OFFICE OF THE INSPECTOR GENERAL

U.S. NUCLEAR REGULATORY COMMISSION
DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Audit of the NRC's Pandemic Oversight of Nuclear Power Plants

OIG-21-A-13
August 4, 2021

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

OFFICE OF THE
INSPECTOR GENERAL

August 4, 2021

MEMORANDUM TO: Margaret M. Doane
Executive Director for Operations

FROM: Eric Rivera ***/RA/***
Acting Assistant Inspector General for Audit

SUBJECT: AUDIT OF THE NRC'S PANDEMIC OVERSIGHT OF NUCLEAR POWER PLANTS (OIG-21-A-13)

Attached is the Office of the Inspector General's (OIG) audit report titled *Audit of the NRC's Pandemic Oversight of Nuclear Power Plants*.

The report presents the results of the subject audit. Following the July 26, 2021, exit conference, agency staff indicated that they had no formal comments for inclusion in this report.

Please provide information on actions taken or planned on each of the recommendation(s) within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG followup as stated in Management Directive 6.1.

We appreciate the cooperation extended to us by members of your staff during the audit. If you have any questions or comments about our report, please contact me at (301) 415-5915 or Paul Rades, Team Leader, at (301) 415-6228.

Attachment: As stated

Office of the Inspector General

U.S. Nuclear Regulatory Commission
Defense Nuclear Facilities Safety Board

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Results in Brief

Why We Did This Review

As the COVID-19 public health emergency unfolded in early 2020, the U.S. Nuclear Regulatory Commission (NRC) and licensees operating nuclear power plants responded to protect their employees and continue operations.

The NRC and licensees implemented an array of COVID-19 precautionary measures and protocols to protect employees. The NRC used inherent flexibilities in the Reactor Oversight Process and hybrid inspection approaches to complete baseline inspection procedures while protecting NRC and licensee personnel health and safety.

NRC inspectors largely exceeded the minimum baseline inspection procedure sample requirements, but COVID-19 conditions presented challenges to completion of some inspection procedures.

The audit objective was to assess policies and procedures for conducting reactor inspections during the COVID-19 public health emergency and to identify best practices that could be applied during future pandemics or other public health emergencies.

Audit of the NRC's Pandemic Oversight of Nuclear Power Plants

What We Found

The OIG found that the NRC successfully adapted its inspections of nuclear power plants to meet its mission of obtaining reasonable assurance of adequate protection during the public health emergency while mitigating the risks of COVID-19 to NRC inspectors and licensee staff. However, the agency's pandemic lessons learned process should include consideration of the possible impacts of adaptations to oversight processes on inspection results.

NRC management should obtain and communicate the best quality information to be able to identify and analyze potential risks from future changes to the operating reactor inspection program. The agency has conducted two different assessments of the inspection program during calendar year 2020, a preliminary lessons learned report and the annual self-assessment of the Reactor Oversight Process. The assessments were not performed at a detailed level that considers all available inputs and provides a full understanding of both benefits and drawbacks.

The agency carries out its mission in a changing environment. Without a detailed review, management may not be able to identify optimal outcomes for potential inspection program changes for pandemic or other irregular conditions.

What We Recommend

This report makes one recommendation to conduct an assessment that presents agency management with options for modifying inspection program documents and procedures to give staff flexibility for conducting inspections under irregular conditions.

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ABBREVIATIONS AND ACRONYMS

AEA	Atomic Energy Act of 1954, as amended
COVID-19	Coronavirus Disease 2019
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OIG	Office of the Inspector General
ROP	Reactor Oversight Process
RPS	Reactor Program System

I. BACKGROUND

On January 31, 2020, the U.S. Department of Health and Human Services declared a public health emergency for the United States to aid the healthcare community in responding to Coronavirus Disease 2019 (COVID-19). On March 11, 2020, the World Health Organization characterized the COVID-19 outbreak as a pandemic.

Response to the Coronavirus Public Health Emergency

As the COVID-19 public health emergency unfolded in early 2020, the U.S. Nuclear Regulatory Commission (NRC) and licensees operating nuclear power plants responded to protect their employees and continue operations. The NRC and licensees implemented an array of COVID-19 precautionary measures and protocols to protect employees. Mandatory telework for NRC employees[1] included regional inspectors, whose scheduled inspections were postponed or performed remotely, and resident inspectors, whose frequency of onsite coverage was reduced.[2] Licensees reorganized work processes to protect their employees. For example, licensees limited control room access to protect the licensed operators, structured security forces into smaller groups to prevent cross-shift infections, and changed operational activities to accommodate social distancing.[3]

Exemptions Granted

The NRC outlined specific regulatory requirements for which licensees could request exemptions to defer certain activities or qualifications. Public health restrictions during the pandemic imposed challenges that

[1] Mandatory telework for NRC employees became effective March 20, 2020.

[2] When not onsite, resident inspectors continued to perform routine plant monitoring activities, such as discussions with plant operators, attendance at licensees' daily meetings, and analysis of plant data, through the use of information technology. Regional inspectors completed procedures remotely, either wholly or in part, when travel to sites was restricted.

[3] NRC staff also continued to conduct initial operator licensing examinations, ensuring a steady pipeline of qualified operators, while taking precautions to minimize exposure to COVD-19.

made these specific requirements difficult for licensees to meet. The exemptions addressed a range of situations.[4] Licensees in the middle of scheduled refueling and maintenance outages had to address disease mitigation among enlarged onsite workforces. Requalification for certain types of work required medical physical examinations that could not be obtained. Exercises or drills that entail mixing large groups of people could not be carried out timely. The narrow areas defined for these exemptions were considered on a case-by-case basis and were granted for specified time periods with the opportunity to request an additional exemption if needed.

The Reactor Oversight Process

While responding to emergent situations, the NRC also considered how best to implement the baseline inspection program of the Reactor Oversight Process (ROP) in continuing pandemic conditions. The period of mandatory telework for inspectors continued through May 28, 2020,[5] when the NRC regions were encouraged to begin scheduling and implementing team and individual inspections as local conditions, plant risk configuration, and inspector health and safety permitted, while continuing to leverage technology where appropriate to accomplish inspection objectives. During that period the NRC Office of Nuclear Reactor Regulation (NRR) reviewed existing inspection program guidance and determined that no fundamental change to the ROP was necessary.

The baseline inspection program is a key way the NRC obtains information about licensee performance under the ROP, and it is complemented by performance indicators, follow-up to licensee events and associated event reports, and other inputs into performance assessment.[6] The ROP baseline inspection program comprises inspection procedures across seven safety cornerstones. Inspection procedures may be performed by resident inspectors or by region- or

[4] Information about specific regulatory flexibilities and resulting licensing actions can be viewed on the NRC public Web page regarding COVID-19 Regulatory Activities for Nuclear Reactors.

[5] The NRR issued a memorandum on May 28, 2020, entitled, "Inspection Guidance During Transition From COVID-19 Mandatory Telework."

[6] Inspection Manual Chapter (IMC) 0308, *Reactor Oversight Process Basis Document*, describes the development of the ROP framework and how it is implemented, and IMC 0308 Attachment 2, *Technical Basis for Inspection Program*, describes the risk-informed approach to develop inspectable areas. IMC 2515 Appendix A, *Risk-Informed Baseline Inspection Program*, discusses how the inspection procedures address the inspectable areas.

headquarters-based inspectors. Each procedure defines risk-informed inspection activities. Inspection activities constitute one or more inspection samples. Each procedure has a specific range of inspection samples required for completion: minimum, nominal, and maximum. Procedure frequency can be annual, biennial, triennial, or when required by licensee activity. This structure includes flexibilities that were managed to support program completion during calendar year 2020. The flexibilities included:

- Establishing the completion target for each inspection procedure as the minimum of the range of required inspection samples;

- Deferring some scheduled biennial or triennial inspection requirements to later in the cycle, and completing annual regional inspections later in the calendar year;

- Selecting risk-informed inspection samples based on safety systems, licensee activity, and licensee performance; and,

- Publishing an updated list of qualified headquarters staff who could support regional inspections, if needed.

Pandemic Implementation of the Inspection Program

Using inherent flexibilities in the ROP, the NRC largely completed the baseline inspection program for calendar year 2020. Inspectors completed almost all annual or "when required" inspection procedures at nearly all nuclear power plants in calendar year 2020. Frequently, inspectors were able to exceed the minimum sample targets for completion. However, some specific inspection procedures presented challenges to completing the entire baseline inspection program. In several instances, inspectors began inspection procedures, but could not complete all required inspection activities within the procedures. Table 1 shows the licensee sites where at least one inspection procedure could not be completed.

Table 1: **Sites With At Least One Inspection Procedure Not Completed in Calendar Year 2020**

Region	Site Names	Inspection Procedures Not Completed at Sites
I	Nine Mile Point Salem, Hope Creek	71111.20 71130.03[7]
II	Catawba, Hatch, McGuire, North Anna, Oconee	71111.20 (all sites)
III	Braidwood Byron Davis-Besse Dresden Fermi Perry Point Beach Quad Cities	71124.01 71111.20, 71124.01, 71130.02 71111.11B, 71111.20 71124.01, 71130.02 71124.01 71111.11B 71124.01 71111.20, 71124.01
IV	Callaway Palo Verde Waterford	71124.01, 71130.14 71124.01 71124.01

Source: OIG analysis of NRC data.

Two inspection procedures with required samples tied to refueling outage activities caused most of the incomplete inspections.[8] If inspectors missed opportunities to perform those inspection activities due to health and safety measures, there was no way to make them up in the remainder of the year.

Exercise-related inspection procedures involving large groups of participants also posed significant challenges. To address emergency preparedness biennial exercises, the NRC coordinated with the Federal Emergency Management Agency to separate the biennial onsite and offsite exercises required in regulations, as local conditions allowed.[9] The NRC could neither perform nor reschedule full scope Force-on-Force

[7] NRC staff completed IP 71130.03, *Contingency Response – Force-on-Force Testing*, at one site in 2020. Staff began the procedure at more sites, including Salem and Hope Creek, but could not complete or reschedule the procedure at additional sites during 2020 because of COVID-19 conditions.

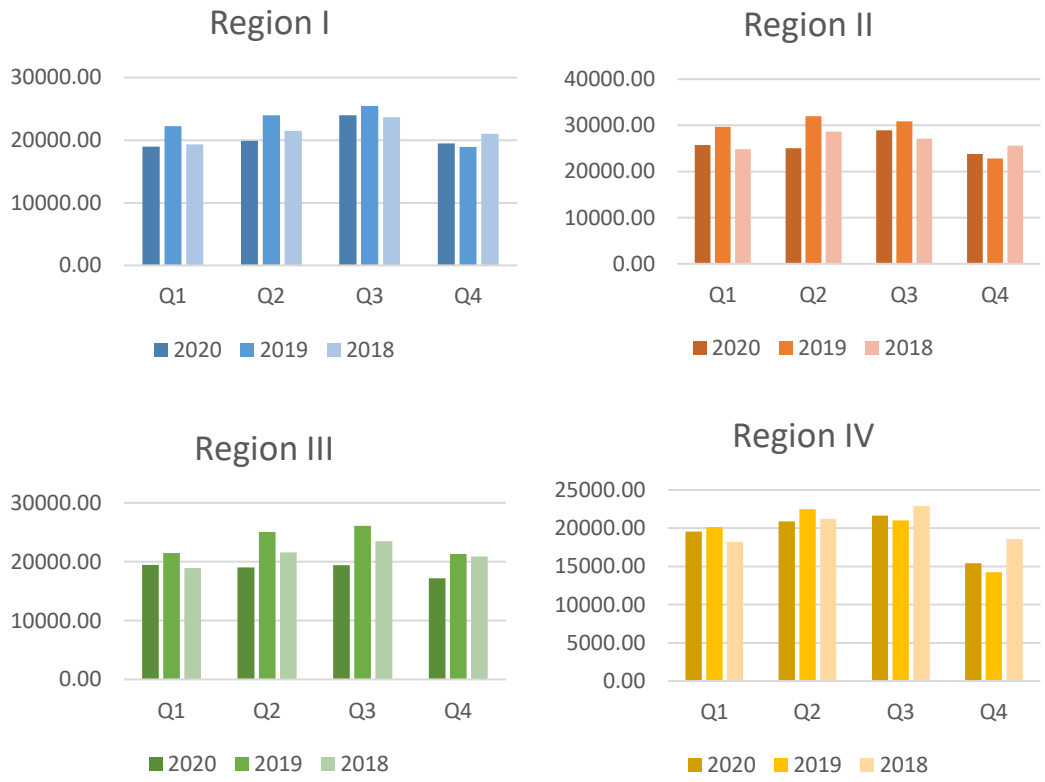
[8] The procedures with significant outage-related samples are IP 71111.20, *Refueling and Other Outage Activities*, and IP 71124.01, *Radiological Hazard Assessment and Exposure Controls*. Additional procedures only partially completed because of site specific conditions related to requalification of licensed operators and facets of the baseline security inspection program.

[9] The exercise requirements are found in regulations at Chapter 10, Code of Federal Regulations, Part 50, Appendix E, *Emergency Planning and Preparedness for Production and Utilization Facilities*, Sections IV.F.2.b and IV.F.2.c. The Federal Emergency Management Agency assesses offsite response, which supports the NRC's evaluation of the overall ability of licensees to implement approved emergency plans.

exercises. Instead, for calendar year 2020, a special inspection procedure that tested aspects of a licensee's defensive strategy substituted for, but did not fully replace, the full-scope exercise.[10]

The inspection hours charged illustrate the rebound of inspection activity after the period of mandatory telework. Inspection hours vary from year to year, but the total number of inspection hours charged by the NRC regions across all reactor sites in calendar year 2020 was similar to the total hours charged in calendar year 2018. Chart 1 shows the total inspection hours charged quarterly by region in calendar years 2020, 2019, and 2018.[11]

Chart 1: Total Quarterly Regional Inspection Hours, Calendar Years 2020, 2019, 2018



Source: OIG analysis of NRC data.

[10] The NRC developed and used IP 92707, *Security Inspection Of Facilities Impacted By A Local, State, Or Federal Emergency Where the NRC's Ability To Conduct Triennial Force-On-Force Exercises Is Limited*, to verify and assess specific key elements of the licensee's protective strategy to ensure that it meets performance objectives. IP 92707 was completed at 16 sites. Modified full-scope Force-on-Force exercise inspections have resumed in calendar year 2021.

[11] Year over year fluctuations in inspection hours may arise from the inspection cycle, performance of special inspections, or variations in risk significant licensee activities.

II. OBJECTIVE

The audit objective was to assess the NRC's policies and procedures for conducting reactor inspections during the COVID-19 public health emergency and to identify best practices that could be applied during future pandemics or other public health emergencies. The report appendix contains information on the audit scope and methodology.

III. FINDING

The OIG found that the NRC successfully adapted its inspections of nuclear power plants to meet its mission of obtaining reasonable assurance of adequate protection during the public health emergency while mitigating the risks of COVID-19 to NRC inspectors and licensee staff.

However, the agency's pandemic lessons learned process should include consideration of the possible impacts of adaptations to oversight processes on inspection results.

NRC Management Should Complete a Detailed Review of Inspections Performed During the Public Health Emergency

NRC management should obtain and communicate the best quality information to be able to identify and analyze potential risks from future changes to the operating reactor inspection program. While the agency has conducted two different assessments of the inspection program during calendar year 2020, the assessments were not performed at a detailed level that provides a full understanding of both benefits and drawbacks. Without a detailed review, management may not be able to identify optimal outcomes for potential inspection program changes for pandemic or other irregular conditions.

What Is Required

Management Should Identify Risks and Obtain Quality Information

The Government Accountability Office *Standards for Internal Control in the Federal Government* state that management should identify, analyze, and respond to risks related to achieving the organization's defined objectives. Risks should be identified and analyzed for their effect on achieving the defined objectives at the entity or transaction level. Further, management should use appropriate methods of internal and external communication, both to obtain the necessary quality information to achieve the entity's objectives and to convey policy decisions.

When applying lessons learned from the pandemic, the NRC will not change the overall objective of the operating reactor inspection program – to obtain reasonable assurance of adequate protection of public health and safety.[12] Management should be aware of new risks to achieving that overall objective. The best quality information will enable the agency to make decisions that will minimize introduction of new risks to the operating reactor inspection program.

What We Found

The NRC Has Conducted Preliminary Reviews of the Calendar Year 2020 Inspection Program

NRC inspectors implemented a hybrid inspection approach while completing the baseline inspection program during calendar year 2020. The NRR has conducted a preliminary lessons learned review of the COVID-19 inspection program adaptations with recommendations that focus on access to plant data and potential revisions of inspection program documents and procedures. The NRR has also performed its

[12] The NRC's licensing and regulatory authorities derive from the *Atomic Energy Act of 1954*, as amended (AEA). Section 182 of the AEA defines the standard for issuing a license as the Commission finding that the applicant "will provide adequate protection to the health and safety of the public." The AEA authorizes the NRC to establish the rules and standards for, and to inspect, licensed activities such as commercial nuclear power plants.

annual self-assessment of the Reactor Oversight Process (ROP) for calendar year 2020.

Hybrid Inspections

Hybrid inspection approaches employed newly available tools to complete inspection procedures while maintaining recommended protective measures such as social distancing and minimizing travel risks. Although many inspection procedures already included document review combined with plant walkdowns, hybrid approaches relied on licensee provided computers or system access, and on modern teleconferencing tools.

Examples of newly possible hybrid approaches include:

- Resident inspectors monitoring plant operations data remotely when emergency conditions restrict plant site access;

- Teleconferencing for inspection related meetings between offsite licensee staff and offsite NRC inspectors;

- File transfer methods supporting remote reviews of even large documents, such as engineering drawings;

- Teleworking regional inspectors conducting records reviews and meetings remotely, and calling on residents to perform needed walkdowns; and,

- In some cases, video sources supplementing records reviews and in-person walkdowns.

Inspectors could begin an inspection with partial remote completion of some required inspection activities. As local conditions improved, inspectors could focus their time onsite to complete needed observations and walkdowns.

Preliminary Lessons Learned Report

The lessons learned process conducted by the NRR included a survey of resident and regional inspectors and their supervisors, interviews with office directors and regional administrators, and a survey of senior

resident inspectors focused on information technology. Many best practices highlighted in the report involved means of communication, such as inspector town halls and seminars, routine use of direct lines of communication with licensee staff, and use of software applications to share information broadly and monitor pandemic conditions.

Three areas of recommended action emerged from the process:

- First, the report recommends that the agency formalize agreements with licensees to ensure inspectors have continued access to plant information controlled by the licensee. The extent and quality of information provided at the beginning of the pandemic by licensees exceeded what had been available to inspectors previously. The goal includes identifying a standard level of access or set of operations data across all licensee sites. The report identified additional information technology-related recommendations for near-term action.

- Second, the NRR lessons learned report discusses possible changes to inspection practices to build on the use of communications tools to adapt inspection procedures during the COVID-19 pandemic. For example, expanding the use of remote work practices by resident inspectors to enable more frequent telework is cited as a potential benefit for individual inspectors and a means to strengthen the NRC resident inspector program. In addition, the agency can evaluate how remote work practices could change the current team inspection framework. Regional inspection teams completed some parts of inspections remotely and smaller teams went onsite to reduce travel during the pandemic. Similar approaches could streamline team inspections in the future.

- Finally, as a means to support any changes to inspection practices, the report notes that the NRC may consider revisions to inspection procedures or guidance to indicate specific activities and inspection requirements that can be performed either fully remotely, partially remotely, or onsite. In addition, the NRC may revise ROP program documents to include best practices and guidance developed since the COVID-19 public health emergency began.

The lessons learned process revealed differences of perspective among various survey respondents. Important differences revolved around how

to expand inspectors' use of telework, whether the hybrid approaches should be reserved for emergencies or could become routine, and uncertainty about what "remote inspection" means relative to specific inspection activities.

The Reactor Oversight Process Self-Assessment for Calendar Year 2020

The annual ROP self-assessment report summarizes the results of the ROP self-assessment program to evaluate ROP effectiveness in achieving its goals and to develop improvements. The annual ROP self-assessment report covers three specific elements each year:

- Assessment of regional and headquarters annual effectiveness and uniformity in implementing the ROP;

- Evaluation of whether recent ROP changes achieved their intended purposes, and how the NRC responds to significant licensee events or performance deterioration; and,

- Periodic focused assessments of ROP program areas.

Drawing on these three elements, the ROP self-assessment for calendar year 2020 concluded that COVID-19 did not highlight any problems within the ROP, as the specific impacts would be expected to resolve as the pandemic recedes.

To complete the review of effectiveness and uniformity in implementing the ROP baseline inspection program, each region and the Office of Nuclear Security and Incident Response submitted a memorandum describing their own self-assessment of completion of the ROP. For 2020, these memoranda focused on the inspection procedures not completed and how COVID-19 was a factor for those procedures.[13] The final assessment process assigned a "red metric" for ROP completion because of the specific incomplete procedures highlighted by the regions. However, the self-assessment report concludes that further evaluation and staff corrective action were not necessary. Because the incomplete procedures resulted from decisions to protect NRC and licensee

[13] The principal areas where inspection procedures were not completed involved outages.

personnel health and safety during the pandemic, they represented a limited short term impact.

Reactor Program System Exceptions

The regional memoranda reporting on ROP completion were based on Reactor Program System (RPS) records of completion. However, the RPS may not reflect the extent to which licensee changes to work processes might have impacted inspections. According to Inspection Manual Chapter 0306, *Planning, Scheduling, Tracking, and Reporting of the Reactor Oversight Process*, an annual baseline inspection procedure is normally considered complete in the RPS when at least the minimum sample size has been reached for that procedure.[14] However, the system provides for exceptions to completing the minimum to prevent redundant work or inspections of non-risk-significant licensee activities. Some examples of exceptions include cases where:

- There was an insufficient number of samples with appropriate risk significance available for inspection; or,

- The licensee did not conduct the activity covered by the inspection procedure.

COVID-19 impacts to licensee work could represent an indirect impact on the baseline inspection program if sufficient risk-significant opportunities for inspection were reduced.

Why This Occurred

A Comprehensive, Detailed Review Has Not Yet Been Completed

The lessons learned and ROP self-assessment reports did not attempt to obtain the degree of granularity needed to understand how the pandemic may have impacted inspections.

[14] Inspection Manual Chapter 0306, *Planning, Scheduling, Tracking, and Reporting of the Reactor Oversight Process*, provides guidance on using the RPS to plan, track, and report inspections.

The lessons learned process was conducted in late summer 2020 to identify successes while the experience of adapting to COVID-19 conditions was still recent. The lessons learned process captured examples of innovations, successful problem solving, and benefits experienced by the inspection staff following a burst of rapid change. However, the report does not focus on the specific experience of conducting inspection procedures.

The ROP self-assessment is not designed to address the adaptations of a unique year. The annual ROP self-assessment review topics are planned a year ahead to identify the focus areas and program aspects to be considered. The plan for the 2020 ROP self-assessment did not anticipate a pandemic and the adjustments for the extended disruption. The plan for the ROP annual self-assessment for 2021 includes a comprehensive review of the COVID-19 impacts on the baseline inspection program as the periodic focused assessment.

A working group representing headquarters program offices and all four NRC regions was established to complete the comprehensive baseline inspection program review. The working group will consider the experience of inspectors completing the baseline inspection program during the public health emergency and ways to ensure consistency when remote inspection activities are implemented at nuclear power plants. The effort was planned to incorporate the survey comments from the lessons learned process and interviews with inspectors. According to the draft charter, the products were expected to include:

- Review of each inspection procedure to determine what elements must be completed onsite for the procedure to be considered complete, as well as those elements that could be completed remotely, under conditions that limit site access;

- Identification of potential compensatory or alternate inspection activities if circumstances preclude an inspector from being onsite to complete specific inspection requirements; and,

- Consideration of the best tools available to aid inspection completion.

However, this comprehensive review may face organizational headwinds because of the range of perspectives highlighted in the preliminary

lessons learned report. Further, it may take place without final management decisions on issues, such as resident inspector telework, which would determine whether and when any recommended changes would be implemented.

Why This Is Important

Agency Management Should Have Full Information About Implementation of Remote Inspections

Although the potential benefits of incorporating remote inspection methods appear to be straightforward, agency management may not fully understand all possible impacts. Previous reviews of the 2020 inspection year completed to date have not yet evaluated all available inputs from staff and external stakeholders to set out possible actions with their risks and benefits. Whether positive or negative, potential effects of inspection changes on inspection outcomes are unclear and difficult to characterize.

The most obvious potential benefits include supporting recruitment and retention in the NRC's resident inspector program,[15] or enabling a different use of inspection program resources, such as additional information technology capabilities for inspectors.

However, unintended consequences to the success of the ROP could result as the agency carries out its mission in a changing environment. Similarly to the NRC, nuclear power plant licensees are considering their own lessons learned from the public health emergency response, and the results of these efforts and potential impacts on licensee business practices will take time to materialize. Some stakeholders have raised concerns that inspection program changes could diminish the intangible benefits gained from inspector time onsite, such as additional opportunities for observations of activities, conversations with licensee staff on emerging problems, and opportunities for licensee staff to bring concerns or items of interest to the inspector's attention. Further, inspection program changes may impact decisionmaking about inspection methods in unexpected ways, whether by enhancing or reducing the value

[15] The NRC has studied and adopted policy changes to address the challenge of filling vacant resident inspector positions.

of professional judgment. NRC decisionmakers need to understand the range of potential impacts to identify optimal outcomes.

Recommendation

The OIG recommends that the Executive Director for Operations

1. Conduct an assessment that presents agency management with options for modifying inspection program documents and procedures to give staff flexibility for conducting inspections under irregular conditions.

IV. AGENCY COMMENTS

The OIG held an exit conference with the agency on July 26, 2021. After reviewing a discussion draft, agency management provided comments that have been incorporated into this report, as appropriate. As a result, agency management stated their general agreement with the finding and recommendation and opted not to provide formal comments for inclusion in this report.

Appendix

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

The audit objective was to assess the NRC's policies and procedures for conducting reactor inspections during the COVID-19 public health emergency and to identify best practices that could be applied during future pandemics or other public health emergencies.

Scope

This audit focused on how the NRC implemented the baseline inspection program during the COVID-19 public health emergency. We analyzed inspection results for the period of January 1, 2020 through December 31, 2020. The OIG conducted this performance audit from November 2020 through May 2021 at NRC headquarters in Rockville, Maryland. The OIG analyzed Reactor Program System data but did not perform a data reliability test because the data did not form the basis of the audit finding. Internal controls related to the audit objective were reviewed and analyzed. Specifically, the OIG reviewed the components of control environment, risk assessments, control activities, information and communication, and monitoring. Within those components, the OIG reviewed the principles of establishing an organizational structure; identifying, analyzing, and responding to risk; identifying, analyzing, and responding to change; implementing control activities through policies; using quality information; and communicating both internally and externally.

Methodology

To accomplish the audit objective, the OIG analyzed relevant criteria, program, and guidance documents for this audit including:

- The *Atomic Energy Act of 1954*, as amended.

- Government Accountability Office, *Standards for Internal Control in the Federal Government*, GAO-14-704G, dated September 2014;

- Management Directive 8.13, *Reactor Oversight Process*, dated January 16, 2018;

- Inspection Manual Chapter (IMC) 2515, Appendix A, *Risk-Informed Baseline Inspection Program*, dated July 26, 2019;

- IMC 2515, Appendix E, *Inspection Program Modifications during Pandemics, Epidemics, or Other Widespread Illnesses or Diseases*, dated March 27, 2020;

- IMC 0306, *Planning, Scheduling, Tracking, and Reporting of the Reactor Oversight Process*, dated November 4, 2019;

- IMC 0307, *Reactor Oversight Process Self-Assessment Program*, dated June 1, 2020;

- IMC 0308, *Reactor Oversight Process Basis Document*, dated January 1, 2018, and Attachment 2, *Technical Basis for Inspection Program*, dated May 29, 2019;

- *Initial Report on Challenges, Lessons Learned and Best Practices From the 2020 COVID-19 Public Health Emergency – Focus on Regulatory Oversight of Operating Nuclear Reactors*, dated January 2021;

- SECY-21-0038, *Reactor Oversight Process Self-Assessment for Calendar Year 2020*, dated April 1, 2021.

In addition, the OIG reviewed selected baseline inspection program procedures to understand the specific requirements for completion, as well as materials developed in response to the public health emergency to guide inspectors in successful implementation of inspection procedures. The OIG also reviewed regional processes for planning inspections during the COVID-19 public health emergency.

The OIG analyzed data from the Reactor Program System to determine whether the agency completed the required minimum number of samples for baseline inspection procedures during calendar year 2020. The OIG analyzed data downloaded on January 7, 2021 and May 4, 2021 to verify the baseline inspection program completion status for calendar year 2020. The OIG also reviewed hours charged for inspection activity from calendar years 2018 through 2020.

Additionally, the OIG interviewed NRC staff and management from the regions and headquarters. The OIG observed relevant public and internal meetings to understand guidance and decisionmaking during the COVID-19 public health emergency.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Throughout the audit, auditors considered the possibility of fraud, waste, and abuse in the program.

The audit was conducted by Paul Rades, Team Leader; Amy Hardin, Audit Manager; John Thorp, Senior Technical Advisor; Chanel Stridiron, Senior Auditor; Julie Corwin, Senior Management Analyst; Kevin Guishard, Senior Auditor; and Shreedhar Kandel, Auditor.

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COMMENTS AND SUGGESTIONS

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