year ago almost to today, the increasing concerns over a worldwide pandemic emerged and forced the world and the nuclear industry to find new ways to conduct our business while simultaneously operating our nuclear stations at the highest levels of performance. Early in the pandemic, the industry and the NRC recognized the need for early and often communications on individuals plant needs, NRC needs to continue our commitment of keeping our people safe and ensuring the jobs performed by plant workers, resident inspectors, inspectors were seamlessly done. Early on in the pandemic, industry communication meetings between the utilities and the region were a valuable tool to understand our common needs.

For example, in Region II, a weekly meeting with utility representatives and the NRC was conducted as the pandemic progressed. From these meetings, best practices and concerns were discussed. For example, some of the things we discussed at the meeting were, as stated earlier, the transmission rates around different plants provided different

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challenges, protocols that were used to enter our nuclear facilities, and then how we handled some specific needs around supply chain for masks and hand sanitizer and things that were needed to keep our folks safe.

Through the series of meetings, we also determined that a need for both in person and remote activities was needed. Essentially plant personnel were protected, and non-essential plant personnel were provided at our utilities with options of performing work remotely using technology. The NRC residents' needs were also brought to the forefront to ensure that their needs were met.

The onset of the pandemic during what is known as -- in the industry as outage season meaning the time when the utilities enter into planned refueling outages where agile decision making was needed brought some of its own challenges. And some of the things, although I won't talk about a lot of them here today, we determined licensing solutions and exemptions to ensure that we had the right amount of people at our sites. And also the licensed operator exams for both requalification and initial were discussed so that we could keep, one, our

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operators safe, and two, the inspectors and others performing these exams safe.

Along with this and as Jared talked about, some challenges on large scale inspections such as security drills were looked at closely since it required many activities where social distancing and use of technology was very difficult. A new security inspection procedure was developed for security drills to demonstrate the needed requirements while keeping the utility and the NRC staff protected. The baseline inspections at the sites during the pandemic consisted of a mix of fully onsite, partially onsite, and a hybrid of onsite and the use of technology.

Each inspection was conducted with high standards and rigor. And inspection walk downs that were needed were either done at that time or a later time or bundled with other walk downs to minimize any risk during high COVID transmission times. Next slide, please. So recognizing through all this journey has changed.

We recognize that the results needed to be maintained and technology was extensively employed at the utilities and was used at the NRC: IT support

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enabled platforms such as Teams, Zoom, Webex, and other compatible platforms to be used across the industry. The platforms for virtual meetings all existed prior to the pandemic but were just not extensively used. Some of the features as you probably see here today, video can be used, chat can be used, the ability to raise your hand. Some of the very same things that were done at an onsite meeting could be done using these virtual platforms.

Both the industry and the NRC recognized that needed virtual access to the sites and these platforms and made that happen seamlessly. Of course, that was not without challenge and lessons learned. And the industry as well as the NRC as discussed here spent a lot of times talking about the lessons learned.

Meetings at each of the nuclear stations afforded flexible meeting attendance where station personnel and NRC were able to be in the meeting utilizing face-to-face attendance and flexible remote attendance. Also, baseline inspections done at the sites utilize the flexibility of the virtual platform for entrance meetings, exit meetings, as well as used by the NRC and the utilities to relay important

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information and answer questions. For example, at one of our facilities, we had a power operated valve inspection that happened early in the pandemic, and there was a question about something physical on one of the valves that the inspector had.

We were able to get a picture of that valve, put it up on the Teams site, and discuss and get the questions answered that were needed during real time using these technology platforms. Our residents and inspectors at our facilities were supplied with laptops to ensure that they continued to have realtime access to important plant parameters. Flexibility was also applied to schedules to allow the most important inspections to continue while protecting the critical plant employees, both from the utility perspective and the NRC perspective.

For example, during the power operated valve inspection that we had at one of our facilities, it did require walk downs of important valves. That could not be done safely because of the COVID transmissions. Those walk downs removed and done later on and still completed during the pandemic with the inspectors onsite. Next slide, please.

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So results achieved. A new way of doing business was utilized, and the results showed us that flexible technologies and schedules applied during the COVID pandemic had little to no impact on our baseline inspection results. For example, during major engineering inspections such as the design basis assurance inspection, or DBAI, were conducted with the same average number of requests and resulted in a similar number of average violations and unresolved issues.

While these numbers are not the measure of a successful inspection, it shows that we were able to work in ways that we had not considered in the past. So qualitative results that I talked about earlier, the flexible hybrid meetings onsite and partially offsite and use of technology gave the ability for more people to attend. Resident inspectors could attend remotely via the technology, and the corporate oversight such as myself could attend to observe a meeting or observe our people doing work.

We also qualitatively reduced travel time during these high risk times when the transmission was high in the areas. And that kept our people safe

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and people unnecessarily traveling when the transmissions were high. Next slide, please. So the future going forward. While our journey changed, the qualitative and quantitative results showed that flexible technologies and schedules that had to occur during the COVID pandemic had little to no impact on the ability to inspect a plant's activities.

The role of our resident inspectors and all inspectors being onsite is valuable. And continuing to use technology where appropriate provides flexibility. Use of a hybrid approach where in-person, virtual, and remote working were appropriate ensured that the work is accomplished while providing the efficiency that should be continued going forward.

The pandemic has clearly showed us that effective, efficient inspections can and should be used going forward. Results of the communications and IT methods employed were the subject of several NRC meetings as talked about earlier where lessons learned were shared, best practices discussed, and continuing to share lessons learned in how these can be applied in a non-pandemic time is critical and necessary. And that concludes my presentation

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pending any questions.

MR. KING: Thanks, Cheryl. And what you shared about your perspectives on the impact of remote inspections overall was very interesting. One of the questions we're getting here is as the NRC evaluates long term, what potential changes to make the inspection program.

Based on one of the inspections which particularly has a lot of resources involved and a lot of inspection staff involved is the design basis assurance inspections you're talking about. And that's for those unaware, it's a two-week long large team inspection with a week in between. From your experience, what sort of challenges which surprised you popped up during the course of those inspections as a result of it being -- some of it being significantly remote?

MS. GAYHEART: Yeah, great question there. As far as what surprised us, what didn't surprise us, I guess, was the interaction between the inspectors and the employees on the Teams. We were able to -- of course, there's kinks in technology from time to time. We all experience that.

But we were able to get on the Teams call

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pretty quickly to share -- do entrance meetings, share information. One thing early on in the pandemic since it was all new, we found that we were spending a lot of time on the Teams calls going through stuff probably more than we would if people were in a room. But of course, it was new and we were working through those challenges.

The one surprise was the use of that technology when there were questions on specific plant equipment. We have extensive pictures and drawings that can be shared over these platforms. And actually, when I heard about the example of the valve picture being brought up and answering questions that the inspector had, that surprised me and made me think of things differently.

MR. KING: Okay, great. Let's see. Yeah, we do have another one here. Does the industry see any new uses of technology as a result of the pandemic? I know you spoke to the commonly used file sharing and video conferencing. Anything else?

MS. GAYHEART: Yeah, I think the use of more innovative ways to display our data, to look for having the dashboard concept for our data. I think definitely technology can help us there, and I know

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we are pursuing at our utility some of those items. We do a lot of things the way we have done them for a long time with manual data entry. So I think there's a lot of opportunity to utilize technology platforms for the data that we have at our plants.

MR. KING: Okay, great. Well, now I'd like to introduce our final presenter, Dr. Edwin Lyman. He'll be discussing the Union of Concerned Scientists' perspective on the NRC's pandemic response. Dr. Lyman?

DR. LYMAN: Yes, thank you. Yes, may I have the next slide, please? So I'd like to thank the NRC for inviting me to provide our perspectives on this very important issue. So I'd like to say it first that I'm incredibly impressed by the way the NRC and the industry stepped up to this challenge. I admit at those panicked early days, I was very concerned about the potential impact of COVID on nuclear plant safety and security.

And so I looked at what the discussions that had been going on in the 2008-2009 time frame about potential pandemic impacts on reactor inspections and oversight and didn't seem like they had come to any firm plan or any agreement on how to

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do those best. And so it was kind of an unresolved issue. And it looked like the NRC and the industry would have play catch up really fast once COVID struck.

Now it's a little hard, I think, to extract what the lessons learned are yet because there still is a public health emergency. Obviously, things are better now. But I think it's still premature to make any conclusions as we see how things pan out.

And the future still remains uncertain. And that future could have a big impact on the way things go moving forward, concerns with the legality of private employers, mask and vaccine mandates, for example, and how the world may move forward living with COVID, whatever that means. Both, I think, will have an impact on the long-term future safety and security. Next slide, please.

So my concerns, those first early days, the NRC did provide its guidance on enforcement discretion and its template for exemptions. And many of those exemptions were critically taken advantage of by licensees. Overall, about 40 percent asked for and received Part 26 work-hour limit exemptions.

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This was a concern of ours because of the very important role of having well rested operators to do their jobs and security forces. And after the 9/11 attacks when there was kind of somewhat analogous crisis situation, especially for the security personnel at nuclear plants, the impact of long work hours and fatigue led to this reconsideration on how to control that. So the idea that these exemptions -- these work hour limits would be raised across the board was a concern.

And I know there were requirements put into place for fatigue evaluations and other ways to mitigate this. But it did look like at the beginning, this could've had a significant impact on safety. And some plants have had repeated -- have applied for and gotten repeated exemptions like for me too from these work hour limits.

But they're not all -- and I didn't have the time to actually count or figure this out. But relatively few actually exercise the exemptions. And they were generally used sparingly for operators and security personnel. So I think that was good. There are also, of course, these numerous relief requests for inspections the licensees claim would require

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close contact or offsite contractor travel.

And so these were also summarily granted, in many cases, deferring steam generator inspections, valve testing and the like. So one question is, what was the cumulative impact of safety or on safety of all these things taken together and the potential for overworked operators, deferred maintenance and testing, these lower number of inspection samples that we heard about, deferring emergency preparedness exercises, and then, of course, all overlaid with the stress and anxiety of the pandemic on plant personnel. Looking at the totality of that was concerning. Next slide, please.

And so first, it's not clear yet what the impact of the pandemic on inspection findings was. This curve illustrates the trend that was already taking place in the reduction in findings year over year. There was a dip in 2020, and this is an old slide, actually, a few months old already.

And my understanding is it's starting to rise again where 2021 is actually greater. And that dip in 2020 may well reflect the effects of lists onsite inspection activity. So that might be some temporary reduction in the ability to detect

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violations because of that, that switched to some remote inspection. Next slide, please.

So what was the practical impact on safety? Now I'm looking for data, and I hope that the NRC will collate and provide this once we've come clear of the last few years. But counting non-scientifically, it doesn't appear that there was a surge in unplanned scrams pers 7,000 critical hours. That's the performance indicator.

So it's a crude measure of performance. But at least we didn't see the spike that was due to fatigued operators manipulating valves that hadn't been inspected and failed ant all that kind of stuff. So I didn't see -- there's nothing in that very crude measure that would indicate there was a huge effect on safety.

But of course, you can't discern any trend from this data. And I looked forward to again a more systematic analysis. And I think that would be necessary just if there is some signal from all the issues and the cumulative impacts I talked about.

But then there is the -- I did notice anecdotally that there were a number of scrams that were due to operator and maintenance errors and age-

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related degradation. And I don't know if those may have been -- if some or all that may have been averted if they were more -- if we hadn't had the pandemic. But again, I'd like to see some data on that.

But the concern is if the situation drags on, if things worsen again, if the NRC and industry have to enter into this long-term modification to the normal practices, there'll have to be some thought about how to make adjustments to address these potential cumulative and long-term changes. Next slide, please. And then there's the issue of security. And we've already heard quite a bit about that.

But I'd like to point out that there were lots of security-related exemptions that were granted, especially in 2020. And not only the work-hour limits for security forces, but also those whole range of training and requalification exemptions including enabling staff who are qualified to be able to take armed responder positions and the security positions in this contingency. We heard about the many exemptions to licensee-run force-on-force exercises. And again, what was the cumulative effect of all these factors on security performance overall?

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Next slide, please.

And so there were a lot, as I said, security exemptions granted. In fact, doing my count, if I didn't make a mistake, every station except for four actually got at least one security-related exemption. And those four all actually asked for emergency preparedness exemption. So I don't know what they were doing better or what they knew that the others didn't.

But it was a pretty overwhelming need for security exemptions. And we did hear that certain exemptions were not renewed. And I take it this was because of relaxing some of the guidance for these self assessed -- annual self assessments. Next slide, please.

And my concern, especially at the beginning, was that there may have been some double standards here where licensee is using the excuse of COVID to avoid inspections that they generally don't like, like force-on-force inspections. And there were these stories of licensees pleading that they couldn't hold these inspections because they would violate social distancing protocols. But offsite, I heard these stories, I don't know if they're true,

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that the staff -- securities staff would go out to eat or to the bars afterward and possibly contributing to COVID outbreaks.

Now if that's the case, it's a little frustrating. And again, other activities continued despite the pandemic that were in the interests of licensees, for instance, the refueling outages as well as the Vogtle construction despite again stories of outbreaks at those sites. Next slide, please. And overall, as with the safety findings, security findings have also been going down.

And again, I don't know what the impacts of the last couple of years have had on either the number of findings or the number of significant findings. Next slide, please. And we did hear about the suspension of force-on-force inspections which again completely understandable, especially at the beginning, but again, raise the issues of how the NRC was going to conduct adequate oversight given all the security exemptions that it would grant. Next slide, please.

And we heard also about the limited-scope drills which my understanding is through the artificialities and the limits of those drills did

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not -- really limited the ability of the NRC to conduct the comprehensive security oversight. And so there was a quick move to try to maximize the number of actual force-on-force inspections also in compliance with the NRC's legal requirements under the Energy Policy Act. Next slide, please. And the NRC, to its credit, I think was very aggressive in trying to maximize, like I said, the return to force-on-force inspections despite I would say industry pushback.

But there were in 2021 12 force-on-force inspections with COVID mitigation protocols which themselves may have some limited impact on the evaluation. And in this context, again, moving forward, what is the NRC going to do in a situation where agencies continue to argue that they cannot go through these security inspections that involve close contact when they're not adhering to vaccine or mask mandates should they be warranted. So you have a situation where the NRC may be limited in its ability to conduct oversight because the private licensees are not doing what they need to do to ensure the security force is fully protected. And this is a difficult issue, of course, but it's one has to think

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about. Next slide, please.

And we did hear about the artificialities and the force-on-force. And again, I think the NRC is aggressive in trying to move past that as soon as possible. Next slide, please. So what about the future? There was a lot of talk over the last couple of years about these efficiencies and obtained from remote inspections, et cetera.

And possibly they could be normalized. I think it's become clear that the tangible aspects of onsite inspections and these boots on the ground and the personal interaction aspects are critical. And so I don't see -- although there are certainly some efficiencies and innovations, especially in technology, that could be brought to bear, I don't think talk of trying to normalize a reduced inspection regime in times beyond the pandemic are appropriate. Next slide, please. And that's it. Okay. Thank you.

MR. KING: Thanks, Dr. Lyman. So before we transition to full open question-and-answer session, we did get one question for you. And I think you touched on this as part of your presentation. But maybe this will prompt some

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additional thoughts. In what ways did the NRC ensure public confidence from your perspective during the pandemic? And what could we have done better?

DR. LYMAN: Well, it's hard to second guess. Again, I think it was extremely difficult choices that had to have been made. The NRC had to protect its personnel like every other workplace environment.

And these were very difficult and challenging questions. So I don't fault anything the NRC had done. One thing, the exemptions that were granted, there was this kind of proforma aspect to them.

Usually they were granted orally, at least the beginning of the pandemic. It didn't necessarily appear like there was as much review possible as might have been appropriate, especially in these cases where it looked like maybe they weren't fully justified. But otherwise, I don't -- I can't point to anything that would say they were not responding.

When compromises were being made, that they weren't responding to a direct need to protect public health and safety of their personnel. And

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it's just an extremely challenging environment. And again, I think I commend everyone. But more thought will have to be put into these deferrals of maintenance and inspections, especially if the situation is prolonged because it's not clear how much longer some of these deferrals can be carried out safe.

MR. KING: Thanks, Dr. Lyman. And I'll just share a perspective. I know as the pandemic kind of churned on and we had gone through an initial round of exemptions. We did put -- we did ask ourselves a lot. Okay. Now what do we need to do when these folks get to the point to where they feel like they need another round of exemptions?

So as part of that, we did add the requirement for them to consider the cumulative impact of those extension requests. But it's definitely an area we need to remain focused on. Thank you for that.

Okay. So all of you out there, please don't be bashful. Ask your questions now. The question queue is a little quiet. I'm wondering who else is out there. So don't be shy. Please chime in with some questions.

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We do have a couple that we did get teed up here. And so Jared, looks like you are the lucky customer. There's a lot of questions related to your area. So maybe the first one is, to what degree was the oversight and preparedness plans revised, if any, as a result of the pandemic?

MR. JUSTICE: Thank you for that question. Just being completely honest, emergency preparedness is not my area of expertise. What I can talk about, though, is security. And as Dr. Lyman mentioned, security exemptions were issued during that initial year. And they are to some extent still being issued if they're warranted.

But as far as security plan goes, there are no specific revisions that were made to security plans to account for these different things that needed to be done. The focus really shifted to, what do licensees need to do to maintain compliance with their security plans? And what do they need to do to be able to maintain adequate protection of their sites?

MR. KING: Okay. Thanks, Jared. And I know since we don't have an emergency preparedness expert on the line from the staff, I know a number of

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licensees did get their requirements for how periodic they have to do their emergency exercise drills. And a number of them, as Dr. Lyman mentioned, got backed to the end of the window with which they had to have those accomplished, and due to COVID concerns, didn't feel like it was prudent to bring folks together to do that piece.

So we did have a number of plants in that situation. And so a number of those exemptions or emergency preparedness exercises did get deferred. So they'll still have to be done. They'll just have to be done later.

And in each of those cases, every exemption that we provided for a licensee seeking relief, those were not done in a vacuum. We were keen to make sure inspection staff were fully aware of those. So as they're going about their inspections, the opportunities they got on site. So they were able to take a look at that. Any other thoughts on that question before we go to the next?

MR. JUSTICE: No other thoughts from me on that, Mike.

MR. KING: Any other panel members?

DR. LYMAN: Yeah, just point these are

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kind of perishable skills, right? And that's why there is (inaudible) the emergency preparedness exercises. So again, I would encourage every effort to be made to restore those to a normal schedule.

MR. KING: Okay. Thank you. And we did get a request to repeat an ML number I provided earlier for the initial COVID lessons learned. And so not to catch somebody without their pen or pencil, I'm just giving you a fair warning. Next round, I'm going to repeat that ML number. And also be aware this will be recorded and available afterwards as well in case you do miss it.

So we do have another question. And maybe this one is more -- maybe we'll start with you, Mark. And maybe Cheryl, you might have some perspective on this, of course, Dr. Lyman as well. To what extent was maintenance delayed during the pandemic? And do we see any effect on plant performance or reliability as a result of that? So Mark, why don't you start and we'll see who's interested in weighing in later.

MR. FRANKE: Yeah, thanks, Mike. And I'll let Cheryl respond to her perspectives on the deference of maintenance. But what we've seen so far

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in the trends of the data that we have now, we're not seeing appreciable trends in plant performance, the types of inspection issues that were identifying. There's not a feasible trend in, for example, a greater number of maintenance-related findings or attributed to lack of maintenance issues.

We fully appreciate the question and understand that the long-term impacts of the pandemic will be more fully realized as we have more opportunity for time to experience those. But we continue to monitor that. We continue to monitor through our inspection activities, through the data that we get, through the PIs, the performance indicators. And certainly those trends are something that we would be looking for.

MR. KING: Cheryl, any thoughts?

MS. GAYHEART: Yeah, a few thoughts on that. One, for our site, and I talked about it in my presentation. Refueling outages especially bring unique challenges because we are bringing workers that go from plant to plant to do some of these activities.

And we didn't not do any major maintenance. I will tell you some of the major

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maintenance that we did took a little bit longer. And we had to be creative about how we had people staged to go into certain areas where they couldn't social distance.

We did something called contact tracing where people would write down who they were in contact with. So if somebody said, hey, Susie got COVID. Well, I was in contact with Susie. Now we would know that that would be a worker that we would want to quarantine from some of the work. But there was no major work delayed at our site. It's just that during the outages, it did take a little bit longer to get done because of the social distancing aspects.

MR. KING: Great. Dr. Lyman, I know your organization monitors things pretty closely. Did you see any data that might be insightful?

DR. LYMAN: Yeah, I mean, I don't really have the capabilities. Like I said, there was anecdotal incident. But I don't know if you make a trend. But I guess I would say I'd be curious if they were going to be any thought to possibly doing some more intensive inspections to kind of compensate in certain cases where there may be questions about the impact of deferred maintenance. So I don't know

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if that's part of the plan or not.

MR. KING: Yeah, and before I tee that one up for response, as promised, I'm going to give out the ML number. So have your pen and pencil ready. And this is the initial lessons learned report. It's ML No. ML20308A389.

And I can offer this up for those others to speak to. I know as we did go about issuing the exemptions and looking at our inspection program, we concluded that ultimately the existing inspection procedures that we have in place would be sufficient to monitor if there are any adverse impacts of that. So Jared, can you speak to the -- specifically with regards to the exemption piece of that?

MR. JUSTICE: I certainly can. So the main areas for security exemptions were fitness for duty, work-hour controls. Then you had annual training aspects related to licensee force-on-force programs and some of the other requirements dealing with weapons qualifications and a couple of other items in there.

So first, addressing work-hour controls, the important thing to remember is that licensees weren't exempted from any of the other parts of their

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fitness for duty programs. And the one major part that pops out in my mind is a behavior observation program and behavior observation program reporting which was still in effect at the time. And the program, if operated properly, would still identify any opportunity for them to identify an individual who's not fit for duty.

And that includes the effects of fatigue as well. So there's no additional oversight that we planned for those activities. But as you already mentioned, the rest of the inspection procedures were still in place.

And we're still looking at the other aspects they have in place to continue to monitor fitness for duty. With security exemptions, again, 2020 was a really unpredictable year for lack of a better term. So the main driver was to focus on those activities that required large scale gatherings and close contact for licensees to carry out.

And that's why you saw those exemptions that were particularly targeted for that. All other security training requirements remain in place. And that includes items such as training qualification for security patrols, training qualification for

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vehicle searches, quarterly tabletop drills, which all provided avenues for licensees to continue requalification, continue the aspects that are important to the program.

And I think when you look at 2021, the restart of force-on-force annual exercises for licensees, we did allow flexibilities with licensees' plan and what they were doing, allowing them to use additional flexibilities. But we recognized that it was important for them to be able to continue to exercise that while still recognizing that the COVID-19 public health emergency was still real when we were still seeing peaks and troughs with case counts. I think that more than anything else demonstrates that we do recognize that those are perishable skills.

They don't just drop off a cliff at the one-year mark. There is a steady decline to it. But we recognize it's 2021 that we had to do more than that, and that restarting that even with additional flexibilities was a better approach than doing nothing at all.

MR. KING: And Dr. Lyman, I know your question was a little more focused on client

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performance and reliability of equipment and impact of perhaps deferred maintenance or other things. We have a pretty robust operating experience group. In fact, it's one of my divisions.

And they are continually monitoring any event reports, other activities, and we have access to a database of equipment reliability information. And as you mentioned yourself, one or two data points don't make a trend. And we're still in the middle of this.

But preliminarily, we're not seeing it. Similar to what you observed with scram trends, we're not seeing anything obvious that's jumping out that, hey, we're seeing some sort of impact as a result of things that are being deferred or delayed. But it is certainly an area of focus for us in our inspection program.

Okay. So we got -- unless anybody else has additional perspectives on that. Oh, okay. So we got another question. And this one is a little different than the others, and it's getting at beyond our experiences so fair.

And I think it's digging a little bit more into technology. Any thoughts on how you might

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use artificial intelligence or machine learning to improve the effectiveness of our NRC inspections? And since I mentioned operating experience group, they're very plugged in with our Office of Research who's actually laying out an artificial intelligence strategic plan and roadmap.

And so as part of that, that is us taking a more proactive look at how we can use that technology to improve either our preparing for inspections or conduct of inspections. And we certainly leverage data a lot more recently with our map and map initiatives to enable inspectors to more easily access operating experience data as they're preparing for inspections. And it's really enabled -- it makes it very easy for them.

And unfortunately, I can't show it here today. But it makes it very easy for them to -- if they're going to conduct an inspection on a particular pump or system to be able to quickly tell, hey, has there been any failures of this in the past? If so, what sites it was, quickly link to any information related to those failures to help inform them. But any other thoughts on that from any panel members?

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MS. GAYHEART: Mike, I had one thought on technology of something that we're looking at. We're actually looking at it in the training realm. But it's, like, a little robot on wheels.

It's like an iPad on wheels if you can picture that, that could be used around the room for interactions, both with somebody like we are today, talking on technology but able to actually see what's going on. So yeah, I think that type of technology is -- we talked a lot -- drones are around -- we've used drones before. But that type of technology where you can actually do an interface back and forth I think has a lot of merit for the future.

Again, a lot of things to work out there. But the robot on the wheels is probably something that we saw, like, in Star Trek or something. But it could be reality for us.

MR. KING: Dr. Lyman?

DR. LYMAN: And just one point I'd like to make, I little different, is the use of computer model security vulnerability assessments. And I guess some people might wonder why you have to do these in person at all if you can just build a great computer model to simulate it. And I guess the

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answer to that is there is significant limitations in aspects of those models that are simply lack realism and also can be manipulated. So I guess I'd ask Jared if he had any insight. But I know there was that question of how much reliance on the simulation could you do in lieu of actual physical performance evaluations.

MR. KING: Thanks, Dr. --

(Simultaneous speaking.)

MR. JUSTICE: Yeah, I do have some thoughts. We do see licensees using simulations to assist them with making changes to their physical security program and protected strategy. At this point in the game, though, what we're seeing that it's being used to inform changes that might improve their program or they might be able to implement to make the program stronger.

But it's always backed up by field data. We're not at a point right now where we're in a position where we can look at simulations as a replacement for force-on-force exercises. We do look at that when we go out to a licensee site.

We inspect their security plan. If we see they've made changes to it, it's part of the data

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that we would look at. But at this point right now, we're always expected field data to back that up to verify that. When people are on the ground and they're implementing more strategy, they're able to do it according to what the data suggests and what their field data suggests as well.

MR. KING: Great. Jared, you're very popular today. This question is probably coming at you. So the question is there was some discussion about work-hour control exemptions during the pandemic.

But these controls did not eliminate the work-hour limitations. Instead, implemented alternative work-hour limits to ensure fatigue was managed. Could you discuss what the alternative work-hour controls were implemented as part of the exemptions?

MR. JUSTICE: Thank you. And just off the top of my head, we saw a lot of exemptions come through in 2020 and then again flagged over the last year. So my knowledge of it isn't quite up to date as it was back in 2020.

But one of the things was a limitation for how long the alternatives could be used. And I

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believe it was a 60-day mark. And licensees also had to continue to monitor their employees for the affects of fatigue.

And one of those things that I mentioned was behavior observation program. It wasn't just ignoring of fatigue as a factor. It was more recognition that licensees might need to exercise that flexibility.

And they might need to do something to be able to control potential outbreak onsite and still meet their staffing requirements. But licensees always had to continue to remain aware of what the affects of fatigue were. And work-hour controls were just exempted for a very short period of time. So licensees had flexibilities while still monitoring them for the affects of fatigue.

MR. KING: Any other thoughts on that?

(No audible response.)

MR. KING: Okay.

(Simultaneous speaking.)

MS. GAYHEART: I can add one thing on that, Mike. Like Jared said, I don't have it in front of me. But the exemptions were not -- they didn't go to no exemption. You went from what's

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currently in the regulation.

For example, I believe -- and I'm going off on memory here because I don't have it pulled up. But I believe it allowed like instead of a seven-day, you got an extra day on there. So you still had to keep track of what people were working and you had to do observations. And so it was definitely relaxed, but it wasn't zero. We still had to make sure that people were properly rested and ready to do their work.

MR. KING: Okay. So just a time check here. We've got about seven minutes left. So if you've got a burning question, now is your chance. So Mark Franke, maybe this question might be in your area. If not, we can discuss it and see who's got thoughts here. For any inspections that may have been missed as part of the pandemic or as a result of the pandemic -- and I'm thinking of some of the containment walk downs and outage inspection perhaps -- what actions did the NRC take or will you take as a result of that?

MR. FRANKE: So I wouldn't speak to specifics here. But I think the answer really is in that our inspectors, the resident inspectors, and

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region headquarters-based inspectors are always cognizant of what we have looked at in the past, what we haven't looked at. And we do seek to ensure that we're covering all the bases in a risk-informed manner. So I have confidence that if there was an area that maybe we didn't walk into, didn't sample because of the pandemic risks that that would be on our list to inspect at the next available opportunity, again, as a risk-informed sample.

MR. KING: If there's any other thoughts on that. I'll share my perspective as well. Each year, we sort of go through a process of certifying that we completed our baseline inspection program. And in fact, that happens every quarter.

All the planned inspection samples, we look back and say, did we do it or not? And so as part of that effort, it kind of forces us to reflect and say, okay, were there things we couldn't do because of plant conditions or other things? And those things happen even without a pandemic.

Sometimes you're just not in that situation where you can do a sampling you planned to do. So our handling of those issues is not necessarily new with a pandemic. I think what the

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pandemic has added is an additional layer of catchup things.

Some of the larger theme inspections perhaps were deferred. So they're still going to be done. It was in the more notable larger inspections are likely handled that way.

But some of the smaller things which perhaps walking down containment before they close it coming out of an outage. And because of COVID conditions, we couldn't do that. Obviously, we can't go back and do that over again. We'll just get to it when the pandemic is over at the next opportunity they open containment up.

And all the residents are very keenly aware of where we're at in our inspection program. We've got a whole group of project managers who kind of manager all that, keep track of it. So hopefully that helps answer your question. Any other thoughts on that by the panel members?

(No audible response.)

MR. KING: Okay. It looks like we got a few other questions coming in here. Oh, I was wrong. We're starting to slow down on questions. Now's your chance. You'll get immediate queue access.

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Okay. So we do have another one here. It's a little bit -- okay. So will the NRC consider its ROP enhancement efforts -- reconsider our ROP enhancement efforts as a result of the pandemic? It's a good question, and I'll start it off as the program office.

Very familiar with our efforts in that area. And some of you may not be as familiar as others. But we had a couple of SECY papers before the Commission.

One was an ROP enhancement paper that recommended a number of changes to the programs and one was a change to the engineering inspection program. And we recently requested to pull those papers back because it'd been a couple years since those papers were submitted. And we felt like there was new information that we could use to inform those recommendations.

So our plan is to submit them back to the Commission. Obviously, since those original papers were developed, the pandemic is clearly something new that wasn't considered at the time. But our working group efforts that we had look at those, we're very familiar with our -- we had already conducted our

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initial pandemic lessons learned.

And so they're factoring in what we've learned. I can't point to anything I know of right now where there's clearly been a change to our recommendations or a significant change as a result of what's come out of the pandemic. But I'd offer it up if there's anybody who had perspectives there or perhaps thinks there should be things we should consider. Please chime in.

(No audible response.)

MR. KING: Okay. So the final thought on that one is, and the reactor site process. One of the strengths of the process is it's a living program. And so at any given point in time, even after we make a change, the program has us go back - - and if it's a significant change, especially those that require Commission approval, has use go back and do an effectiveness review later to ensure (inaudible).

So I'm confident whatever changes we make, we'll monitor it. And if we need to adjust, we'll adjust along the way because we're definitely a learning organization that way. Okay. I don't see any new questions. I'll offer it up since we

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have a minute. Any final thoughts from any panel members?

DR. LYMAN: Well, maybe just on that last point. I was trying to think about where the enhancement might fit in. Maybe it's another reason why PI&R inspections should not be spaced out more than they are because in this situation, we may be relying more on licensees on corrective action programs that inspectors have less site access. And maybe you want to take a harder look at their own self assessments when you have the opportunity. I'm just throwing out there as well.

MR. KING: Yeah, I thought it was an insightful question. Okay. Well, we're at our time limit. I'd like to thank each of our fine panelists for their attendance today and active participation. And everyone in the audience who tied in to listen, thank you for your questions and comments.

As a reminder, all the presentations are available online on the public website. And if you have any additional questions, you can find all our contact information on the public website. So with that, thank you everybody and have a good one. This session is over.

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(Whereupon, the above-entitled matter
went off the record at 4:30 p.m.)

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