

Calendar Year 2023 Reactor Oversight Process Program Area Evaluations

The U.S. Nuclear Regulatory Commission (NRC) staff completed calendar year (CY) 2023 evaluations of Reactor Oversight Process (ROP) program areas in accordance with the ROP self-assessment program, Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program," dated May 3, 2022 (Agencywide Documents Access and Management System Accession No. ML21341B399). The staff evaluated the four ROP program areas: the performance indicator (PI) program, the inspection program, the significance determination process (SDP), and the assessment program. This enclosure contains those program area evaluations.

The staff evaluated the overall effectiveness of each program area, identified any current or future focus areas, and summarized any significant changes to that program area in CY 2023. In accordance with IMC 0307, each ROP program area lead used related ROP performance metrics, ROP data trending, internal and external stakeholder feedback, and other relevant information to perform their respective program area evaluation.

Performance Indicator Program

The staff has concluded through its annual evaluation that the ROP PI program remained effective. Recommendations for improvement of the PI program are discussed below.

The PI program continued to provide insights into plant safety and security performance in CY 2023. The staff and industry continued to improve the PI program guidance through ROP public meetings and feedback from stakeholders. As noted in the annual ROP performance metric report, dated March 9, 2023 (Agencywide Documents Access and Management System Package Accession No. ML23066A204), because of the overall improvements in the PI data posting process and the subsequent issues identified with the ROP self-assessment metric related to the PI program (O-4), the staff did not evaluate this metric in CY 2022. In CY 2023, the staff reconsidered metric O-4 in the context of the current PI data posting process and elected to eliminate this metric in the most recent revision to IMC 0307, Appendix A, "Reactor Oversight Process Self-Assessment Metrics and Data Trending," dated June 14, 2023 (ML23125A179). The staff has no concerns about its current ability to post accurate and timely PI data for use by both internal and external stakeholders.

Emergency Preparedness Performance Indicator

In CY 2022, the staff developed a Commission paper, SECY-23-0010, "Recommendation for Approval to Retire the Reactor Oversight Process Performance Indicator for Licensee Alert and Notification System Availability and to Develop a Performance Indicator for Emergency Response Facility and Equipment Readiness Availability," dated January 30, 2023 (package ML23004A013). The staff held numerous public meetings with industry on the efficacy of maintaining this PI as the Federal Emergency Management Agency is emphasizing the use of the Integrated Alert and Notification System (IPAWS) as the primary means of public notification versus traditional fixed sirens. The use of a PI to monitor the reliability of fixed-siren systems will become irrelevant as more States decide to implement IPAWS.

On September 1, 2023, the Commission issued Staff Requirements Memorandum (SRM)-SECY-23-0010 (ML23244A282) approving the staff's recommendation to retire the ROP alert and notification system PI and implement an emergency response facility and equipment readiness PI. For licensees that continue to use siren or non-IPAWS based alert and notification systems, inspections will continue under the baseline inspection program using Inspection

Procedure (IP) 71114, Attachment 02, "Alert and Notification System Evaluation," dated July 21, 2016 (ML15253A596). The inspection of alert and notification systems will consist of ensuring that licensees maintain their applicable responsibilities for alert and notification systems as approved by the Federal Emergency Management Agency in the Alert and Notification System Design Report regardless of whether sirens are part of the primary alert and notification method.

Security Performance Indicator

In CY 2023, the staff continued to assess the physical security program for enhancements and efficiencies by evaluating security IPs and IMCs, as well as feedback received from the regions both during the security counterparts meeting and through inspection findings. The staff determined that no changes to the security PI were needed during this reporting period. The staff will continue to review any enhancements to the physical security inspection program to determine whether new PIs may be warranted.

Inspection Program

The staff concluded through its annual evaluation that the inspection program remained effective. Recommendations for improvement, current and future focus areas, and significant changes to the inspection program area are discussed below.

Throughout CY 2023, NRC inspectors used the baseline inspection program to independently verify that commercial nuclear plants were operated safely and securely.

Baseline Inspection Program Completion

In CY 2023, the staff successfully completed the baseline inspection program. To accomplish this, the regions and the Office of Nuclear Security and Incident Response performed the full array of inspection activities. The Coronavirus Disease 2019 (COVID-19) public health emergency ended May 11, 2023, and the NRC returned to full implementation of the inspection and oversight program. Each region and the Office of Nuclear Security and Incident Response documented in detail the implementation of the baseline inspection program for CY 2023 in several memoranda (ML24044A207 for Region I, ML24047A209 for Region II, ML24044A108 for Region III, ML24046A180 for Region IV, and package ML24023A052 for the Office of Nuclear Security and Incident Response).

Problem Identification and Resolution Inspection

In CY 2020, the staff completed a comprehensive review of the problem identification and resolution (PI&R) inspection program and identified several enhancements that could improve the overall effectiveness of the program. The report and supporting documents are publicly available (package ML20247J590). The staff revised Inspection Procedure 71152, "Problem Identification and Resolution," dated December 14, 2021 (ML21281A181), to transfer inspector review of licensee PI&R documents to IMC 2515, "Light-Water Reactor Inspection Program—Operations Phase," Appendix D, "Plant Status," dated November 7, 2022 (ML22251A314), as previously discussed by the staff in SECY-19-0067, "Recommendations for Enhancing the Reactor Oversight Process," dated July 16, 2019 (package ML19070A036), and recommended by the PI&R comprehensive review. In September 2022, the staff provided the Commission with SECY-22-0087, "Recommendation for Problem Identification and Resolution Team Inspection Frequency" (ML22145A448), a vote paper on the frequency of PI&R team inspections.

On March 3, 2023, the Commission issued SRM-SECY-22-0087 (ML23062A686) approving the staff recommendation to remain at a biennial frequency, but also directing the staff not to reduce team inspection hours from 250 to 180. The staff had previously notified the Commission of this planned change, which was selected for implementation as a result of the PI&R comprehensive review (ML20274A133). Based on Commission direction and the management-approved recommendations from the comprehensive review, the staff revised Inspection Procedure 71152 (ML23214A284), dated October 31, 2023. The revision incorporated qualitative criteria as guidance for inspectors to use when assessing overall licensee performance. The guidance provides for more data-driven observations of PI&R performance. The performance attributes were also combined into qualitative criteria. An inspection requirement and guidance were added to confirm that licensees' implementation of PI&R programs are complying with NRC regulations and applicable industry standards. In addition, IMC 0308, "Reactor Oversight Process Basis Document," Attachment 2, "Technical Basis for Inspection Program," dated October 31, 2023 (ML23214A382), was revised to align with the changes to Inspection Procedure 71152.

IMC 2515, Appendix E Revision

A revision to IMC 2515, Appendix E, "Inspection Program Modifications During Public Health Emergencies or Other Conditions Restricting Inspector Onsite Presence" (ML23055B053), dated June 26, 2023, added several references to enhance consistency for future responses to limited site access. The references included the recommendations from the "Comprehensive Baseline Inspection Program Review—Calendar Year 2021," dated November 5, 2021 (ML21252A154), and memoranda issued during the COVID-19 public health emergency. In addition, the IMC was broadened to allow for any condition that restricted inspector onsite presence. Also, IMC 0308, Attachment 2, was revised to include a basis document for IMC 2515, Appendix E.

Emergency Preparedness Inspection Program

In addition to submitting SECY-23-0010 to recommend retiring the alert and notification system PI and developing a PI for monitoring emergency response facility and equipment readiness, the staff also submitted SECY-22-0089, "Recommendation for Enhancing the Emergency Preparedness Significance Determination Process for the Reactor Oversight Process," dated September 22, 2022 (ML22189A201), to the Commission to recommend a change to the ROP. The recommended change would enhance the emergency preparedness SDP such that only emergency preparedness inspection findings associated with the four risk-significant planning standards in Title 10 of the *Code of Federal Regulations* 50.47(b)(1) through (16), as well as the two planning standards identified as necessary for effective implementation of the emergency plan, meet the threshold for potentially greater-than-green significance. All planning standards will be considered for any potential findings determined during actual events. The Commission approved the staff's recommendation for the emergency preparedness SDP in SRM-SECY-22-0089, "Staff Requirements—SECY-22-0089—Recommendation for Enhancing the Emergency Preparedness Significance Determination Process for the Reactor Oversight Process," dated February 9, 2023 (ML23040A378). Both the proposed PI change currently being piloted and the emergency preparedness SDP change discussed in the SDP section below will require conforming changes to emergency preparedness ROP procedures, as well as training for emergency preparedness inspectors on the changes. Implementation of the PI is planned for CY 2025.

Security Baseline Inspection Program

The security inspection staff was able to conduct all security baseline inspection activities scheduled during CY 2023.

Regarding the security baseline inspections associated with cybersecurity, in CY 2023 the staff completed the first full biennial ROP inspection cycle, with a total of 51 inspections conducted. The results of the lessons-learned public meeting held on October 13, 2022 (package ML22327A119), led to enhancements to the request for information process and the revision of IMC 0612, "Issue Screening," Appendix E, "Examples of Minor Issues," which provides guidance for the minor and more-than-minor issue determination. The staff worked with regional inspectors to identify requests to streamline and reduce the burden of the request for information process and increase the effectiveness of the inspection. The staff also collaborated with regional inspectors to revise and develop new cyber minor examples for IMC 0612, Appendix E, to enhance consistency. On June 6, 2023, the staff held a public meeting (ML23153A108) to inform external stakeholders of the proposed changes; the examples were published in IMC 0612, Appendix E, dated October 26, 2023 (ML23214A343).

Regarding the NRC-evaluated triennial force-on-force inspection program, the staff completed all inspections in CY 2023 using Inspection Procedure 71130, Attachment 03, "Contingency Response—Force-On-Force Testing," dated February 8, 2021 (ML21012A329, nonpublic). There were no instances of COVID-related situations in which the staff had to use a modified IP. During CY 2023, the staff completed a total of 18 force-on-force inspections. One of the inspections was a revisit action due to an ineffective exercise outcome in CY 2021.

Significance Determination Process

Through its annual evaluation, the staff has concluded that the SDP program remained effective. Recommendations for improvement, current and future focus areas, and significant changes to the SDP program area are discussed below.

The SDP continued to be effective by providing inspectors with a risk-informed method for determining the safety and security significance of inspection findings. Nationwide, for CY 2023 inspections, the NRC issued 443 inspection findings that were determined to be of very low safety or security significance (green). The NRC also finalized 14 greater-than-green findings in CY 2023. In this respect, the risk-informed SDP continues to focus staff resources on those issues that are potentially more risk significant.

Finalized, Ongoing, and Planned Revisions to the Significance Determination Process Guidance

This section provides the status of revisions to IMC 0609, "Significance Determination Process," dated November 9, 2020 (ML20267A146), and its attachments and appendices.

As discussed in the section "Emergency Preparedness Inspection Program," the staff has submitted a Commission vote paper, SECY-22-0089. Since the Commission has approved the staff's recommendation in this paper, the staff plans to revise IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," dated September 22, 2015 (ML15128A462), and IMC 0308, Attachment 3, Appendix B, "Technical Basis for Emergency Preparedness Significance Determination Process," dated December 19, 2012 (ML12284A512), as well as other emergency preparedness ROP-related procedures, as necessary.

The staff continued to engage regularly with both internal and external stakeholders. Internally, the staff revised SDP guidance to address ROP feedback forms submitted by the NRC staff. To address the suggestions in ROP feedback forms promptly, and to adhere to the 5-year periodic review requirement in section 07.01 of IMC 0040, "Preparation, Revision, Issuance, and Ongoing Oversight of NRC Inspection Manual Documents," dated January 17, 2023 (ML22075A386), in CY 2023, the staff revised IMC 0609, Attachment 5, "Inspection Finding Review Board," dated December 15, 2023 (ML23285A082).

The staff's external engagement activities included communicating proposed SDP changes and revisions to the public, industry, and any other interested external organizations through periodic ROP public meetings.

Baseline Security Significance Determination Process

The staff began its assessment of the baseline security SDP, IMC 0609, Appendix E, part I, as part of the ROP program area evaluations under Element 1 of the ROP self-assessment program. The objective of this assessment is to determine whether there are any aspects of the baseline security SDP that could be improved or further risk-informed. The staff has gathered feedback on the baseline security SDP from internal and external stakeholders and is evaluating the feedback received to develop options for improving the baseline security SDP.

Significance Determination Process Metrics

Two ROP metrics associated with the SDP apply to greater-than-green inspection findings. Efficiency performance metric E-3, "SDP Completion Timeliness for Potentially Greater-than-Green Findings," measures whether the staff reaches a final significance determination for potentially greater-than-green findings within 255 days from the date the issue was first identified. Reliability performance metric R-1, "Predictability and Repeatability of Significance Determination Results," measures the repeatability and predictability of the SDP in processing greater-than-green inspection findings.

In CY 2023, metric R-1 was evaluated as green. Metric E-3 was determined to be yellow because the timeliness threshold for the final determination was exceeded in the following determinations: Browns Ferry Nuclear Plant Enforcement Action (EA)-22-122, dated May 8, 2023 (ML23115A000); Columbia Generating Station EA-21-170, dated June 1, 2023 (ML23111A237); and Virgil C. Summer Nuclear Station EA-23-093, dated December 21, 2023 (ML23342A000). The "ROP Performance Metrics" section of the paper "Reactor Oversight Process Self-Assessment for Calendar Year 2023" includes more information on this metric.

E-3 SDP Timeliness Review Recommendations

As part of the CY 2022 SDP program area evaluation, the staff reviewed SDP timeliness with the objective of identifying any common causal factors affecting timeliness and developing recommendations to improve the SDP. The staff issued the results of this review on December 22, 2022 (ML22335A003). The results included the following five recommendations:

- (1) Revise ROP self-assessment metric E-3 (255-day timeliness metric) to exclude time when the processing of a potentially greater-than-green finding must be paused for a non-ROP regulatory reason.
- (2) Improve guidance on the Inspection Finding Resolution Management process to clarify that the process is required for all ROP cornerstones.

- (3) Expand sections of the Inspection Finding Review Board and Significance and Enforcement Review Panel forms related to timeliness.
- (4) Enhance the internal SDP tracking tool with a “timeliness challenged” category for potentially greater-than-green findings.
- (5) Reinforce existing program guidance on the use of best available information at each process stage in the SDP.

In CY 2023, the staff issued revisions to IMC 0307, Appendix A, and IMC 0609, Attachment 5, which satisfied recommendations 1 and 2. Recommendation 3 is partially completed with the revision to IMC 0609, Attachment 5, and will be fully completed in CY 2024 upon issuance of a revision to IMC 0609, Attachment 1, “Significance and Enforcement Review Panel (SERP) Process.” In CY 2022, the staff made changes to internal tracking tools to satisfy recommendation 4. Finally, the staff is continuing work on a guide and revised language in an appropriate IMC to address recommendation 5 and the concept of best available information in the SDP. This work should be completed in CY 2024.

Assessment Program

Through its annual evaluation, the staff has concluded that the assessment program remained effective. Significant changes to the assessment program area are discussed below.

The staff’s implementation of the assessment program ensured that the staff and licensees acted appropriately to address performance issues in CY 2023, commensurate with their safety and security significance. All applicable assessment ROP metrics met their established criteria in CY 2023, including the timely issuance of assessment letters (ROP metric O-2) and the conduct of annual assessment meetings (ROP metric O-3). There were no ROP Action Matrix deviations during CY 2023 (ROP metric R-2). There were no reactor units in column 4 of the ROP Action Matrix during the year. There were two units in column 3 during the year because of one or more greater-than-green inspection findings in the Security cornerstone; they have since transitioned back to column 1.

On May 4, 2023, the staff revised IMC 0305, “Operating Reactor Assessment Program” (ML23093A184), to implement Commission direction in SRM-SECY-22-0086, “Recommendations for Revising the Reactor Oversight Process Assessment Program,” dated March 10, 2023 (ML23069A093), to close greater-than-green inspection findings upon satisfactory completion of the appropriate supplemental inspection and for greater-than-green PIs to remain Action Matrix inputs until satisfactory completion of the appropriate supplemental inspection. The staff has identified no unintended consequences since implementing the revised policy.