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June 5, 2025

FOR:

SECY-25-0045

FROM: Mirela Gavrilas, PhD Executive Director for Operations

The Commissioners

<u>SUBJECT</u>: RECOMMENDATIONS FOR REVISING THE REACTOR OVERSIGHT PROCESS

#### PURPOSE:

This paper seeks Commission approval to make recommended enhancements to the Reactor Oversight Process (ROP) for greater efficiency. It also informs the Commission about planned ROP enhancements that require Commission notification before implementation. The staff identified these enhancements as part of the assessment required by Section 507 of the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act). These recommendations, if approved, and planned enhancements also respond, in part, to direction in the recently issued Executive Order (EO) 14300, "Ordering the Reform of the Nuclear Regulatory Commission." In addition to the recommendations presented in this paper and its Enclosures, the staff is committed to exploring additional improvements to the oversight program to meet the direction in EO 14300.

#### SUMMARY:

This paper provides the results of the staff's assessment of the ROP in response to Section 507 of the ADVANCE Act<sup>1</sup>, including proposed changes requiring Commission approval and planned

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Although Section 507 of the ADVANCE Act applies to all "nuclear reactor and materials oversight and inspection programs," this paper only discusses those actions that apply to the ROP. A comprehensive discussion of recommendations related to the ROP, as well as other agency oversight and inspection programs, will be included in the Section 507 ADVANCE Act report to Congress.

enhancements requiring Commission notification before implementation (see Enclosure 1), in accordance with Management Directive (MD) 8.13.<sup>2</sup>

On May 23, 2025, President Trump issued EO 14300 directing the NRC to take additional actions to reform the NRC, inclu ding the ROP. Section 5(g) of EO 14300 directs the NRC to "[r]evise the Reactor Oversight Process ... to reduce unnecessary burdens and be responsive to credible risks." As a result of its assessment pursuant to Section 507 of the ADVANCE Act, the staff identified planned enhancements and recommendations to the ROP to reduce burden, which, if approved, will respond, in part, to EO 14300. The staff also determined that a broad, comprehensive review of the ROP is necessary to reflect improvements in industry performance and advancements in technology. The comprehensive review of the ROP will provide the NRC with a mechanism to further revise the ROP consistent with the direction in EO 14300. The staff plans to complete this review in calendar year (CY) 2025 and provide a notation vote paper to the Commission by April 2026.

The comprehensive review will include a wholesale evaluation of all ROP performance indicators<sup>3</sup> (PIs). Given the large amount of objective performance data that licensees currently collect, along with advancements in technology that can be used to develop PIs, there is significant potential to improve the quality and coverage of PIs. This will involve developing new PIs to enhance and expand coverage of each cornerstone area, followed by a risk-informed review of baseline IPs to validate, adjust, or eliminate samples based on remaining oversight program needs for the inspection areas not reasonably covered by the revised PIs. This will be the first comprehensive review of the existing PIs since CY 2006, and the first integrated review of the ROP since it began in CY 2000.

In addition to the comprehensive review, the staff developed planned enhancements and recommendations for improving the efficiency of the ROP, relating to changes to the assessment program, simplifying the Cross-Cutting Issues program, shifting away from each NRC region preparing operator licensing examinations, and revising the security inspection program (see Enclosure 2). As a result of its assessment, the staff identified several options for revision in each of the ROP program areas. While some of them were not pursued because they provided limited benefit or required significant effort without a meaningful return of investment, some of them will be revisited, as appropriate, during the comprehensive review of the ROP. A summary of these options is provided in Enclosure 3.

Beyond the planned enhancements and recommendations related to the ROP framework, the NRC staff will establish metrics that are aligned with the principles in the NRC Mission Statement Implementation Guidance<sup>4</sup>. These metrics aim to maintain effectiveness while driving improvements in efficiency and timeliness across the oversight and inspection programs. Consistent with the NRC's mission, these metrics will help identify trends among similar processes, quantify efficiency gains, reinforce accountability, pinpoint successful approaches to achieving challenging goals, and highlight risks to meeting oversight program objectives. Metrics may include measures to track the percentage of time spent on communications, status reports, and preparation and documentation activities. The metrics will help ensure that the majority of NRC oversight resources go toward mission critical work

<sup>2</sup> Management Directive 8.13, "Reactor Oversight Process," dated January 16, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17347B670).

<sup>3</sup> The NRC measures nuclear power plant performance by monitoring PIs and conducting inspections in seven "cornerstone" areas, which support the safety of plant operations. PIs use objective data to monitor performance within each of the areas. The baseline inspection program is designed to inspect areas not covered by PIs or where a PI does not fully cover the inspection area.

<sup>4</sup> SECY-25-0031, "Mission Statement Implementation Guidance," May 2, 2025 (ML25106A351).

such as direct inspection, instead of indirect activities or unnecessary overhead.

Regarding the time dedicated to oversight activities, the staff anticipates that the comprehensive review of the ROP will reduce the resources required to conduct the baseline inspection program and allow the NRC to reassess the balance of responsibilities within the oversight program. Each power reactor site will continue to have at least two resident inspectors. If their duties shift in a way that reduces time spent inspecting their assigned facility, the staff will clearly define how their remaining time is used. This may include supporting team inspections at their home site, participating in special or supplemental inspections, or conducting inspections at other domestic facilities. Furthermore, Title 10 of the *Code of Federal Regulations* §170.12(c)(1), "Payment of fees," states that when inspectors perform work at a facility other than their assigned site, the associated costs are billed to the facility where the work is performed, not to their home site. As such, any efficiencies gained that reduce the direct inspection hours for resident inspectors will present a resource savings to the respective licensee by allowing the NRC to redirect the resident inspectors' time to other billable or project-managed work.

The staff is providing options and recommendations to the Commission for approval in three areas:

- (1) <u>Assessment Program</u>: 1) The staff recommends revising the treatment of licenseeidentified White inspection findings such that they are not considered as Action Matrix inputs, yet they will still require inspection for closure. This change would further encourage licensees to identify and correct risk-significant issues. 2) The staff also recommends revising the Action Matrix criteria so that multiple White Action Matrix inputs in Column 2 of the Action Matrix do not aggregate to result in assessment in Column 3. 3) The staff also recommends suspending the Agency Action Review Meeting (AARM) unless a licensee meets the MD 8.14<sup>5</sup> criteria.
- (2) <u>Cross-Cutting Issues Program</u>: The staff recommends simplifying the Cross-Cutting Issues program to characterize inspection findings by cross-cutting theme rather than by cross-cutting aspect, thereby reducing the characterization options from 23 to 3. This change would reduce subjectivity and decrease the use of NRC inspector and licensee resources to determine the most appropriate causal factor for the finding.
- (3) <u>NRC-Developed Power Reactor Initial Operator Licensing Examinations</u>: The staff recommends modifying guidance to shift away from each NRC region preparing at least one power reactor initial operator licensing examination per year.

In addition to these recommendations, the staff is revising the Baseline Security Significance Determination Process. The recommendations for revising this process will be provided to the Commission in a notation vote paper later in CY 2025.

#### Commission Notification Items

The staff has included a summary of nine changes to the ROP that are currently being pursued, which require Commission notification per MD 8.13. These changes are discussed in more detail in Enclosure 1.

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MD 8.14, "Agency Action Review Meeting," dated May 1, 2023 (ML23074A011).

#### Other ROP Revisions

Enclosures 1 through 4 also include changes to the ROP that do not require Commission approval or notification. These changes are provided for Commission awareness such that the Commission has a complete understanding of all revisions being implemented.

#### DISCUSSION:

Section 507 of the ADVANCE Act requires the NRC to submit to the appropriate committees of Congress a report that identifies specific improvements to the nuclear reactor and materials oversight and inspection programs carried out pursuant to the Atomic Energy Act of 1954, as amended, that the Commission may implement. These improvements would maximize the efficiency of such programs through, where appropriate, the use of risk-informed, performance-based procedures; expanded incorporation of information technologies; and staff training.

The staff established a cross-organizational team with representation from the Office of Nuclear Reactor Regulation and each regional office to develop options to improve the ROP program areas with the goal of maximizing efficiency while continuing to meet the NRC mission. The team assessed the following program areas and developed options and recommendations to improve efficiency:

- Assessment Program
- Cross-Cutting Issues Program
- Inspection Program
- Security Inspection Program

As part of this effort, the staff reviewed stakeholder recommendations from the 2019 ROP Enhancement Project<sup>6</sup> that had, at the time, been rejected or deferred to determine their viability and potential for improving efficiency. Additionally, the staff revisited recommendations previously submitted to the Commission<sup>7</sup> that were either retracted<sup>8</sup> or disapproved<sup>9</sup> to determine whether any of those recommendations should be reconsidered.

#### Stakeholder Interactions

The staff sought input from both internal and external stakeholders to inform its evaluation and implementation of Section 507.<sup>10</sup> The staff provided input through the ADVANCE Act Engagement Portal, presentations from the regional project team members, and a staff presentation conducted on February 6, 2025. A consolidated list of all input has been compiled and will be used during the comprehensive ROP review (non-public).<sup>11</sup>

 <sup>&</sup>quot;Disposition of Recommendations to Enhance the Reactor Oversight Process," dated March 10, 2020 (ML19101A334).
 SECY-22-0087, "Recommendation for Problem Identification and Resolution Team Inspection Frequency," dated

September 20, 2022 (ML22145A448).

<sup>8</sup> SECY-19-0067, "Recommendations for Enhancing the Reactor Oversight Process." Dated June 28, 2019 (ML19070A036).

<sup>9</sup> Staff Requirements – SECY-22-0087, "Recommendation for Problem Identification and Resolution Team Inspection Frequency," March 3, 2023 (ML23062A686) (disapproving a frequency change for the PI&R team inspection from 2 to 3 years).

<sup>10</sup> Volume 89 of the Federal Register (FR), page 78916 (89 FR 78916; September 26, 2024).

<sup>11</sup> The consolidated list of external and internal input is maintained on the Office of the Executive Director for Operations ADVANCE Act Oversight and Inspection Project Team SharePoint Site and in ADAMS (non-public) (ML25043A076).

In addition, on October 28, 2024, the Nuclear Energy Institute submitted a letter<sup>12</sup> to the NRC with recommendations for the staff to consider when implementing Section 507. The staff evaluated each of these recommendations and found that nearly all aligned with internal staff feedback. For example, the staff identified a common theme highlighting a need to perform a comprehensive review of the ROP. Specifically, the following suggestions led to the staff's decision to pursue a comprehensive ROP review:

- Investigate and evaluate the return value on baseline inspections.
- Review inspection procedures (IPs) and eliminate duplicative inspection requirements.
- Revisit previous staff problem identification and resolution (PI&R) inspection recommendations.
- Reconsider the focus areas and tasks of resident inspectors.
- Revisit PI&R team inspection frequency.

The staff also sought input from other Federal regulatory agencies that conduct similar oversight and inspections, including the Federal Emergency Management Agency, the Federal Aviation Administration, the Defense Nuclear Facilities Safety Board, and the Department of Energy. For example, through these engagements, the NRC learned that other agencies consider past licensee performance when determining the level of inspection needed to provide reasonable assurance. These agencies also use information technology more extensively than the NRC to plan and perform oversight and inspection activities. The NRC is taking steps to incorporate both aspects into the comprehensive review of the ROP.

The staff discussed the status of its review and sought feedback on its proposed resolutions to recommendations from internal and external stakeholders, including the regions, the industry, members of the public, nongovernmental organizations, and other public stakeholders during public meetings held on November 20, 2024 (ML24352A001); December 10, 2024 (ML24358A187); January 15, 2025 (ML25034A096); January 29, 2025 (ML25044A137); and March 26, 2025 (ML25087A007). The staff also received input from external stakeholders during public meetings on March 20, 2024 (ML24099A216); June 24, 2024 (ML24191A380); and December 18, 2024 (ML25014A205), on the revisions to the Baseline Security Significance Determination Process. For example, the staff revised some actions in response to public input, including recommendations on where the NRC should expand identification credit to licensees.

#### **Commission Approval Items**

ROP changes that require Commission approval are discussed below. The staff has included the most significant pros and cons for each of the options provided below for Commission consideration.

#### 1. Assessment Program

The staff uses the significance determination process to determine the safety or security significance of inspection findings. This process provides an initial screening to identify those findings that do not result in a significant increase in plant risk (a "Green" finding). "Green" indicates a finding of very low safety or security significance. "White" indicates a finding of low to moderate safety or security significance, while "Yellow" and "Red" indicate findings of substantial and high safety or security significance, respectively.

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Letter from Andrew N. Mauer, Nuclear Energy Institute, "NEI Input on Improvements to Licensing and Oversight Programs," dated October 28, 2024 (ML24302A311).

The staff reviewed 84 greater-than-Green inspection findings for the 10-year period from CY 2015 to CY 2024. A majority of these findings (65 percent) were either self-revealed or identified through reactive inspections, follow-up of licensee event reports, or resident inspector annual PI&R samples. The remaining 35 percent of the greater-than-Green findings were associated with NRC inspections in security, emergency preparedness, and radiation safety.

Identification Credit for White Findings (Option 1). In its review of the assessment program, the staff evaluated options to incentivize positive licensee performance and ensure effectiveness of the oversight infrastructure. One aspect of this evaluation included assessing the use of identification credit, which has typically been reserved for Green inspection findings. As part of this effort, the staff revisited this practice and determined that changes incentivizing licensee identification of White findings are in the best interests of the ROP. This change would further encourage licensees to identify and rapidly resolve issues that affect safety systems before they may be required to operate in response to an actual event. As a result, the staff recommends that licensee-identified White inspection findings would not be counted as inputs to the Action Matrix but would still be subject to inspection for closure. While the NRC had not previously tracked identification credit for White findings, the staff believes that approximately 20 percent of the White findings during this period could be attributed to licensee identification. This data is approximate because past NRC inspection reports do not always clearly distinguish if the licensee merited identification credit. If the NRC grants licensee identification credit for White findings, additional guidance will need to be added to the NRC's inspection finding screening process for White findings to clearly delineate if a licensee should be granted identification credit.

Action Matrix Criteria (Option 2). The NRC determines its regulatory response in accordance with an Action Matrix that provides for a range of actions commensurate with the significance of the PI and inspection results. The purpose of the Action Matrix is to enable the agency to arrive at objective conclusions about the licensee's safety performance and determine the appropriate level of agency response. In the current framework, Column 1 of the Action Matrix is reserved for licensees with no greater-than-Green inputs, and Column 2 is reserved for licensees with no more than two White inputs in a performance area. If a licensee receives three or more White inputs, or one Yellow input in a performance area, the Action Matrix results in placement in Column 3 (Degraded Performance).

Because White Action Matrix inputs are of low to moderate significance, the staff recommends modifying the treatment of White Action Matrix inputs to better align with their safety and security significance, as originally envisioned when the ROP was developed. This recommendation is further supported by industry performance given that no plants have moved to Column 3 of the Action Matrix because of accumulated White Action Matrix inputs since 2015. As a result, the staff recommends revising the Action Matrix criteria so that multiple White Action Matrix inputs in Column 2 of the Action Matrix do not aggregate to result in assessment in Column 3. In this proposal, Column 1 of the Action Matrix would only be for Green Action Matrix inputs, and Column 2 would only be for White inputs. The entrance criteria for Column 3, which includes Yellow Action Matrix input, and for Column 4, which includes multiple Yellow Action Matrix inputs or one Red Action Matrix input, would remain unchanged.

Agency Action Review Meeting (Option 3). In CY 2001, the staff established a self-assessment program for the new ROP and committed "as part of the Agency Action Review process ... [to] continue to report to the Commission on an annual basis the results of its self-assessment and

any significant changes to the ROP.<sup>\*13</sup> It is the policy of the NRC to have its senior managers conduct an annual AARM.<sup>14</sup> The AARM serves as a forum to review overall trends and the effectiveness of the ROP, as well as the construction ROP and the Nuclear Materials and Waste Safety licensee oversight programs. The staff proposes that a standalone AARM Commission meeting would only be held if there were licensees who meet the criteria of MD 8.14. For power reactor licensees, these are: licensees that have transitioned to Column 4 of the ROP Action Matrix; licensees who have been in Column 3 of the ROP Action Matrix for 3 or more years; or licensees under Inspection Manual Chapter 0350<sup>15</sup> oversight.

Industry has demonstrated Column 1 or 2 performance with only two plants transitioning to Column 3 since CY 2016. The staff will continue to inform the Commission of the effectiveness of the ROP, including changes implemented as part of ADVANCE Act activities and pursuant to Section 5(g) of EO 14300, through the annual self-assessment paper. MD 8.14 direction to include a briefing on the results of the ROP (and Construction ROP as applicable) self-assessment, including lessons learned or recommended policy adjustments, as well as analysis of licensee performance trends, can be satisfied through the regular Commission briefings for the appropriate business lines.

Based on the above, the staff is proposing the following options for Commission consideration.

# *Option 1*: Revise treatment of licensee-identified White findings. When identified by a licensee, a White finding would not count as an Action Matrix input, but would still require inspection for closure. The inspection for closing the finding would be conducted as part of the IP 71152,<sup>16</sup> "Problem Identification and Resolution," annual sample.

Pros:

- Makes the ROP more performance-based and responsive to credible risks by encouraging licensees to initiate and/or continue efforts to identify and correct risk-significant issues in the areas of work processes and human performance.
- No licensee has transitioned to Column 3 of the Action Matrix by aggregating White findings in the Action Matrix in the past 10 years, indicating that this change may not have an impact on whether plants move to more degraded columns (Columns 3 and higher) in the Action Matrix (i.e., historical data indicates a low likelihood that this change will mask declining performance).
- The staff continues its inspection response to review the corrective actions taken but does so utilizing a more efficient method that appropriately reflects the licensee's proactive identification of the issue.

#### Cons:

• This change could be misunderstood as reducing the significance of licensee-identified White findings.

<sup>13</sup> SECY-01-0114, "Results of the Initial Implementation of the New Reactor Oversight Process," dated June 25, 2001 (ML011410551).

<sup>14</sup> MD 8.14, "Agency Action Review Meeting," dated May 1, 2023 (ML23074A011).

<sup>15</sup> IMC 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns," dated October 16, 2023 (ML23271A156).

<sup>16</sup> IP 71152, "Problem Identification and Resolution (PI&R)," dated October 31, 2023 (ML23214A284).

- Declining performance could be masked when a licensee-identified White inspection finding does not aggregate with other White Action Matrix inputs.
- The lower level of effort associated with a PI&R annual sample is less inspection effort than is conducted under IP 95001, "Supplemental Inspection Response to Action Matrix Column 2 (Regulatory Response) Inputs,"<sup>17</sup> which would otherwise apply if the licensee moved in the Action Matrix.
- May result in decreased efficiency due to time spent resolving challenges associated with whether credit should have been granted for licensee identification.

The cons associated with Option 1 could be mitigated through NRC inspection manual guidance changes that clearly define a licensee-identified White finding. Enhanced procedures would ensure inspectors apply the right level of resources to provide reasonable assurance that the White finding is corrected.

# *Option 2:* Revise the Action Matrix criteria so that multiple White Action Matrix inputs in Column 2 of the Action Matrix do not aggregate to result in assessment in Column 3.

Pros:

- Treats White Action Matrix inputs in a similar manner as Green Action Matrix inputs such that their aggregation does not result in transitioning to the next Action Matrix Column.
- Aligns with the ADVANCE Act Section 507(d)(3)(a) requirement regarding increased use
  of inspection approaches that balance the level of resources commensurate with safety
  significance, as well as the direction in Section 5(g) of EO 14300 to revise the ROP to
  reduce unnecessary burden and respond to credible risks.
- IP 95001 is already designed to increase the inspection effort for multiple White findings.
- Not conducting a more resource-intensive IP 95002, "Supplemental Inspection Response to Action Matrix Column 3 (Degraded Performance) Inputs,<sup>\* 18</sup> inspection for White inspection findings allows the staff to focus on other oversight activities, ensuring efficient use of staff resources.

Cons:

- There is a potential reduced amount of oversight and inspection by not using IP 95002 if a licensee meets the current criteria to transition into Column 3.
- If performance issues persist as reflected by additional White Action Matrix inputs, plants might remain in Column 2 longer than appropriate, delaying more rigorous NRC oversight.
- The IP 95002 inspection objective to independently determine if safety culture traits

18 IP 95002, "Supplemental Inspection Response to Action Matrix Column 3 (Degraded Performance) Inputs," dated March 19, 2021 (ML20238C055).

<sup>17</sup> IP 95001, "Supplemental Inspection Response to Action Matrix Column 2 (Regulatory Response) Inputs," dated August 19, 2021 (ML21175A172).

caused or significantly contributed to the performance issues would not be accomplished, but this could be mitigated by conducting an IP 93100, "Safety-Conscious Work Environment Issue of Concern Followup,"<sup>19</sup> inspection.

The cons associated with Option 2 could be mitigated through NRC inspection manual guidance changes that ensure inspectors apply the right level of resources to provide reasonable assurance that the White finding was corrected. Since the inception of the ROP, very few plants have transitioned to higher columns of the ROP Action Matrix due to multiple White findings. In these instances, the agency may deviate from the Action Matrix to provide the appropriate level of oversight if warranted.

# *Option 3*: Revise the AARM Commission meeting requirements to only conduct a standalone AARM Commission meeting when a licensee meets the MD 8.14 criteria.

Pros:

- Reduces the staff resources spent on preparing for an additional Commission meeting when no licensee meets the MD 8.14 criteria.
- Promotes risk-informed use of AARM Commission meeting.
- The ROP (and Construction ROP as applicable) self-assessment, including lessons learned or recommended policy adjustments, as well as analysis of licensee performance trends are unaffected by the change and are publicly documented.

Cons:

- Eliminates a public forum for cross-business-line discussion of oversight trends, selfassessment, and analysis.
- This change may lead to more crowded agendas for the operating reactors and materials business lines meetings, as program assessments might be included in these meetings.

The cons associated with Option 3 could be mitigated by increasing public awareness on the ROP assessment information via the NRC public website (e.g., Spotlight) and social media. In addition, the NRC staff will increase the focus of the operating reactors and materials business lines meetings on the most important safety and security significant information.

Option 4: Maintain the status quo; no change to the treatment of licensee-identified White inspection findings; no change to Action Matrix criteria for multiple White Action Matrix inputs, or no change to the AARM Commission meeting requirements.

Pros:

• Licensees are expected to identify all conditions adverse to quality and enter them into their Corrective Action Program; therefore, additional incentive may not be warranted.

<sup>19</sup> IP 93100, "Safety Conscious Work Environment Issue of Concern Followup," dated July 14, 2021 (ML21197A608).

• If performance issues persist as reflected by additional White Action Matrix inputs, plants will receive additional oversight by transitioning to Column 3 of the Action Matrix.

Cons:

- Does not reward licensees who actively identify and rapidly resolve potentially safetysignificant conditions adverse to quality.
- Missed opportunity to increase efficiency and make the ROP more performance-based.
- Does not balance the level of resources commensurate with safety significance consistent with Section 507(d)(3)(a) of the ADVANCE Act or enable the ROP to reduce unnecessary burden or focus on credible risks pursuant to Section 5(g) of EO 14300.

The cons associated with Option 4 could be mitigated in the ROP comprehensive review.

#### Staff Recommendation for Assessment Program

The staff recommends that the Commission approve Options 1, 2, and 3.

Option 1 will revise the treatment of White findings to grant licensees identification credit when they proactively discover and promptly resolve issues. This change incentivizes strong performance by rewarding licensees who take early, proactive action on potentially safety-significant issues. It also reduces the staff time spent on issues that licensees are already addressing, enabling the NRC to redirect resources to areas of greater safety and security significance. Overall, encouraging proactive identification enhances safety at NRC-regulated facilities, aligning with the NRC's mission to protect public health and safety.

Option 2 will revise the ROP Action Matrix criteria so that White findings no longer aggregate to escalate a licensee into a higher oversight category. This approach enables the NRC to align inspection resources with the actual safety significance of findings. Since White findings reflect a specific level of risk (low to moderate), the NRC staff believes that each White finding should drive an appropriate level of oversight independently—similar to the treatment of Green findings—rather than cumulatively escalating oversight levels.

Option 3 will revise the scheduling criteria for the AARM Commission meeting so that such meetings are only held when a plant meets the specific thresholds outlined in MD 8.14. This change will conserve resources by eliminating the need to prepare for and conduct standalone meetings in cases where the safety significance does not warrant them. Instead, relevant issues can be efficiently addressed through integration into existing meetings.

#### 2. Cross-Cutting Issues Program

In CY 2020, the staff issued a final report<sup>20</sup> on the effectiveness of the Cross-Cutting Issues program, following a review of the changes made in CY 2015. These changes included increasing the threshold for identifying a cross-cutting theme from four to six findings with a common cross-cutting aspect during a 12-month period.<sup>21</sup> Additionally, a cross-cutting theme

<sup>20 &</sup>quot;Results of the Reactor Oversight Program Self-Assessment Effectiveness Review of the Cross-Cutting Issues Program," dated September 21, 2020 (ML20239A806).

<sup>21</sup> Because SCWE-related issues take time to correct, an 18-month period after a SCWE theme is identified is warranted to assess the effectiveness of SCWE-related corrective actions.

was introduced when aggregating findings at the cross-cutting area level (i.e., Human Performance or PI&R). Furthermore, the staff added a requirement that the same theme must exist for three consecutive assessment periods before assessing a cross-cutting issue.

For this review, the staff completed a data analysis of cross-cutting aspects assigned to inspection findings since the changes were implemented in CY 2015. The staff also analyzed the data using the original criteria for a cross-cutting theme (i.e., four findings with the same aspect in a 12-month period). The data shows that since CY 2015, licensees exceeded the threshold for a cross-cutting theme at the cross-cutting area level 12 times and at the cross-cutting aspect level 6 times. During this period, only two cross-cutting issues were assessed: one in the Safety Conscious Work Environment (SCWE) Area and a recent one in the Human Performance Area. When comparing these results with the original criteria, the analysis revealed 89 instances of cross-cutting themes, with half of those occurring for only one assessment period. In addition, only two licensees had the same cross-cutting theme for more than two consecutive assessment periods. The data analysis led the staff to conclude that the current program effectively enables licensees to correct performance in cross-cutting areas without the need for the NRC to assess a cross-cutting issue.

Some inspectors have stated that the program is not effective due to the high thresholds and an excessive number of cross-cutting aspects to characterize inspection findings. Cause analyses for many events identify weaknesses associated with multiple cross-cutting aspects, making the selection of the appropriate cross-cutting aspect subjective in some cases. As a threshold for a cross-cutting theme is approached, the burden on inspector and licensee resources increases when selecting the appropriate cross-cutting aspect.

Based on the above, the staff is proposing the following options for Commission consideration.

#### Option 1: Maintain the status quo.

#### Pros:

- Inspectors and licensees understand the existing process.
- Licensees are addressing cross-cutting aspects assigned to findings by entering issues into their Corrective Action Programs before they become cross-cutting themes and bigger concerns to the NRC.

#### Cons:

- Does not address program subjectivity caused by the use of cross-cutting aspects. In some cases, more than one cross-cutting aspect could apply to a single inspection finding. This results in a considerable amount of effort spent deciding the most appropriate cross-cutting aspect, including internal alignment, and possible increased interactions with licensees.
- Does not address some stakeholder feedback that the existing Cross-Cutting Issues program does not add value to the oversight program.
- Does not increase the efficiency of the Cross-Cutting Issues program, a goal consistent with Section 507 and EO 14300, Section 5(g).

The cons associated with Option 1 could be mitigated through enhancing program guidance and highlighting the value of the program to external stakeholders.

# *Option 2*: Eliminate cross-cutting aspects and characterize findings by cross-cutting area (i.e., reduce characterization options from 23 to 3).

Pros:

- Improves reliability and efficiency by eliminating the subjectivity involved in assigning an appropriate cross-cutting aspect to an inspection finding. It reduces the time spent determining which of the 14 Human Performance aspects, 6 PI&R aspects, or 3 SCWE aspects to assign to the finding.
- An evaluation of data since CY 2015 shows that cross-cutting themes have been triggered at the area level twice as often as at the aspect level. This suggests that monitoring at the area level is a stronger indicator of programmatic or cultural issues.

Cons:

- Assigning cross-cutting aspects to findings provides licensees with a specific area on which to focus their causal evaluation and corrective actions. Without this specificity, any causal evaluation conducted would only be informed by inspector feedback indicating challenges in the areas of Human Performance or PI&R, potentially requiring licensees to expend more resources.
- Does not address some stakeholder feedback that the Cross-Cutting Issues program does not add any additional value beyond existing programs that licensees already have in place to monitor and address safety culture and should be completely eliminated.

The cons associated with Option 2 are minimal, as licensees already perform evaluations and identify underlying causes of performance issues. To address stakeholder concerns about the value of the Cross-Cutting Issues program, the NRC will improve communications on how the new program works and how cross-cutting issues are identified and assessed.

#### **Option 3: Discontinue the Cross-Cutting Issues program.**

Pros:

- Enhance efficiency and reduce unnecessary burden by not expending additional resources on issues of very low safety significance.
- Addresses some inspector feedback that the Cross-Cutting Issues program does not add value because its thresholds are too high and some stakeholder feedback that it does not add any additional value beyond existing programs that licensees already have in place to monitor and address safety culture and should be completely eliminated.
- Data indicates that licensees are already addressing cross-cutting concerns without the need for the NRC to intervene.

Cons:

- Decreases overall ROP sensitivity in identifying early potential safety culture issues that could result in more significant inspection findings, thereby removing the opportunity to inspect the potential of declining performance or encourage licensees to take corrective actions before more significant performance issues occur.
- The Cross-Cutting Issues program was developed at the direction of the Commission,<sup>22</sup> and eliminating it would remove the only ROP element that tracks safety culture performance insights.
- Without the program, licensees may be less likely to continue to track and trend inspection findings cross-cutting aspects at the same level of rigor that they do today.

The cons associated with Option 3 could be mitigated by placing greater reliance on the results of PI&R inspections, which assess licensees' ability to identify, evaluate, and resolve issues through their corrective action program. The staff could also rely more heavily on industry assessments that NRC inspectors review under the NRC's memorandum of understanding with the Institute of Nuclear Power Operators. If the Cross-Cutting Issues program is eliminated, the NRC can use the results of PI&R inspections and industry assessments to help identify underlying safety culture issues that may lead to more significant inspection findings and potential future performance declines.

The staff also considered the following options during this review, but they were not pursued because they do not improve ROP effectiveness or efficiency:

- Characterize inspection findings by the 10 safety culture traits<sup>23</sup> instead of using the cross-cutting aspects. While this option would increase granularity in safety culture and SCWE issues, it would also increase inspector resources needed to align on the correct trait. The staff estimates that there would be negligible difference in resource usage between the current process that involves 23 cross-cutting aspects when compared to a process that involves 10 safety culture traits, so this option would result in minimal efficiency gains.
- Allow licensees to track and trend cross-cutting aspects while the staff monitors and validates the licensees' findings, similar to verifying PIs. This option would potentially present efficiencies for the NRC, but would also shift the regulatory burden to the licensee. Due to the continued obligation to track and trend as well as the need for the NRC to develop a process to monitor and validate licensees' findings, the staff determined that this option would not be an overall improvement in efficiency.

#### Staff Recommendation for Cross-Cutting Issues Program

The staff recommends that the Commission approve Option 2, which involves characterizing inspection findings at the cross-cutting area level. Option 2 reduces the subjectivity associated with the program while retaining the necessary data to track and trend, allowing the staff to

<sup>22</sup> SRM-SECY-04-0111, "Staff Requirements - SECY-04-0111 - Recommended Staff Actions Regarding Agency Guidance in the Areas of Safety Conscious Work Environment and Safety Culture," dated August 30, 2004 (ML042430661).

<sup>23</sup> NUREG-2165, "Safety Culture Common Language," dated March 31, 2014 (ML14083A200) presents a suggested common language, agreed upon by the staff and the nuclear industry that uses 10 traits to classify and group the attributes of a healthy nuclear safety culture, which encompass the cross-cutting aspects used in the ROP.

monitor licensee performance in the cross-cutting areas. While some stakeholders prefer to completely eliminate the Cross-Cutting Issues program, it is important to keep the program since historically, problems in the cross-cutting areas have often been the root cause for significant performance issues in plants. Specifically, the NRC's 2020 safety culture effectiveness review noted a statistically significant predictive association between accumulating cross-cutting aspects and future performance decline.<sup>24</sup> This effectiveness review identified that plants that reached cross-cutting theme thresholds were at least twice as likely as plants without themes to exhibit declining performance as measured by Action Matrix movement out of Column 1 or nearly twice as likely to experience a precursor event as determined by the Accident Sequence Precursor program within the next year.

#### 3. NRC-Developed Power Reactor Initial Operator Licensing Examinations

The staff identified an activity associated with power reactor initial operator licensing examinations that can be modified to improve efficiency. Specifically, the current guidance provides standards for each regional office to prepare at least one initial operator licensing examination per calendar year; however, this guidance can be modified to make better use of NRC and industry resources. A recent review and perspectives collected from both internal and external stakeholders indicate that to make better use of NRC and industry resources, the agency should modify the guidance to shift away from each region preparing at least one power reactor initial operator licensing examination per year, with limited exceptions. Specifically, the following data indicates that this change would be beneficial:

- NRC chief examiners in each region provided feedback indicating that the current requirement is burdensome because the skills for writing examinations are sufficiently maintained through existing reviews of examinations submitted by facility licensees and working with them to improve examination quality. In addition, they find that examination-writing skills can be maintained using other methods, including refresher training, annual examiner conferences, workshops, and through a community of practice, rather than having each region write at least one power reactor initial operator licensing examination per year.
- NRC-developed initial operator licensing examinations prepared by fully qualified examiners can result in an additional 650–750 fee-billable hours per region, or roughly 4% of the NRC's yearly operator licensing resources, per written examination<sup>25</sup> for examination development activities that facility licensees would otherwise perform with their own resources. Some facility licensees have specifically requested that the NRC not prepare their examinations due to the increased fee-billable costs associated with it.

In summary, the staff believes modifying the guidance to shift away from each region preparing at least one power reactor initial operator licensing examination per year will improve efficiency and result in improved use of NRC and industry resources, while continuing to sufficiently maintain NRC examiner proficiency with examination writing.

24 "Safety Culture Effectiveness Review," page 16, dated March 20, 2023 (ML22340A452).

<sup>25</sup> Fee-billable hours for a sample of examinations prepared by fully qualified NRC examiners were compared to facility licensee-developed examinations at the same facilities.

# *Option 1*: Modify the guidance to shift away from each region preparing at least one power reactor initial operator licensing examination per year.

Pros:

- Reduces resource expenditures and unnecessary burden associated with the NRC developing examinations not requested by facility licensees.
- NRC examination-writing proficiency will be maintained by existing processes, including examiner refresher training requirements and examiner conferences.
- Is responsive to feedback received from external and internal stakeholders that the status quo is not efficient.

Cons:

• One-time use of NRC resources (approximately 10 staff hours) to modify the guidance with the new change.

The cons associated with Option 1 are minimal; no mitigation is needed.

# *Option 2*: Maintain the status quo; continue to require each region to write at least one power reactor initial operator licensing examination per year.

Pros:

- No changes needed to the guidance; therefore, no resources would be expended revising the guidance.
- NRC examination-writing proficiency is maintained as each region would continue implementing the current requirement of writing at least one power reactor initial operator licensing examination per year.

Cons:

- Continued use of resources for the NRC development of examinations, although doing so is not necessary for maintaining proficiency.
- Is not responsive to feedback received from external and internal stakeholders that the status quo is not efficient.
- Because the requirement is to write one exam per year per region, the responsibility is
  rotated among the examiners in each region, meaning the action only involves a limited
  number of examiners annually.

The cons associated with Option 2 could be mitigated by improving communication about the value of each region writing at least one power reactor initial operator licensing examination per year. Concerns that the yearly schedule benefits only a limited number of examiners can be mitigated by rotating examiners so that those involved in exam development change each year.

The staff recommends that the Commission approve Option 1 to modify the guidance to shift away from each region preparing at least one power reactor initial operator licensing examination per year. If approved by the Commission, the staff would update the guidance to provide examples of occasions when the NRC would still write an examination for a facility licensee (e.g., as needed to qualify new NRC staff, when requested by the facility licensee, as needed for new reactor technologies, or if the region has concerns with examination security or quality).

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#### **Commission Notification Items**

MD 8.13 describes the ROP changes that require Commission approval and those that require Commission notification. The following planned staff activities, discussed in more detail in Enclosure 1, meet the criteria for Commission notification before implementation:

- The staff is undertaking a comprehensive review of the ROP to maximize the efficiency of the program, consistent with Section 507 and EO 14300, Section 5(g). The staff plans to review all inspection procedures, starting with the baseline inspection program and then moving to the reactive and supplemental programs. This review will begin with a complete review of all ROP PIs with the expectation that some PIs will be adjusted, others eliminated, and new PIs identified to enable reductions in certain inspectable areas. Following completion of the PI review, the staff will evaluate all ROP baseline IPs to validate, eliminate, and adjust inspection samples in a risk-informed, performance-based approach, ensuring that the inspection program complements the revised PIs and allowing the elimination of duplicative oversight activities. As part of the comprehensive review, the staff will evaluate actions that are not being provided for Commission consideration (see Enclosures 3 and 4). The staff is also implementing immediate changes to the ROP to gain efficiencies before completing the comprehensive review.
- The staff intends to revise guidance pertaining to the definition of "licensee-identified," allowing the staff to grant identification credit for findings resulting from a good questioning attitude by plant staff. This change is based on an industry recommendation that positive behaviors associated with issue identification should be recognized and will have the positive benefit of reducing the level of effort needed to screen and document issues of very low safety significance.
- The staff intends to implement ROP team inspections in a hybrid format, reducing the onsite duration from 2 weeks to 1 week, with the second week conducted remotely. This change will reduce NRC travel expenses with a minimal, if any, impact on the effectiveness of these inspections.
- The staff intends to eliminate two IPs used by the staff to review licensee corrective actions for traditional enforcement violations (IP 92722, "Follow-Up Inspection for Any Severity Level I or II Traditional Enforcement Violation or for Two or More Severity Level III Traditional Enforcement Violations in a 12-Month Period,"<sup>26</sup> and IP 92723, "Follow-Up Inspection for One Severity Level III and Two Severity Level IV Traditional Enforcement

<sup>26</sup> IP 92722, "Follow-Up Inspection for Any Severity Level I or II Traditional Enforcement Violation or for Two or More Severity Level III Traditional Enforcement Violations in a 12-Month Period," dated September 16, 2021 (ML20261H375).

Violations or for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period,<sup>"27</sup>). This change will eliminate procedure redundancy with no impact to inspection program effectiveness since inspectors will address the follow-up of traditional enforcement violations using PI&R samples, including select issue follow-up and semiannual trend reviews, or through IP 92702, "Follow-Up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, and Orders,"<sup>28</sup> which is the procedure for follow-up on traditional enforcement actions.

- The staff intends to reduce the number of inspectors for the Comprehensive Engineering Team Inspection by one (from seven to six). This inspection has a current inspection sample range of 19-38 samples with a resource estimate of 490 +/- 74 inspection hours. This change will reduce the sample range to 15-34 samples and resource estimate to 420 +/- 63 inspection hours and is being implemented to reflect the maturity of licensee engineering programs.
- The staff intends to revise the frequency of IP 71130.07, "Security Training,"<sup>29</sup> from biennial to triennial. This procedure is used to review licensee security training programs to assess security personnel knowledge, skills, and abilities to conform with training and qualification plans and other regulatory requirements. Based on a review of inspection findings data, the staff determined that security training programs are mature, and it is appropriate to move this procedure to a triennial frequency.
- The staff intends to expand the scope of the Very Low Safety Significance Issue Resolution process in all ROP guidance documents. This change will allow the staff to discontinue inspection of any issue where it is unclear if a non-compliance exists, provided that the issue is of very low safety or security significance. Similar changes would also be made to guidance used by the other business lines, saving inspection and oversight resources that have historically been spent on issues with little to no significance but that require large amounts of staff time to understand if a noncompliance exists.
- The staff intends to decrease the frequency of the cybersecurity baseline inspections from biennial to triennial and adjust the duration and staffing levels for these activities. This change is based on staff analysis of past inspection results showing that licensee cyber security programs are relatively stable and that it would be appropriate to move these procedures to a triennial frequency.
- The staff plans to revise the guidance on when to inspect more than the minimum number of samples specified in an IP. Currently, all NRC IPs define a range for both sample size and budgeted hours, which together represent full completion of the procedure. The proposed change will shift the use of NRC inspection resources toward the lower end of these estimates. This adjustment is intended to temporarily realign the baseline inspection program during the ROP comprehensive review, reflecting the current performance of licensees.

28 IP 92702, "Follow-Up on Traditional Énforcement Actions Including Violations, Deviations, Confirmatory Action Letters, and Orders," dated October 26, 2020 (ML20139A160).

<sup>27</sup> IP 92723, "Follow-Up Inspection for One Severity Level III and Two Severity Level IV Traditional Enforcement Violations or for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period," dated September 16, 2021 (ML20261H378).

<sup>29</sup> IP 71130.07, "Security Training," dated January 2, 2024 (ML23290A122).

#### RECOMMENDATIONS:

The staff recommends that the Commission approve the following changes:

Issue 1: Assessment Program. The staff recommends that the Commission approve:

- Option 1, revising the treatment of licensee-identified White inspection findings, such that they would not be Action Matrix inputs but would still be closed out through follow-up inspection.
- Option 2, revising the Action Matrix criteria so that multiple White Action Matrix inputs in Column 2 of the Action Matrix do not aggregate to result in assessment in Column 3.
- Option 3, revising the AARM Commission meeting requirements to only conduct a standalone AARM Commission meeting when a licensee meets the MD 8.14 criteria.

**Issue 2:** <u>Cross-Cutting Issues Program</u>. The staff recommends that the Commission approve Option 2 to characterize inspection findings at the cross-cutting area level rather than at the cross-cutting aspect level.

**Issue 3:** <u>NRC-Developed Power Reactor Initial Operator Licensing Examinations</u>. The staff recommends that the Commission approve Option 1 to modify the guidance to shift away from each region preparing at least one power reactor initial operator licensing examination per year.

#### **RESOURCES:**

The resources to conduct the comprehensive review of the ROP will come from resources savings generated from the suspension of some staff self-assessment activities during CYs 2025 and 2026, as discussed in SRM-COMSECY-25-0001.<sup>30</sup> This effort falls under the regular job duties for program office staff that are already budgeted. Enclosure 2 summarizes the initiatives that are described in this paper, along with additional initiatives that do not require Commission approval or notification but are included for Commission awareness. Enclosure 4 (non-public) provides estimated resource savings for these initiatives.

SRM-COMSECY-25-0001, "Staff Requirements - COMSECY-25-0001 - Proposed Suspension of Some Staff Self-Assessment Activities for Calendar Years 2024 and 2025," dated April 15, 2025 (ML25104A272).

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#### **COORDINATION:**

The Office of the General Counsel reviewed this package and has no legal objection. The Office of the Chief Financial Officer reviewed this package for resource implications and has no objections.

Mirela Gavrilas, PhD Executive Director for Operations

Enclosures:

- 1. Items for Commission Notification
- 2. Summary of Recommended and Planned Actions
- 3. Other Options Considered for Reactor Oversight Process Program Areas
- 4. Estimated Resource Savings for Evaluated Actions (non-public)

#### SUBJECT: RECOMMENDATIONS FOR REVISING THE REACTOR OVERSIGHT PROCESS DATED: JUNE 5, 2025

#### ADAMS Accession Numbers: ML25127A212 (package) ML25042A278 (SECY paper) Enclosure 1: ML25127A218 Enclosure 2: ML25127A217 Enclosure 3: ML25127A216 Enclosure 4: ML25127A215 (non-public)

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