IMPROVING OVERSIGHT AND INSPECTION PROGRAMS

A Report for the
U.S. Senate Committee on Environment and Public Works and the
U.S. House of Representatives Committee on Energy and Commerce

U.S. Nuclear Regulatory Commission
July 2025

TABLE OF CONTENTS

INTRODUCTION 4

STAKEHOLDER INPUT (SECTION 507(C) OF THE ADVANCE ACT) 7

ASSESSMENT OF SPECIFIC ELEMENTS OF OVERSIGHT AND INSPECTIONS (SECTION 507(d)(1) OF THE ADVANCE ACT) 8

- Use of Travel Resources (Section 507(d)(1)(A)) 8
- Planning and Preparation for Inspections (Section 507(d)(1)(B)) 9
- Document Collection and Preparation (Section 507(d)(1)(C)) 9
- The Cross-Cutting Issues Program (Section 507(d)(1)(D)) 10

ASSESSMENT OF MEASURES TO IMPROVE OVERSIGHT AND INSPECTIONS (SECTION 507(d)(2) OF THE ADVANCE ACT) 10

- Elimination of Areas of Duplicative or Otherwise Unnecessary Activities (Section 507(d)(2)(A)) 10
- Increased Use of Templates in Documenting Inspection Results (Section 507(d)(2)(B)) 12
- Periodic Training of Commission Staff and Leadership on the Application of Risk-Informed Criteria (Section 507(d)(2)(C)) 12

ASSESSMENT OF MEASURES TO ADVANCE RISK-INFORMED PROCEDURES (SECTION 507(d)(3) OF THE ADVANCE ACT) 12

- Increased Use of Inspection Approaches that Balance the Level of Resources Commensurate with Safety Significance (Section 507(d)(3)(A)) 12
- Increased Review of the Use of Inspection Program Resources Based on Licensee Performance (Section 507(d)(3)(B)) 14
- Expansion of Modern IT to Risk-Inform Oversight and Inspection Decisions (Section 507(d)(3)(C)) 15
- Updating the Differing Professional Views or Opinions Process to Ensure Any Impacts on Agency Decisions and Schedules Are Commensurate with the Safety Significance of the Differing Opinion (Section 507(d)(3)(D)) 16

ASSESSMENT OF THE COMMISSION'S ABILITY TO ENABLE LICENSEE INNOVATIONS THAT MAY ADVANCE NUCLEAR REACTOR OPERATIONAL EFFICIENCY AND SAFETY (SECTION 507(d)(4) OF THE ADVANCE ACT) 17

- Oversight Programs Tailored to Advanced Reactors: the ARCOP and the AROP 17
- Light-Water Reactor Sustainability (LWRS) Program 18
- Acceptance of Digital Technology 18

RECOMMENDATIONS RESULTING FROM THE ASSESSMENTS IN THIS REPORT (SECTION 507(d)(5) OF THE ADVANCE ACT) 19

SPECIFIC ACTIONS THAT THE COMMISSION MAY TAKE TO INCORPORATE THE RECOMMENDATIONS INTO TRAINING, INSPECTION, OVERSIGHT, AND LICENSING ACTIVITIES AND REGULATIONS (SECTION 507(d)(6) OF THE ADVANCE ACT) 19

WHEN THE ACTIONS IDENTIFIED UNDER SECTION 507(d)(6) MAY BE IMPLEMENTED (SECTION 507(d)(7) OF THE ADVANCE ACT) 20

CONCLUSION 21

ACRONYMS 22
REFERENCES 22
ENCLOSURE 1 ..... E1-1
ENCLOSURE 2 ..... E2-1

INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC, the Commission) developed this report as required by Section 507 of the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act) (Ref. 1). Specifically, Section 507 of the ADVANCE Act requires the following:

> (a) DEFINITION OF LICENSEE.—In this section, the term "licensee" means a person that holds a license issued under section 103 or 104 of the Atomic Energy Act of 1954 (42 U.S.C. 2133, 2134).
>
> (b) REPORT.—Not later than 1 year after the date of enactment of this Act, the Commission shall develop and 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 (42 U.S.C. 2011 et seq.) that the Commission may implement to 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.
>
> (c) STAKEHOLDER INPUT.—In developing the report under subsection (b), the Commission shall, as appropriate, seek input from—
> (1) other Federal regulatory agencies that conduct oversight and inspections;
> (2) the nuclear energy industry;
> (3) nongovernmental organizations; and
> (4) other public stakeholders.
>
> (d) CONTENTS.—The report submitted under subsection (b) shall—
> (1) assess specific elements of oversight and inspections that may be modified by the use of technology, improved planning, and continually updated risk-informed, performance-based assessment, including—
> (A) use of travel resources;
> (B) planning and preparation for inspections, including entrance and exit meetings with licensees;
> (C) document collection and preparation, including consideration of whether nuclear reactor data are accessible prior to onsite visits or requests to the licensee and that document requests are timely and within the scope of inspections; and
> (D) the cross-cutting issues program;
> (2) identify and assess measures to improve oversight and inspections, including—
> (A) elimination of areas of duplicative or otherwise unnecessary activities;
> (B) increased use of templates in documenting inspection results; and
> (C) periodic training of Commission staff and leadership on the application of risk-informed criteria for—
> (i) inspection planning and assessments;
> (ii) agency decision-making processes on the application of regulations and guidance; and
> (iii) the application of the Commission's standard of reasonable assurance of adequate protection;
> (3) assess measures to advance risk-informed procedures, including—

(A) increased use of inspection approaches that balance the level of resources commensurate with safety significance;
(B) increased review of the use of inspection program resources based on licensee performance;
(C) expansion of modern information technology, including artificial intelligence and machine learning, to risk-inform oversight and inspection decisions; and
(D) updating the Differing Professional Views or Opinions process to ensure any impacts on agency decisions and schedules are commensurate with the safety significance of the differing opinion;

(4) assess the ability of the Commission, consistent with the mission of the Commission, to enable licensee innovations that may advance nuclear reactor operational efficiency and safety, including the criteria of the Commission for timely acceptance of licensee adoption of advanced technologies, including digital technologies;
(5) identify recommendations resulting from the assessments described in paragraphs (1) through (4);
(6) identify specific actions that the Commission may take to incorporate into the training, inspection, oversight, and licensing activities, and regulations, of the Commission, without compromising the mission of the Commission, the recommendations identified under paragraph (5); and
(7) describe when the actions identified under paragraph (6) may be implemented.

On May 23, 2025, President Trump issued Executive Order (EO) 14300, "Ordering the Reform of the Nuclear Regulatory Commission" (Ref. 2), directing the NRC to take additional actions to reform the NRC. Section 5 of EO 14300 directs the NRC to revise its regulations and guidance documents to facilitate nuclear technology deployment. As part of these efforts, Section 5(g) directs the NRC specifically to "[r]evise the Reactor Oversight Process [(ROP)] ... to reduce unnecessary burdens and be responsive to credible risks."

The assessment conducted pursuant to Section 507 of the ADVANCE Act laid the foundation for improvements to the NRC's reactor and materials oversight and inspection programs.[1] These improvements include specific, near-term changes to the inspection program to increase efficiency and reduce redundancy. Further, as a result of the staff's assessment, the NRC also determined that a broad, comprehensive review of the ROP would allow for consideration of improvements in industry performance and advancements in technology. This comprehensive review will also provide the NRC with a mechanism to further revise the ROP consistent with the direction in EO 14300. This ongoing action is expected to yield resource savings of approximately 30% by leveraging existing data on plant performance, revising inspection procedures to better incorporate risk insights and historical trends in inspection findings, and optimizing how baseline inspections are distributed between resident and regional inspectors. Enclosure 1 contains summary tables of the improvements discussed in this report.

[1] The reactor program encompasses operating power reactors and nonpower production or utilization facilities. The materials program encompasses diverse uses of radioactive materials, including fuel cycle facilities; academic, medical, commercial, and industrial materials users (nuclear materials users); decommissioning, uranium recovery, and low-level waste facilities; and spent fuel storage and transportation.

To date, key improvements to the reactor and materials oversight and inspection programs include:

- Building on effective programs and modifying processes to balance oversight and inspection resources commensurate with safety and security significance. For example, the NRC expanded the Very Low Safety Significance Issue Resolution (VLSSIR) process across reactor and materials programs, enabling very low safety or security significant issues to be addressed more expeditiously. The NRC also improved processes for resolving internal differing views to ensure that agency decisions are more timely and use the appropriate level of resources commensurate with the safety or security significance of the issue.

- Reducing the periodicity of some inspections and the size of certain inspection teams, which will decrease resource expenditures for the NRC and licensees, including travel resources. For example, the NRC is reducing the frequency of emergency preparedness drill evaluations from annual to biennial, consistent with licensee feedback and performance.

- Leveraging technology to optimize resource usage and enhance efficiency. For example, the NRC is expanding the use of information technology (IT) tools to streamline inspection planning and preparation activities. The NRC is also expanding the use of remote and hybrid inspections, as well as virtual entrance and exit meetings for both reactor and materials licensees. These improvements will reduce burden for licensees through decreased resource expenditures.

- Increasing the use of templates to improve timeliness and consistency across inspections and eliminate unnecessary administrative burden. In particular, the NRC is expanding the use of templates for requesting documents from licensees for oversight and inspection activities and for documenting inspection results.

The NRC has also identified data-driven measures to evaluate the effectiveness of actions discussed in this report. For example, the NRC will measure the reduction in travel costs from implementing remote inspections and the time spent preparing for inspections for both the reactor and materials oversight and inspection programs. Additionally, the NRC has reduced inspection hours by guiding inspectors to complete the minimum number of samples instead of a nominal number of samples per inspection procedure.[2] The NRC plans to use the future revised ROP performance indicators, which will take advantage of data the industry is already collecting, to measure reductions in required ROP inspection resources.

The NRC will also use metrics to monitor success in implementing changes to both the reactor and materials inspection programs. For example, metrics can be used to assess the amount of time spent on preparation and documentation compared to the direct inspection effort. This is expected to increase accountability in overall inspection program expenditures by measuring against set targets and benchmarking across regions and inspection types.

[2] Previous inspection planning guidance was to inspect to the number of samples listed as "nominal" in each inspection procedure. Each inspection procedure has a minimum, nominal, and maximum number of samples listed.

STAKEHOLDER INPUT (SECTION 507(C) OF THE ADVANCE ACT)

Consistent with Section 507(c) of the ADVANCE Act, the NRC held 13 public meetings to engage a diverse range of stakeholders and gather their perspectives. The NRC also sought direct feedback from other Federal agencies that conduct oversight and inspections, specifically, the Federal Emergency Management Agency, the Federal Aviation Administration, the Defense Nuclear Facilities Safety Board, and the Department of Energy (DOE). Further, the NRC received written and verbal feedback from the nuclear industry, nongovernmental organizations, and other public stakeholders related to Section 507. Enclosure 2 contains details of the public meetings and a list of the incoming correspondence. The NRC also received feedback from its own staff who perform inspection and oversight work.

The NRC learned valuable lessons from its engagements with other Federal agencies that conduct oversight and inspections. For example, the NRC learned that other agencies consider past licensee performance when determining the level of inspection needed to provide reasonable assurance. Other agencies also use modern IT more extensively than the NRC to plan and perform oversight and inspection activities. The NRC is working to incorporate the lessons learned from these engagements into the comprehensive review of the ROP and updates to the materials oversight and inspection program.

The nuclear industry submitted more than 40 recommendations to improve the reactor and materials oversight and inspection programs (Ref. 3, Ref. 4, and Ref. 5). Nearly all the recommendations aligned with internal NRC staff feedback. For example, both the staff and the industry highlighted the need for a comprehensive review of the ROP. The recommendations included reviewing inspection procedures with a focus on the level of resources versus the safety significance of the area being inspected, reviewing inspection procedures to eliminate duplicative inspections, reviewing the focus areas and tasks of resident inspectors, and reviewing the problem identification and resolution (PI&R) team inspection frequency and suggested enhancements. Improvements made to the ROP are expected to realize substantial cost savings for both the NRC and licensees.

The NRC is addressing many of the nuclear industry's recommendations, either through ongoing actions (Enclosure 1, Table 2) or as potential future actions (Enclosure 1, Table 3). However, the NRC did not pursue some recommendations as part of its response to Section 507 because the agency plans to consider them as part of other agency processes, or the recommendations would not provide a return on investment commensurate with the level of effort required to implement them. Examples of recommendations the NRC did not pursue include:

- The nuclear industry recommended reviewing Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a, "Codes and standards," to eliminate conditions that impose unnecessary burden on licensees. This recommendation would involve a substantial review of industry codes and standards incorporated by reference in the NRC's regulations. Because the assessment under Section 507 was focused specifically on improvements to oversight and inspection programs, the NRC will consider this recommendation as part of the implementation of EO 14300.

- The nuclear industry recommended that the NRC reevaluate its regional and headquarters organizational structure. The NRC did not pursue this recommendation as part of the assessment in response to Section 507 because it is being considered as part of the implementation of EO 14300 and EO 14210, "Implementing the President's

'Department of Government Efficiency' Workforce Optimization Initiative" (Ref. 6).

Some nuclear industry recommendations were addressed via an alternate approach to that presented in the feedback. For example, while the NRC did not adopt a nuclear industry recommendation to skip an independent spent fuel storage installation (ISFSI) inspection if a prior inspection resulted in no findings, and to limit the scope of the subsequent inspection, the NRC achieved the same objectives by extending the time between ISFSI inspections from biennial to triennial and reducing the resources required for the inspections.

ASSESSMENT OF SPECIFIC ELEMENTS OF OVERSIGHT AND INSPECTIONS (SECTION 507(D)(1) OF THE ADVANCE ACT)

Use of Travel Resources (Section 507(d)(1)(A))

The NRC assessed ways to optimize and reduce the use of travel resources in its oversight and inspection programs and identified specific improvements involving (1) using remote and hybrid inspections; (2) assigning inspections to inspectors who are located closer to facilities; (3) decreasing the size of certain inspection teams; (4) reducing the frequency of certain inspections; and (5) leveraging technology to better track resource usage.

Using remote and hybrid inspections allows the NRC to reduce travel resources while continuing to provide effective oversight. The NRC is implementing ROP team inspections in a hybrid format, with inspectors conducting a portion of the inspections from their respective regional office and using technology to interview plant staff if clarification or additional information is needed. This approach will reduce the amount of travel required to perform ROP team inspections from 2 weeks onsite to 1 week onsite and 1 week remotely, while also addressing industry feedback on the impacts of onsite team inspections on licensee staff. This ongoing action is expected to be completed by the end of quarter (Q) 4 of calendar year (CY) 2025 (ID1 in Enclosure 1, Table 2). Similarly, the NRC revised its guidance to apply aspects of the hybrid concept to the materials oversight and inspection program, reducing travel costs billed to licensees (Ref. 7) (Enclosure 1, Table 1). As another example, the NRC began assigning responsibility for inspecting nonpower production or utilization facilities (NPUFs) to qualified NRC inspectors who are located closest to the facility, which is expected to reduce travel costs billed to licensees (Enclosure 1, Table 1).

The NRC is also reducing the size of certain inspection teams and the frequency of certain inspections for power reactors, which will decrease the use of travel resources while maintaining effective oversight. For example, the NRC is reducing the size of comprehensive engineering inspection teams by one (from seven to six) and adjusting the scope and sample requirements as appropriate (ID2 in Enclosure 1, Table 2). The NRC is also decreasing the frequency of licensee security training inspections from biennial to triennial (ID3 in Enclosure 1, Table 2) and reducing emergency preparedness drill evaluations from annual to biennial (ID4 in Enclosure 1, Table 2). These changes were based on NRC staff and licensee feedback and are expected to be completed by the end of Q1 of CY 2026. The changes in frequency of these inspections will provide the NRC staff and licensees with sufficient time and resources to appropriately address inspection issues and implement corrective actions, when needed. Additionally, the NRC is reducing the number of NRC-conducted force-on-force exercises from two to one per triennial inspection (Ref. 8) (ID5 in Enclosure 1, Table 2). This ongoing action is expected to be completed by the end of Q1 of CY 2026. The NRC is also refining schedules for security baseline and emergency preparedness inspections to lower travel costs and maximize onsite

efficiency (ID6 and ID7 in Enclosure 1, Table 2), with these ongoing actions expected to be completed by the end of Q1 of CY 2026.

In addition, the NRC is using technology to better track its travel resources. For example, the NRC deployed a new dashboard for the nuclear materials users program to streamline inspection planning for the NRC staff (Enclosure 1, Table 1). The dashboard displays all licensees available for inspection with clear mapping to enable efficient planning and decision-making. Because many materials inspections are conducted in 1-2 days, inspectors typically plan multiple inspections in one trip. Determining the most efficient use of time and travel resources can be especially challenging for these inspections, and the use of this tool will reduce travel costs and inspection planning time by enabling enhanced coordination among NRC regions and licensees.

Planning and Preparation for Inspections (Section 507(d)(1)(B))

The NRC assessed ways to improve the efficiency of inspection planning and preparation activities and identified improvements focused on streamlining entrance and exit meetings and providing clear guidance to NRC inspectors. The NRC is revising its guidance to make entrance meetings optional and to reduce the requirements for exit meetings, including the number of attendees, for reactor and materials oversight and inspection programs (ID8 in Enclosure 1, Table 2). The NRC has completed this action for fuel facilities and decommissioning reactors, and the ongoing action related to operating reactors is expected to be completed by the end of Q3 of CY 2025. The NRC also updated its guidance to allow virtual entrance and exit meetings for both reactor and materials licensees (Ref. 9 and Ref. 7) (Enclosure 1, Table 1). These improvements respond to industry feedback and will enable NRC inspectors and licensee staff to focus their time. Additionally, for the reactor program, the NRC is developing guidance to clearly define what constitutes inspection preparation activities (ID9 in Enclosure 1, Table 2). This ongoing action, also expected to be completed by the end of Q3 of CY 2025, will reduce regulatory burden and promote consistency by ensuring that only NRC staff preparation work directly associated with inspections is billed to licensees.

Document Collection and Preparation (Section 507(d)(1)(C))

The NRC examined document collection and preparation activities and found ways to enhance consistency and reduce regulatory burden by using templates, revising guidance to eliminate unnecessary document requests, and applying technology advancements. Document collection and preparation is an inspection planning activity in which NRC inspectors collect and review relevant licensee documents to understand site activities, develop effective inspection plans, and focus on areas of greater safety and security significance.

With respect to templates, the NRC is expanding the use of document request templates to improve timeliness and consistency across inspections and to reduce the burden on licensees (ID10 and ID11 in Enclosure 1, Table 2). For example, for operating reactors, the NRC plans to update the baseline inspection procedures to incorporate templates for document requests as part of the comprehensive review of the ROP. These templates will save team inspection preparation time and eliminate unnecessary document requests. These ongoing actions are expected to be completed by the end of Q4 of CY 2026 and Q4 of CY 2025, respectively. In parallel, the NRC is revising its guidance for the reactor and materials programs. For example, the guidance will reflect that the applicable supervisor for the inspection reviews the initial document request to the licensee to ensure that the document request is timely, within the scope of the inspection, and does not request documents that the NRC already holds. This

ongoing action is expected to be completed by the end of Q4 of CY 2025 (ID12 in Enclosure 1, Table 2). These actions will allow inspectors to spend more time on direct inspection activities and eliminate the burden on licensees to respond to document requests that can be addressed through existing agency resources.

The NRC is implementing further efficiencies by applying technology improvements across its reactor and materials oversight and inspection programs. For example, the NRC is expanding the use of Reactor Program System (RPS)[3] to NPUFs and the materials program to reduce time spent by the NRC staff on inspection preparation activities, resulting in reduced costs billed to licensees. This ongoing action is expected to be completed by Q4 of CY 2025 for NPUFs and by Q1 CY 2026 for facilities under the Decommissioning and Low-Level Waste Business Line (ID13 and ID14 in Enclosure 1, Table 2). Similarly, the NRC is expanding Web-Based Licensing[4] across the materials program, including an external-facing system to provide a more efficient submission method for, and streamline the processing of, reciprocity requests for proposed activities in non-Agreement States, areas of exclusive federal jurisdiction, and offshore waters (ID15 in Enclosure 1, Table 2). This action is expected to be completed by the end of Q4 of CY 2026.

The Cross-Cutting Issues Program (Section 507(d)(1)(D))

The Cross-Cutting Issues program is part of the ROP that is used to provide an early indication of nuclear power plants with performance issues that affect multiple areas of a plant's operations. The NRC evaluated the Cross-Cutting Issues program and is considering how to improve its efficiency. As described in SECY-25-0045, "Recommendations for Revising the Reactor Oversight Process" (Ref. 10), the NRC staff has provided a recommendation to the Commission to simplify the Cross-Cutting Issues program so that it involves characterizing inspection findings by cross-cutting area rather than by cross-cutting aspect, which would reduce the characterization options from 23 to 3 (ID16 in Enclosure 1, Table 2). If approved by the Commission, this recommendation would enhance consistency and result in fewer agency resources and licensee resources being expended on determining the appropriate characterization for inspection findings, while still retaining the necessary data to track and trend licensee performance in cross-cutting areas.

ASSESSMENT OF MEASURES TO IMPROVE OVERSIGHT AND INSPECTIONS (SECTION 507(d)(2) OF THE ADVANCE ACT)

Elimination of Areas of Duplicative or Otherwise Unnecessary Activities (Section 507(d)(2)(A))

As part of this assessment, the NRC identified actions to eliminate duplicative or otherwise unnecessary activities in its oversight and inspection programs to improve efficiency, reduce burden on licensees, and focus resources on more safety- or security-significant work. These actions span both the reactor and materials programs, with several synergies and specific actions tailored to each program.

In the reactor program, the NRC is consolidating inspection procedures for follow-up of traditional enforcement violations to eliminate unnecessary or duplicative activities that could otherwise be handled under the ROP (ID17 in Enclosure 1, Table 2). By using PI&R samples or

[3] The NRC's Reactor Program System is an IT tool that provides planning, milestone tracking, scheduling, and reporting capabilities.
[4] The Web-Based Licensing is an IT tool used for scheduling and tracking inspections, inspection report timeliness, and licensing work.

a consolidated follow-up inspection procedure, this action will streamline the inspection process and enable the more efficient use of resources. This ongoing action is expected to be completed by the end of Q1 of CY 2026. Similarly, in the materials program, the NRC recommended to the Commission in SECY-25-0046 (Ref. 11) that the NRC exercise enforcement discretion for certain general licensees related to violations issued to spent fuel storage Certificate of Compliance (CoC) holders (ID18, in Enclosure 1, Table 2). This action would implement a more efficient process in which the NRC would address a CoC holder's apparent violation of the change control process without pursuing a similar enforcement action against the general licensee for adopting the CoC holder's noncompliant change. Additionally, both the reactor and materials programs have shifted to broader use of modified enforcement panels where key NRC decision-makers weigh in on an enforcement action through less formal and more efficient interactions (Enclosure 1, Table 1). Modified enforcement panels avoid a resource-intensive formal meeting and have reduced the amount of time spent dispositioning escalated enforcement issues. This approach also ensures that enforcement actions are dispositioned using resources commensurate with the significance and complexity of the underlying enforcement action. The NRC identified a potential future action to conduct additional assessments of the enforcement process in the materials program to identify efficiencies and implement streamlined decision-making processes for certain escalated enforcement actions (ID19 in Enclosure 1, Table 3). This action, if further pursued, would be addressed through the planning, budgeting, and performance management process, subject to resource availability and prioritization.

The NRC is exploring further updates to inspection documents to eliminate duplicative or otherwise unnecessary activities for both the reactor and materials programs. In SECY-25-0045, the NRC staff has recommended that the Commission approve stopping the practice of each NRC region preparing at least one initial operator licensing examination per calendar year (ID20 in Enclosure 1, Table 2). If approved by the Commission, this action is expected to reduce resource expenditures for both the NRC and licensees, and the proficiency of the NRC regional staff would be effectively maintained through training and review of licensee-prepared initial operator licensing examinations. In addition, for the baseline physical security inspection program for reactors, the NRC eliminated the requirement to perform an inspection procedure focused on information security at a specific periodicity (Ref. 12), instead allowing the procedure to be performed on an as needed basis (Ref. 13) (Enclosure 1, Table 1). This change was based on recent operating experience that shows that licensees have robust measures in place for controlling sensitive information. This change is expected to reduce direct inspection efforts and costs billed to licensees. In the materials program, the NRC is reviewing and updating additional inspection manual documents and reducing overlapping inspection activities (ID21 and ID22 in Enclosure 1, Table 2). These actions are expected to be completed by the end of Q4 of CY 2027.

Similarly, the materials program is updating select inspection manual documents regarding alignment on the significance of a violation's risk to eliminate unnecessary escalated enforcement process initiation (ID23 in Enclosure 1, Table 2). This action is expected to be completed by the end of Q4 of CY 2025. In addition, the NRC is evaluating annual reports provided to the Commission for both the reactor and materials oversight and inspection programs (ID24 in Enclosure 1, Table 2). This evaluation will be focused on streamlining annual reports to eliminate duplication and ensure the best use of agency resources, while continuing to keep the Commission and external stakeholders well-informed of NRC oversight activities. This ongoing action is expected to be completed by the end of Q4 of CY 2026.

Increased Use of Templates in Documenting Inspection Results (Section 507(d)(2)(B))

The NRC examined ways to increase the use of templates in documenting inspection results to enhance the efficiency of its reactor and materials oversight and inspection programs. For example, the NRC is extending the use of inspection report templates within RPS to NPUFs (ID25 in Enclosure 1, Table 2). In the materials program, the NRC has developed templates in RPS to simplify inspection documentation, with additional evaluations planned to improve inspection report writing (ID26 in Enclosure 1, Table 2). Similarly, the Decommissioning and Low-Level Waste Business Line is transitioning to RPS, and the NRC will be increasing template usage for documenting inspection results for this business line as part of that transition (ID27 in Enclosure 1, Table 2). These actions are expected to be completed by the end of Q4 of CY 2025. Together, these actions will reduce the time that the NRC staff spends documenting inspection results, thereby lowering costs billed to licensees.

The NRC is reviewing and modernizing program guidance to improve efficiency and reduce unnecessary burden to the NRC and licensees. In the reactor program, the NRC is revising guidance and associated inspection report templates to significantly reduce documentation for inspection findings of very low safety significance, which account for approximately 99% of all findings (ID28 in Enclosure 1, Table 2). This improvement will reduce the time spent documenting results and reduce costs for licensees. Similarly, the materials program has updated inspection guidance (Ref. 14) to streamline documentation required for inspections and is using inspection report templates to save inspectors time and use licensee resources more efficiently.

Periodic Training of Agency Staff and Leadership on the Application of Risk-Informed Criteria (Section 507(d)(2)(C))

The NRC has identified specific improvements to its oversight and inspection programs through periodic training for staff and leadership on the application of risk-informed criteria. For example, the NRC will require staff and leadership who perform inspection and oversight of nuclear reactors and materials to complete periodic training on the use of risk-informed criteria. This training, which is being developed, will cover inspection planning and assessments, agency decision-making processes on the application of regulations and guidance, and the application of the Commission's standard of reasonable assurance of adequate protection. This ongoing action is expected to be completed by the end of Q1 of CY 2026. By reinforcing these topics periodically, the NRC aims to improve the efficiency and consistency of its oversight and inspection programs (ID29 in Enclosure 1, Table 2).

ASSESSMENT OF MEASURES TO ADVANCE RISK-INFORMED PROCEDURES (SECTION 507(d)(3) OF THE ADVANCE ACT)

Increased Use of Inspection Approaches that Balance the Level of Resources Commensurate with Safety Significance (Section 507(d)(3)(A))

The NRC evaluated approaches to balance oversight and inspection resources commensurate with safety and security significance and identified improvements that build on effective programs, further incorporate risk insights, and streamline processes.

The NRC expanded the use of the VLSSIR process across all ROP guidance documents (Ref. 15) and in the revised materials program inspection procedures (Ref. 16) (Enclosure 1, Table 1). This process enables the NRC to discontinue inspection of an issue where it is unclear if a

non-compliance exists, provided that the issue is of very low safety or security significance. The process also provides clear guidance on when to involve management in the decision-making process. The expansion of the VLSSIR process will ensure that very low safety or security significant issues are processed in a timely manner across all oversight programs, commensurate with their safety and security significance.

In the materials oversight and inspection program, the NRC is refining inspection frequencies based on updated risk insights and inspection experience gained since the original frequencies were set. These changes support greater flexibility as the programs continue to modernize and incorporate operating experience (ID30 Enclosure 1, Table 2). This ongoing action is expected to be completed by the end of Q4 of CY 2026. In addition, the NRC has identified a potential future action to revise Management Directive 8.10, "NRC Assessment Program for a Medical Event or an Incident Occurring at a Medical Facility" (Ref. 17), to apply risk-informed principles when determining whether to adjust the scope or timing of post-event inspections (ID31 Enclosure 1, Table 3). This action, if further pursued, would be addressed through the planning, budgeting, and performance management process, subject to resource availability and prioritization. Building on the Fuel Cycle Smarter Inspection Program and the ISFSI 2020 Enhancement Initiative (Enclosure 1, Table 1), the NRC identified an action to improve the self-assessment process and leverage its findings to further focus inspection resources on issues of greater safety significance. This ongoing action (ID32 Enclosure 1, Table 2) is expected to be completed by the end of Q4 of CY 2026.

As another example, in SECY-24-0009 (Ref. 18), the NRC staff has proposed updating the Enforcement Policy to include examples for ISFSIs to promote consistency and streamline decision-making (ID33 in Enclosure 1, Table 2). Additionally, the NRC has identified as a potential future action integrating ISFSI and power reactor inspection reports; thereby eliminating redundant documentation, enhancing consistency in documenting inspection results, and reducing the time spent on inspection preparation (ID34 in Enclosure 1, Table 3). This action, if further pursued, would be addressed through the planning, budgeting, and performance management process, subject to resource availability and prioritization.

The NRC is also revising the Emergency Preparedness (EP) Significance Determination Process (SDP) to make it more risk-informed and performance-based, ensuring that oversight remains focused on the most safety-significant issues while reducing NRC resources spent on screening, inspection, and documentation. This ongoing action is expected to be completed by the end of Q4 of CY 2025 (ID35 in Enclosure 1, Table 2). The NRC is also evaluating further improvements to the EP SDP (ID36 in Enclosure 1, Table 2) and revisions to the baseline Security SDP (ID37 in Enclosure 1, Table 2) to address stakeholder feedback, incorporate additional risk insights, and improve consistency and efficiency. Following this evaluation, the NRC staff plans to provide recommendations to the Commission by the end of Q4 of CY 2025 (ID38 in Enclosure 1, Table 3). Similarly, the NRC staff plans to perform a risk-informed evaluation of all EP baseline inspection procedures to validate prioritization and ensure that NRC resources are focused on the most risk-significant items (ID39 in Enclosure 1, Table 2); any resultant recommendations requiring Commission approval will be provided to the Commission for consideration. The NRC is also revising the Security Issues Forum process in the reactor program to improve consistency in dispositioning security-related inspection performance deficiencies across the NRC. The revised Security Issues Forum process will also reduce NRC staff hours spent evaluating inspection issues by providing a structured and streamlined process to discuss complex performance deficiencies and share lessons learned to yield predictable outcomes (ID40 in Enclosure 1, Table 2). This ongoing action is expected to be completed by the end of Q4 of CY 2025.

The NRC is also making changes relating to the ROP Action Matrix to focus resources on issues with the greatest safety and security significance and reduce agency resource expenditures. For example, the NRC eliminated the requirement for certain safety-significant inspection findings to count in the Action Matrix for four full calendar quarters before closure (Enclosure 1, Table 1). Now, such findings are closed upon the satisfactory completion of a supplemental inspection. As another example, in SECY-25-0045, the NRC staff provided recommendations to the Commission to revise the treatment of licensee-identified White[5] inspection findings (ID41 in Enclosure 1, Table 2). Currently, all White findings are entered into the Action Matrix to determine an appropriate regulatory response. If approved by the Commission, licensee-identified White findings would no longer count in the Action Matrix but would still require closeout through follow-up inspection. This would further encourage licensees to proactively identify and correct violations, while reducing NRC and licensee resource expenditures. In addition, the NRC staff recommended that the Commission approve revising the Action Matrix criteria so that multiple White Action Matrix inputs in Column 2 do not aggregate to result in assessment in Column 3. This improvement would ensure that inspection resources align with the safety and security significance of the issues.

To further streamline processes for the reactor oversight and inspection program, the NRC is minimizing dual path enforcement processing of inspection findings, reducing duplication and the resources needed for enforcement actions of very low safety significance (Enclosure 1, Table 1). Moreover, as part of this effort, the NRC is reviewing the more-than-minor criteria for screening performance deficiencies for safety and security significance (ID42 in Enclosure 1, Table 2). This ongoing action is expected to be completed by the end of Q1 of CY 2026. This improvement will reduce time spent processing inspection findings and ensure that inspections are focused on areas with the greatest safety and security significance.

Increased Review of the Use of Inspection Program Resources Based on Licensee Performance (Section 507(d)(3)(B))

The NRC examined ways to adjust its inspection programs based on licensee performance and identified improvements related to both the reactor and materials programs.

For the reactor program, the NRC is tailoring its inspection efforts using program-execution data and licensee performance to ensure that inspection flexibilities align with their safety and security significance. From 2020 to 2024, the agency reduced the expected resources required to complete baseline inspections under the ROP by about 12% through initiatives that better risk-inform the program. Building on this progress and informed by NRC staff and industry feedback, the NRC initiated a comprehensive review of the entire ROP in Q2 of CY 2025 (ID43 in Enclosure 1, Table 2). This effort is expected to further reduce ROP baseline inspection resources by approximately 30%. This review draws on 25 years of program execution to update the ROP to reflect the current state of industry performance, updated risk insights, and advancements in technology. The NRC held the first of several planned industry workshops related to this review on June 5, 2025. As part of this ongoing action, the NRC plans to revise the ROP performance indicators to enable reductions in most inspectable areas. Thereafter, the NRC will perform a risk-informed review of inspection procedures to validate, adjust, or eliminate samples based on remaining oversight program needs for the inspection areas not reasonably covered by the revised performance indicators. In parallel with this effort, the NRC will complete an effectiveness review of the revised engineering inspection program by the end of Q4 of CY 2025 to assess these changes and gather sufficient data to determine their overall

[5] A "White" finding indicates a finding of low to moderate safety or security significance.

effectiveness. Any ROP changes identified that require Commission approval or notification will be provided to the Commission by the end of Q2 of CY 2026 for its consideration (ID44 in Enclosure 1, Table 3).

While the comprehensive review of the ROP is underway, the NRC has implemented interim improvements to clarify guidance on how to select inspection samples. Specifically, the NRC has instructed its inspectors that the minimum number of inspection samples should be used when there are no risk-significant samples available and licensees have maintained Column 1 performance (Enclosure 1, Table 1). These improvements are expected to generate immediate and significant cost savings and burden reduction in the ROP inspection effort for both the NRC and licensees.

The NRC is also revising guidance in the materials oversight and inspection program to ensure that inspection flexibilities align with licensee performance. For example, the NRC is expanding the use of discretionary procedures and considering adjustments to inspection frequency, timing, methods of completion, and number of inspectors (ID45 Enclosure 1, Table 2). This ongoing action is expected to be completed by the end of Q4 of CY 2026. Additionally, the NRC has identified a potential future action for fuel cycle facilities to explore a program to credit risk reduction that could rebaseline core inspection activities based on each facility's overall approach to risk management (ID46 in Enclosure 1, Table 3). This action, if further pursued, would be addressed through the planning, budgeting, and performance management process, subject to resource availability and prioritization.

The NRC is examining other agency processes for potential enhancements based on licensee performance. For example, the NRC staff recently recommended to the Commission a change to the process for the annual Agency Action Review Meeting (AARM) Commission meeting to incorporate more risk-informed procedures and reduce NRC resources based on licensee performance (ID47 in Enclosure 1, Table 3). It is currently the policy of the NRC to have its senior managers conduct an annual AARM Commission meeting. In SECY-25-0045, the NRC staff recommended to the Commission that a standalone AARM Commission meeting be held only if there are licensees who meet specific plant performance criteria.

Expansion of Modern IT to Risk-Inform Oversight and Inspection Decisions (Section 507(d)(3)(C))

The NRC assessed ways to expand the use of modern IT to enhance its ability to make risk-informed oversight and inspection decisions. In CY 2024, the NRC began identifying ways to leverage modern technology, including the use of artificial intelligence (AI), to enhance how the NRC meets its mission and drive further efficiencies (Ref. 19). Building on that effort, the NRC is developing a framework and investing in foundational tools, such as generative AI, to support the implementation of AI use cases (ID48 in Enclosure 1, Table 2). These capabilities will help the agency work more efficiently and better focus inspection resources on higher-value activities. This ongoing action is expected to be completed by the end of Q4 of CY 2025. The NRC has identified a potential future action to deploy generative AI tools to support inspection activities, including planning and sample selection based on risk insights, operating experience, and previous inspection results (ID49 in Enclosure 1, Table 3). Additional applications of these tools may include issue screening, inspection report development, resource optimization, and analysis of licensee procedures to better inform inspection activities across the reactor and materials programs. This action, if further pursued, would be addressed through the planning, budgeting, and performance management process, subject to resource availability and prioritization.

The NRC is further expanding the use of modern IT by enabling inspectors to access plant risk models. Specifically, the NRC is deploying the "SPAR-DASH" tool which provides plant-specific risk insights in an easy-to-use dashboard format (Enclosure 1, Table 1). The backbone of SPAR-DASH is the comprehensive suite of Standardized Plant Analysis Risk (SPAR) models built and maintained by the Idaho National Laboratory. While the NRC's full SPAR models are powerful risk tools that can provide valuable insights about plant performance and specific equipment configurations, they require specialized training and experience to use which can be costly and time consuming. SPAR-DASH leverages modern technology solutions to provide visual and interactive risk insights from the more complex SPAR models in a user-friendly format that requires little to no training of inspectors. Given its ease of use, SPAR-DASH can be leveraged by the NRC to optimize oversight and inspection activities of both a plant-specific and generic nature.

Updating the Differing Professional Views or Opinions Process to Ensure Any Impacts on Agency Decisions and Schedules Are Commensurate with the Safety Significance of the Differing Opinion (Section 507(d)(3)(D))

The NRC assessed ways to improve how it resolves internal differing views or opinions to ensure that agency decisions are timely and use the appropriate level of resources commensurate with the safety or security significance of the issue. Differing views can be communicated through the following mechanisms: informal discussions, the Open Door Policy, the Non-Concurrence Process for draft decisions, and the Differing Professional Opinion (DPO) Program for final decisions. Decisions on important issues of operational safety and advanced reactor designs (among others) benefit from a diversity of views. While these mechanisms ensure that differing views are considered, the NRC is implementing targeted improvements to enhance timeliness and align the level of effort spent on resolution with the safety and security significance of issues. These improvements are informed by interagency benchmarking, feedback from NRC staff and the public, and lessons learned from case reviews and annual evaluations. As discussed below, the NRC has developed a streamlined approach to resolving DPOs (Enclosure 1, Table 1) and key actions underway include (1) developing guidance for the implementation of the changes to the Differing Views Program based on timeliness, resource expenditure, and safety and security significance; (2) driving culture shift and establishing performance measures to maintain accountability; and (3) updating management directives associated with the Non-Concurrence Process and DPO.

The guidance will ensure impacts on agency decisions and schedules are commensurate with the safety and security significance of the differing opinion (ID50 in Enclosure 1, Table 2). Historically, the Non-Concurrence Process has taken an average of 59 business days,[6] and the DPO process has established goals of 135 business days for the initial determination, and up to 92 additional business days for an appeal. The NRC has developed a streamlined process to ensure resolution time within 20 days for the Non-Concurrence Process and 30 days for the DPO process, after the Open Door process has been used (to determine whether, in the first instance, the more formal processes are called for in a given situation). To achieve the desired cultural shift and enable accelerated decisions, the new process places emphasis on early engagement on differing views and efficient resolution. Staff are expected to seek resolution up front through informal discussions and the Open Door Policy before engaging in the Non-Concurrence Process or DPO Program. Further, the NRC will use graded reviews from an analysis tool to efficiently respond to issues based on their safety and security significance

[6] Data is based on best available information compiled from multiple sources and through program changes.

(ID51 in Enclosure 1, Table 2). Using this tool, issues are rated as low, medium, or high significance. High-significance issues will be transferred to other processes (e.g., LIC-504, "Integrated Risk-Informed Decision-making Process for Emergent Issues" (Ref. 20)); low-significance issues will be documented and closed with no further action needed, similar to the VLSSIR process. Issues of medium significance will undergo further review to assess potential gaps in regulations or in guidance or possible compliance issues. This review will inform the decision-maker on how to resolve the issue, with outcomes either implemented by the NRC or referred to other processes (e.g., the backfit process), as appropriate. Also, this process eliminates appeals to reflect a deliberate shift towards earlier resolution of the issue and enable timely decisions by the appropriate level of management. This change is further supported by data: since 2008, 63 DPOs have been submitted, 25 of them were appealed after the initial decision, and only one appeal resulted in a different outcome. The resources expended on the appeal process are therefore not commensurate with the value added by the program. Overall, these improvements support a cultural shift that will ensure differing views are processed in a timely manner, with the appropriate resources, commensurate with their safety and security significance.

The NRC is implementing these revisions through interim policy changes (Enclosure 1, Table 1), with conforming changes to Management Directives, and will establish new performance measures to improve issue tracking and accountability across the enterprise (ID52 in Enclosure 1, Table 3). In addition, the NRC has improved program management by enhancing case management, resource tracking, clarifying timelines and roles, and streamlining procedures based on lessons learned from case reviews and annual evaluations. Together, these improvements will ensure that concerns are addressed in a manner that is transparent, efficient, and commensurate with their safety and security significance.

ASSESSMENT OF THE COMMISSION'S ABILITY TO ENABLE LICENSEE INNOVATIONS THAT MAY ADVANCE NUCLEAR REACTOR OPERATIONAL EFFICIENCY AND SAFETY (SECTION 507(d)(4) OF THE ADVANCE ACT)

The NRC assessed its ability to enable licensee innovations that may advance nuclear reactor operational efficiency and safety consistent with its statutory mission and identified three focus areas: (1) NRC oversight programs tailored to advanced reactors, the Advanced Reactor Construction Oversight Program (ARCOP) and the Advanced Reactor Oversight Process (AROP); (2) coordination with DOE on DOE's Light-Water Reactor Sustainability (LWRS) Program; and (3) NRC activities to enable the safe and secure deployment of digital technologies.

Improvements in these focus areas are consistent with the direction in Section 3 of EO 14300, for the NRC to "consider the benefits of increased availability of, and innovation in, nuclear power...". The NRC will incorporate these areas into its implementation of EO 14300.

Oversight Programs Tailored to Advanced Reactors: the ARCOP and the AROP

Historically, the NRC's oversight programs were designed for the current domestic fleet of large light-water reactors and the complexity and risks associated with the operation of these reactors. Because proposed advanced reactors do not use the same strategies to preserve public health and safety, the NRC is reducing unnecessary burden on advanced reactors by developing the ARCOP and the AROP. These efforts enable licensee innovations because advanced reactor licensees will save substantial costs due to the NRC developing the ARCOP

and the AROP in lieu of applying its current methods for reactor oversight to these new technologies.

As described in the NRC's January 2025 report to Congress, "Advanced Methods of Manufacturing and Construction for Nuclear Energy Projects," in response to Section 401 of the ADVANCE Act (Ref. 21), the agency is developing the ARCOP to provide a risk-informed, performance-based program for overseeing the construction of advanced reactors. Since that report, the NRC has made progress in developing the ARCOP, which remains on track for completion by the end of Q4 of CY 2025 (ID53 in Enclosure 1, Table 2). The ARCOP is expected to reduce redundancies and enhance oversight efficiency by tailoring inspection activities to the design and risk profile of each advanced reactor. It will include scalable, technology-inclusive inspection strategies and project-specific approaches for scoping inspections, determining issue significance, enforcing requirements, and assessing performance. The program will offer a range of inspection opportunities, allowing the NRC to apply risk insights and sample availability to plan inspections efficiently.

The NRC is also developing the AROP to build on the ROP and modernize oversight for new and advanced reactor technologies. It will use risk-informed, performance-based strategies to reduce redundancies and improve operational efficiency across a diverse range of reactor designs. Like the ARCOP, the AROP will be technology-inclusive and scalable, tailored to the specific features and risks of advanced reactors. As part of this effort, the NRC is also evaluating the future role of resident inspectors, which may change significantly under the AROP. The NRC also plans to consider this topic in more detail as part of its compliance with Section 208, "Regulatory Requirements for Micro-reactors," of the ADVANCE Act.

Light-Water Reactor Sustainability (LWRS) Program

The NRC coordinates with DOE to advance each agency's respective mission and programs with shared equities, including DOE's LWRS Program. DOE's LWRS Program conducts research to develop technologies that improve plant economics, sustain safety, and extend the operational life of the U.S. nuclear fleet. Under a Memorandum of Understanding on Nuclear Innovation, the NRC and DOE share expertise and knowledge on advanced nuclear reactor technologies and nuclear energy innovation, including with respect to light-water reactor long-term operation and proposed modification for light-water reactor sustainability (Ref. 22). Through these interactions, the NRC identified advanced technologies that could improve operational efficiency, such as the use of fire sensors controlled by AI to replace operator rounds, as well as the co-location of commercial hydrogen production facilities at sites to enable more stable and efficient operations during times when there may be reduced electrical demand from the grid. The NRC will continue to leverage these coordination activities and monitor technological developments to enable, consistent with its statutory mandate, licensee innovation that may advance nuclear reactor operational efficiency and safety.

Acceptance of Digital Technology

The NRC has examined ways to enable the safe and secure deployment of digital technologies. In March 2025, the NRC held its third stakeholder workshop to evaluate lessons learned from the use of the alternate review process in interim staff guidance (Ref. 23) for license amendment requests associated with safety-related digital instrumentation and control (DI&C) equipment modifications in operating plants and in new plants once they become operational. The workshop identified areas in the interim staff guidance that could benefit from further improvement (Ref. 24). Based on this input and insights from ongoing licensing reviews, the

NRC plans to revise the interim staff guidance and incorporate it into the Standard Review Plan (ID54 in Enclosure 1, Table 3). This ongoing action is expected to be completed by the end of Q4 of CY 2027, and will improve efficiency and reduce unnecessary burden to the NRC and licensees.

The NRC staff is also working to develop a proposed rule to incorporate by reference Institute of Electrical and Electronics Engineers (IEEE) Standard 603-2018, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations" (Ref. 25), into the NRC's regulations (ID55 in Enclosure 1, Table 2). The proposed rule is scheduled to be issued for public comment in Q4 of CY 2025. This rulemaking would provide industry with regulatory predictability to apply the latest IEEE standard when developing or modifying safety systems. This rulemaking responds directly to stakeholder feedback and aims to make more efficient use of NRC and licensee resources.

The NRC is evaluating alternative, system-level approaches to digital technology regulation, moving beyond phase-specific prescriptive guidance. As part of this effort, the NRC is considering endorsing Nuclear Energy Institute 20-07, "Guidance for Addressing Common Cause Failure in High Safety-Significant Safety-Related Digital I&C Systems" (Ref. 26) (ID56 in Enclosure 1, Table 3). This action, if further pursued, would be addressed through the planning, budgeting, and performance management process, subject to resource availability and prioritization. This improvement would respond to industry feedback and would reduce unnecessary burden to the NRC and licensees.

RECOMMENDATIONS RESULTING FROM THE ASSESSMENTS IN THIS REPORT (SECTION 507(d)(5) OF THE ADVANCE ACT)

Enclosure 1 summarizes the completed, ongoing, and potential future actions that the NRC has identified as a result of the assessments discussed in this report. As described in this report, most recommendations, such as those related to training, enhancing risk-informed inspections, and reviewing inspection programs, have been implemented (Enclosure 1, Table 1) or are underway (Enclosure 1, Table 2). Table 3 of Enclosure 1 includes potential future actions under consideration or still in development. As detailed in SECY-24-0009, SECY-25-0045, and SECY-25-0046, the NRC staff has provided to the Commission recommendations for changes that require Commission approval, as well as planned changes that require Commission notification prior to implementation. Recommendations requiring Commission approval are discussed in the following section.

SPECIFIC ACTIONS RECOMMENDED TO INCORPORATE THE RECOMMENDATIONS INTO TRAINING, INSPECTION, OVERSIGHT, AND LICENSING ACTIVITIES AND REGULATIONS (SECTION 507(d)(6) OF THE ADVANCE ACT)

As discussed above, the NRC has identified five items in SECY-24-0009, SECY-25-0045, and SECY-25-0046 where Commission action is needed to implement the NRC staff's recommendations:

- Assessment Program: (1) Revise the treatment of licensee-identified White inspection findings so that they are not considered as Action Matrix inputs, but still require inspection for closure (ID41 in Enclosure 1, Table 2; SECY-25-0045). This change would further encourage licensees to identify and correct risk-significant issues. (2) Revise the Action Matrix criteria so that multiple White Action Matrix inputs in Column 2 do not aggregate to result in assessment in Column 3 (ID41 in Enclosure 1, Table 2; SECY-25-

0045). (3) Revise the process for the annual AARM to incorporate more risk-informed procedures and reduce NRC resources (ID47 in Enclosure 1, Table 3).

- Cross-Cutting Issues Program: Simplify the Cross-Cutting Issues program to characterize inspection findings by cross-cutting area rather than by cross-cutting aspect, which would reduce the characterization options from 23 to 3. This change would enhance consistency and result in fewer agency resources and licensee resources being expended on determining the appropriate characterization for inspection findings (ID16 in Enclosure 1, Table 2; SECY-25-0045).

- NRC-Developed Power Reactor Initial Operator Licensing Examinations: Discontinue the practice of each NRC region preparing at least one power reactor initial operator licensing examination per year. This change will improve efficiency and result in better use of NRC and industry resources, while continuing to sufficiently maintain NRC examiner proficiency through training and review of licensee-prepared initial operator licensing examinations (ID20 in Enclosure 1, Table 2; SECY-25-0045).

- Add Examples for ISFSIs to the Enforcement Policy: Revise the Enforcement Policy to promote consistency and streamline decision-making. The proposed revision includes suggested improvements to various program areas based on recent experience (ID33 in Enclosure 1, Table 2; SECY-24-0009).

- Interim Guidance for Enforcement Discretion to Spent Fuel Storage CoC holders: Implement interim enforcement guidance to exercise enforcement discretion for certain general licensees related to violations issued to CoC holders (ID18 in Enclosure 1, Table 2; SECY-25-0046).

Table 3 in Enclosure 1 also includes potential future actions under consideration or in development. In some cases, the Commission would need to provide budgetary direction and to review and approve policy or rulemaking proposals from the NRC staff.

WHEN THE ACTIONS IDENTIFIED UNDER SECTION 507(d)(6) MAY BE IMPLEMENTED (SECTION 507(d)(7) OF THE ADVANCE ACT)

Tables 1 and 2 in Enclosure 1 provide status and timeframes for the actions identified in this report. Table 3 includes potential future actions under consideration or in development. These actions, if further pursued, would be addressed through the planning, budgeting, and performance management process, subject to resource availability and prioritization.

CONCLUSION

The NRC continues to improve efficiency and eliminate unnecessary burden through revisions to its reactor and materials oversight and inspection programs. The assessment conducted pursuant to Section 507 is a critical step toward reforming the NRC's oversight and inspection programs. The NRC has also initiated a comprehensive review of the ROP to reflect improvements in industry performance and advancements in technology and to further revise the ROP consistent with the direction in EO 14300. These improvements are expected to yield substantial efficiency gains and cost savings, while maintaining effective oversight and supporting the growth of domestic nuclear technology and energy production.

ACRONYMS

10 CFR	Title 10 of the *Code of Federal Regulations*
AARM	Agency Action Review Meeting
ADAMS	Agencywide Documents Access and Management System
ADVANCE Act	Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024
AI	Artificial Intelligence
ARCOP	Advanced Reactor Construction Oversight Program
AROP	Advanced Reactor Oversight Process
CFR	*Code of Federal Regulations*
CoC	Certificate of Compliance
CY	Calendar Year
DI&C	Digital Instrumentation and Control
DOE	Department of Energy
DPO	Differing Professional Opinion
EO	Executive Order
EP	Emergency Preparedness
I&C	Instrumentation and Controls
IEEE	Institute of Electrical and Electronics Engineers
IMC	Inspection Manual Chapter
IT	Information Technology
ISFSI	Independent Spent Fuel Storage Installation
LWRS	Light-Water Reactor Sustainability
NMSS	Office of Nuclear Material Safety and Safeguards
NPUF	Non-power Production or Utilization Facility
NRC	U.S. Nuclear Regulatory Commission
PI&R	Problem Identification and Resolution
Q	Quarter
ROP	Reactor Oversight Process
RPS	Reactor Program System
SDP	Significance Determination Process
VLSSIR	Very Low Safety Significance Issue Resolution

REFERENCES

1. Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024, Pub. L. No. 118-67, div. B, § 507, 138 Stat. 1447 (2024).
2. Executive Order 14300, "Ordering the Reform of the Nuclear Regulatory Commission," May 23, 2025.
3. "NEI Input on Improvements to Licensing and Oversight Programs," Letter from Andrew Mauer, Senior Director, Regulatory Affairs, Nuclear Energy Institute (NEI), to Michael King, Special Assistant for ADVANCE Act Implementation, NRC, October 28, 2024 (Agencywide Documents Access and Management System Accession No. ML24302A311).
4. "Nuclear Energy Institute (NEI) Input on Recent Executive Orders," Letter from Douglas True, Senior Vice President and Chief Nuclear Officer, NEI, to Dr. Mirela Gavrilas, Executive Director for Operations, NRC, February 10, 2025 (ML25058A144).
5. "Letter from Wayne A. Norton, Executive Spokesperson, Decommissioning Plant Coalition, to John Lubinski, Director, Office of Nuclear Material Safety and Safeguards, NRC," February 25, 2025 (ML25062A116).
6. Executive Order 14210, "Implementing the President's 'Department of Government

Efficiency' Workforce Optimization Initiative," 90 FR 9669 (February 14, 2025).
7. Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program," Date July 1, 2025 (ML25139A091).
8. NRC, SRM-COMSECY-19-0006, "Revised Security Inspection Program Framework (Option 3) in Response to SRM-17-0100," May 17, 2024 (ML24138A045).
9. NRC, IMC 2515, "Light Water Reactor Inspection Program Operations Phase," June 20, 2025 (ML25072A254).
10. SECY-25-0045, "Recommendations for Revising the Reactor Oversight Process," June 5, 2025 (ML25127A212) (not publicly available).
11. SECY-25-0046, "Interim Enforcement Policy for Enforcement Discretion for General Licensee Adoption of Certificate of Compliance Holder-Generated Changes," June 2, 2025 (ML25121A329) (not publicly available).
12. Inspection Procedure 71130.06, "Protection of Safeguards Information (SGI)" September 7, 2012 (ML120870272) (not publicly available)
13. IMC 2201, Appendix C, "Generic, Special, and Infrequent Inspections," December 13, 2024 (ML24303A158).
14. IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports," July 1, 2025 (ML25149A212)
15. IMC 0612, "Issue Screening," May 28, 2025 (ML25086A248).
16. IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports," Appendix G "Screening and Documentation of Very Low Safety Significance Issue Resolution Process," July 1, 2025 (ML25101A154)
17. Management Directive 8.10, "NRC Assessment Program for a Medical Event or an Incident Occurring at a Medical Facility," March 24, 2022 (ML22061A207)
18. SECY-24-0009, "Proposed Revisions to the U.S. Nuclear Regulatory Commission Enforcement Policy," January 25, 2024 (ML22318A121).
19. SECY-24-0035, "Advancing the Use of Artificial Intelligence at the U.S. Nuclear Regulatory Commission," April 24, 2025 (ML24086A001).
20. LIC-504, "Integrated Risk-Informed Decisionmaking Process for Emergent Issues," September 7, 2023 (ML23165A117)
21. "Advanced Methods of Manufacturing and Construction for Nuclear Energy Projects," January 2025 (ML24292A171)
22. "Memorandum of Understanding Between U.S. Department of Energy and U.S. Nuclear Regulatory Commission on Nuclear Energy Innovation," October 2019 (ML19263C976)
23. DI&C-ISG-06, Revision 2, "Digital Instrumentation and Controls Licensing Process," December 2018 (ML18269A259).
24. "Summary of March 13 And 14, 2025, Information Public Meeting to Discuss Lessons Learned Related to Digital Instrumentation and Controls Licensing Activities," April 10, 2025 (ML25098A098).
25. Institute of Electrical and Electronics Engineers (IEEE) Standard 603-2018, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations."
26. Nuclear Energy Institute 20-07, "Guidance for Addressing Common Cause Failure in High Safety-Significant Safety-Related Digital I&C Systems" July 2023 (ML23205A190).
27. "Oversight Effectiveness Assessment for the NMSS Inspection Programs," February 7, 2025 (ML24260A251).
28. "Future of the National Materials Program: Considerations and Recommendations for Future Structure and Function," October 5, 2023 (ML23206A210).
29. SRM-SECY-22-0089, "Recommendation for Enhancing the Emergency Preparedness Significance Determination Process for the Reactor Oversight Process," February 9, 2023 (ML23040A378).

ENCLOSURE 1

SUMMARY OF ACTIONS RELATED TO THE ACCELERATING DEPLOYMENT OF VERSATILE, ADVANCED NUCLEAR FOR CLEAN ENERGY ACT OF 2024 (ADVANCE ACT) SECTION 507

The actions described in this Enclosure are completed, ongoing, or potential new actions related to Section 507. The tables provide the status and timeframe for each of the actions. Table 1 contains actions that the NRC has already implemented related to Section 507, as well as actions that the NRC implemented prior to the enactment of the ADVANCE Act but that improve oversight and inspection programs consistent with Section 507; this table is not exhaustive but highlights actions relevant to this report. Table 2 contains actions that the NRC has recently initiated related to Section 507. Table 3 contains future NRC actions under consideration or still in development related to Section 507. The NRC will monitor the efficiencies that are realized by these actions.

Table 1 – Completed NRC Actions Related to ADVANCE Act Section 507

Action	ADVANCE Act Section 507 Provision	Impact	Status/ Timeframe
Use of Travel Resources (Section 507(d)(1)(A))			
Revised Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program," and associated inspection procedures (IPs) to apply aspects of the hybrid concept to the materials oversight and inspection program.	507(d)(1)(A)	Substantial impact to the NRC and licensees from reduced travel resources and reduced time charged for inspection travel.	Completed
Implemented guidance to preferentially assign primary responsibility for inspecting nonpower production or utilization facilities (NPUFs) to inspectors who are located closest to the facility.	507(d)(1)(A)	Moderate impact to the NRC and licensees from reduced travel resources and reduced time charged for inspection travel.	Completed
Developed additional data tools and dashboards to support inspection planning, monitoring inspection hours, and operating experience document searches throughout the materials program. Clear guidance was provided to inspectors to leverage the tools to streamline inspection scheduling.	507(d)(1)(A)	Moderate impact to the NRC and licensees by streamlining the tracking of inspection planning and completion as well as having readily available information for inspectors and management to help manage travel resources.	Completed
Planning and Preparation for Inspections (Section 507(d)(1)(B))			
Allowed virtual entrance and exit meetings for fuel facility and decommissioning licensees.	507(d)(1)(B)	Moderate impact to the NRC and licensees expected due to reduced inspection preparation and some resource savings for licensees.	Completed

Action	ADVANCE Act Section 507 Provision	Impact	Status/ Timeframe
Revised IMC 2561, "Decommissioning Power Reactor Inspection Program," and associated IPs to allow flexibility in conducting entrance and exit meetings.	507(d)(1)(B)	Moderate impact to the NRC and licensees expected due to reduced inspection preparation and some resource savings for licensees.	Completed
Changed IMC 2600, Section 11 and IMC 2600, Appendix D for fuel facilities to make conducting entrance and exit meetings optional based on inspection scope and/or results.	507(d)(1)(B)	Moderate impact to the NRC and licensees expected due to reduced inspection preparation and some resource savings for licensees.	Completed
Elimination of Areas of Duplicative or Otherwise Unnecessary Activities (Section 507(d)(2)(A))			
Streamlined the enforcement panel process to encourage a broader application of modified enforcement panels, consistent with Enforcement Manual, Part 1, Section 1.2.13.2.	507(d)(2)(A)	Moderate impact to the NRC and licensees as modified panels streamline the review and approval of escalated enforcement actions and reduce the amount of NRC staff time spent to disposition issues.	Completed
Recategorized IP 71130.06 on the protection of safeguards information from the baseline inspection program to an infrequent inspection requiring Regional Administrator approval.	507(d)(2)(A)	Moderate impact to the NRC and licensees by reducing travel, direct inspection, and inspection preparation and documentation based on licensee performance.	Completed
Increased Use of Templates in Documenting Inspection Results (Section 507(d)(2)(B))			
Revised IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports," to align materials inspection reporting with the changes associated with risk-informed, performance-based inspections and streamlining inspection documentation.	507(d)(2)(B)	Moderate impact to the NRC and licensees through reduction in the level of effort to document inspections and the focusing of inspection reporting resources on risk-significant activities.	Completed

Action	ADVANCE Act Section 507 Provision	Impact	Status/ Timeframe
Increased Use of Inspection Approaches that Balance the Level of Resources Commensurate with Safety Significance (Section 507(d)(3)(A))			
Clarified limit for effort expended on low-level issues before requiring management evaluation of Very Low Safety Significance Issue Resolution (VLSSIR) criteria.	507(d)(3)(A)	Substantial impact to the NRC and licensees by reducing NRC resource expenditures evaluating very low safety and security significance issues and licensee resource expenditures correcting very low safety and security significance issues.	Completed
Expanded use of VLSSIR across reactor and materials oversight and inspection programs.	507(d)(3)(A)	Substantial impact to the NRC and licensees by reducing NRC resource expenditures evaluating very low safety and security significance issues and licensee resource expenditures correcting very low safety and security significance issues.	Completed
Eliminated the requirement for safety-significant inspection findings to count as Action Matrix inputs for four full calendar quarters before closing.	507(d)(3)(A)	Moderate impact to the NRC and licensees by encouraging licensees to implement corrective actions for safety-significant inspection findings as quickly as possible.	Completed
Minimized dual-path processing for ROP and traditional enforcement violations.	507(d)(3)(A)	Moderate impact to the NRC and licensees from reducing duplication and the resources needed for enforcement actions of very low safety significance processing violations.	Completed
Completed a Fuel Cycle Facility Inspection Program Self-Assessment and identified areas for improvement.	507(d)(3)(A)	Moderate impact to the NRC and licensees through a reduction of average annual core inspections of approximately 10 percent for Category I fuel facilities, 11 percent for Category III fuel fabrication facilities, 25 percent for the uranium conversion facility, and 27 percent for a gas centrifuge facility with an NRC-approved corrective action program during the first 3 years of the implementation of the Smarter Inspection Program compared to the 3 years before the program. Additional enhancements proposed during the	Completed

Action	ADVANCE Act Section 507 Provision	Impact	Status/ Timeframe
		self-assessment are listed in Table 2 and Table 3.	
Implemented major updates to the independent spent fuel storage installation (ISFSI) inspection program and established a risk prioritization tool to aid in inspection.	507(d)(3)(A)	Moderate impact to the NRC and licensees as a result of the 2020 Enhancement Initiative recommendations and further changes made as a result of the 2023 Self-Assessment of the ISFSI Inspection Program Enhancements.	Completed
Increased Review of the Use of Inspection Program Resources Based on Licensee Performance (Section 507(d)(3)(B))			
Revised guidance on when to perform minimum samples based on risk and licensee performance.	507(d)(3)(B)	Moderate impact to the NRC and licensees due to fewer inspection resources expended based on licensee performance.	Completed
Provided a paper to the Commission with recommendations to improve efficiency of ROP program areas.	507(d)(3)(B)	If approved, moderate impact to the NRC and licensees in the aggregate of planned actions to revise the treatment of cross-cutting aspects and licensee-identified White findings (i.e., findings of low-to-moderate safety significance), applicable to both the NRC and licensees.	Completed
Expansion of Modern Information Technology (IT) to Risk-Inform Oversight and Inspection Decisions (Section 507(d)(3)(C))			
Deployed the "SPAR-DASH" tool for inspectors, which provides plant-specific risk insights in an easy-to-use dashboard format.	501(d)(3)(C)	Moderate impact to the NRC and licensees by providing risk insights that will allow for optimizing oversight and inspection activities.	Completed
Updating the Differing Professional Views or Opinions Process to Ensure Any Impacts on Agency Decisions and Schedules Are Commensurate with the Safety Significance of the Differing Opinion (Section 507(d)(3)(D))			
Developed a framework for the revised Differing Professional Opinion Process.	507(d)(3)(D)	Substantial impact to the NRC and licensees by allocating resources based on safety and security significance.	Completed
Implemented process improvements in "Best Practice Guide" that clarify timelines and roles informed by cases and annual evaluations.	507(d)(3)(D)	Moderate impact to the NRC by streamlining procedures, clarifying timelines and roles, and applying insights from case reviews and annual evaluations.	Completed

Table 2 – Ongoing NRC Actions Related to ADVANCE Act Section 507

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
Use of Travel Resources (Section 507(d)(1)(A))				
Revise guidance to allow ROP team inspections as a hybrid format (ID1).	507(d)(1)(A)	No	Expected to yield substantial efficiency gains to the NRC and licensees from reduced travel resources and reduced time charged for inspection travel.	Ongoing; Quarter (Q)4 of Calendar Year (CY) 2025
Reduce comprehensive engineering team inspections by one inspector (from seven to six) (ID2).	507(d)(1)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees through reduction in travel expenses.	Ongoing; Q1 of CY 2026
Revise the frequency of the security training inspection (IP 71130.07) from biennial to triennial (ID3).	507(d)(1)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduced travel, direct inspection, and inspection preparation and documentation.	Ongoing; Q1 of CY 2026
Revise the frequency of Emergency Planning (EP) drill evaluation inspection (IP 71114.06) from annual to biennial (ID4).	507(d)(1)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduced travel, direct inspection, and inspection preparation and documentation.	Ongoing; Q1 of CY 2026
Reduce the force-on-force inspection program (IP 71130.03) from two NRC-conducted exercises to one exercise at each applicable licensee triennially (ID5).	507(d)(1)(A)	Yes	Expected to yield moderate efficiency gains to the NRC and licensees from reduced travel, direct inspection, and inspection preparation and documentation.	Ongoing; Q1 of CY 2026
Develop an inspection schedule for security baseline inspections to reduce travel costs and maximize onsite efficiency (ID6).	507(d)(1)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduced travel expenses by consolidating security inspections.	Ongoing; Q1 of CY 2027

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
Develop a consistent inspection schedule for EP inspections to reduce travel costs and maximize inspector effectiveness when onsite, while increasing consistency across the regions. Also, re-baseline expected resource needs (i.e., hours) for each EP inspection procedure (ID7).	507(d)(1)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduced travel expenses by consolidating EP inspections and reduced impact on licensee resources. Inspection schedules and licensee drill dates are already developed for CY 2026. This timeline will allow the regions to coordinate with licensees.	Ongoing; Q1 of CY 2027
Planning and Preparation for Inspections (Section 507(d)(1)(B))				
Revise guidance to make entrance meetings optional and simplify exit meetings, including the number of attendees, for inspections with no findings for reactor licensees (ID8).	507(d)(1)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees due to reduced inspection preparation and some resource savings for licensees.	Ongoing; Q3 of CY 2025
Revise and clarify the guidance for inspection preparation. Have Branch Chief review team inspection initial documentation requests (ID9).	507(d)(1)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduction in time spent on inspection preparation.	Ongoing; Q3 of CY 2025
Document Collection and Preparation (Section 507(d)(1)(C))				
Develop a standard request for information template for each ROP team or cornerstone inspection. (ID10).	507(d)(1)(C)	No	Expected to yield moderate efficiency gains to the NRC and licensees from standardization of NRC staff requests for information.	Ongoing; Q4 of CY 2026
Create templates for various inspection needs (i.e., document requests, inspection reports) for materials programs (ID11).	507(d)(1)(C)	No	Expected to yield moderate efficiency gains to the NRC and licensees from standardization of NRC staff requests for information.	Ongoing; Q4 of CY 2025

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
Eliminate documentation requests for any document in the NRC's Agencywide Documents Access and Management System and provide guidance to supervisors to ensure document requests are timely and within scope (ID12).	507(d)(1)(C)	No	Expected to yield moderate efficiency gains to NRC and licensees by eliminating need to compile documents already available to inspectors.	Ongoing; Q4 of CY 2025
Expand the use of Reactor Program System (RPS) to NPUFs (ID13).	507(d)(1)(C)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduced NRC resources for inspection preparation, resulting in reduced costs billed to licensees.	Ongoing; Q4 of CY 2025
Expand the use of RPS to decommissioning and low-level waste facilities (ID14).	507(d)(1)(C)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduced NRC resources for inspection preparation, resulting in reduced costs billed to licensees.	Ongoing; Q1 of CY 2026
Develop an external-facing reciprocity system in Web-Based Licensing to streamline the request process to allow online submission for the materials program (ID15).	507(d)(1)(C)	No	Expected to yield moderate efficiency gains to the NRC and licensees by streamlining form submission.	Ongoing; Q4 of CY 2026
Cross-Cutting Issues Program (Section 507(d)(1)(D))				
Evaluate inspection findings by cross-cutting areas rather than cross-cutting aspects (i.e., reduce categories from 23 to 3) (ID16).	507(d)(1)(D)	Yes	If approved, expected to yield moderate efficiency gains to the NRC and licensees by reducing resources expended on determining cross-cutting aspects.	Ongoing; Commission approval requested by SECY-25-0045[7]

[7] SECY-25-0045, "Recommendations for Revising the Reactor Oversight Process," June 5, 2025 (ML25127A212).

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
Elimination of Areas of Duplicative or Otherwise Unnecessary Activities (Section 507(d)(2)(A))				
Consolidate traditional enforcement follow-up inspections to eliminate IPs 92722 and 92723 and incorporate guidance into other existing procedures (ID17).	507(d)(2)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees; inspections are duplicative and relatively few are conducted annually.	Ongoing; Q1 of CY 2026
Implement interim enforcement guidance to exercise enforcement discretion for certain general licensees related to violations issued to spent fuel storage Certificate of Compliance (CoC) holders (ID18).	507(d)(2)(A)	Yes	If approved, expected to yield moderate efficiency gains to the NRC and licensees by implementing a more efficient process in which the NRC staff address a CoC holder's apparent violations of the Title 10 of the *Code of Federal Regulations* (10 CFR) Section 72.48 change control process without pursuing a simultaneous enforcement action against the general licensee for its adoption of the CoC holder's noncompliant change.	Ongoing; Commission approval requested by SECY-25-0046[8]
Stop the practice of each NRC region preparing at least one power reactor initial operator licensing examination per year (ID20).	507(d)(2)(A)	Yes	If approved, expected to yield moderate efficiency gains to the NRC and licensees from eliminating this requirement.	Ongoing; Commission approval requested by SECY-25-0045
Review the effectiveness and scope of the Plant Mods Annual (IP 88070) and Plant Mods Triennial (IP 88072) IPs to consider consolidation, reducing any overlaps, etc. (ID21).	507(d)(2)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from direct inspection, preparation and documentation, and travel time. Possible reduction in overall hours spent	Ongoing; Q4 of CY 2027

[8] SECY-25-0046, "Interim Enforcement Policy for Enforcement Discretion for General Licensee Adoption of Certificate of Compliance Holder-Generated Changes," dated June 2, 2025 (ML25121A329).

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
			on Plant Modification type inspections, as well as commensurate reductions in travel and preparation and documentation time.	
Evaluate all Category I physical security IPs to identify and remove any redundancies. Eliminate IP 81700.06, "Licensee Conducted Force-on-Force Exercises at Category I Fuel Cycle Facilities," and consolidate requirements into other IPs. Redesignate IP 81700.10, "Safeguards Information," to an "as needed" IP (ID22).	507(d)(2)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from savings on travel, reduced inspection, and reduced inspection preparation and documentation; applies to very few facilities.	Ongoing; Q4 of CY 2027
Explicitly permit use of IMC 2606, "Assessment of the Risk Resulting from a Potential Safety Noncompliance at a Fuel Cycle Facility," to appropriately match the significance of a violation to its risk without initiating the escalated enforcement process (ID23).	507(d)(2)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from avoiding unnecessary escalated enforcement processes.	Ongoing; Q4 of CY 2025
Review the ROP Self-Assessment Process, including streamlining annual self-assessment reports, and the requirements for the annual report on licensee performance in the Nuclear Materials and Waste Safety Program and the Annual Decommissioning Report to streamline reporting (ID24).	507(d)(2)(A)	Yes	Expected to yield moderate efficiency gains to the NRC licensees on potential elimination of duplicative reporting requirements to the Commission.	Ongoing; Q4 of CY 2026

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
Increased Use of Templates in Documenting Inspection Results (Section 507(d)(2)(B))				
Develop an automatic inspection report generator application in RPS for NPUFs (ID25).	507(d)(2)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees from the use of templates to reduce time spent on inspection documentation.	Ongoing; Q4 of CY 2025
Conduct additional evaluations on improving the inspection report writing process (ID26).	507(d)(2)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees by reducing the time spent on inspection documentation.	Ongoing; Q4 of CY 2025
Increase template usage for documenting inspection results in RPS for the Decommissioning and Low-Level Waste Business Line (ID27).	507(d)(2)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees from the use of templates to reduce time spent on inspection documentation.	Ongoing; Q4 CY of 2025
Substantially reduce documentation of Green and severity level IV non-cited violations (ID28).	507(d)(2)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees from resources saved on documenting findings.	Ongoing; Q1 of CY 2026
Periodic Training of Commission Staff and Leadership on the Application of Risk-Informed Criteria (Section 507(d)(2)(C))				
Implement training for NRC staff and leadership on the application of risk-informed criteria (ID29).	507(d)(2)(C)	No	Expected to yield moderate efficiency gains to the NRC and licensees by reinforcing the application of risk-informed criteria for inspection and oversight programs.	Ongoing; Q1 of CY 2026
Increased Use of Inspection Approaches that Balance the Level of Resources Commensurate with Safety Significance (Section 507(d)(3)(A))				
Evaluate all materials oversight programs to ensure that annual or periodic inspections are conducted only when justified by the facility's	507(d)(3)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees as clarity will be provided regarding when an	Ongoing; Q4 of CY 2026

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
current risk or safety significance and expand the use of discretionary procedures to ensure that inspection flexibilities align with licensee performance (ID30).			inspection program is complete. Specifically, completion does not necessarily mean performance of all procedures but is based on safety significance of actual activities at the site.	
Continue inspection program evaluation and enhancement by improving the self-assessment process and leveraging its findings to further focus inspection resources on issues of greater safety significance (ID32).	507(d)(3)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees by reducing resource expenditures evaluating very low safety/security significance issues.	Ongoing; Q4 of CY 2026
Add examples for ISFSIs to the Enforcement Policy (ID33).	507(d)(3)(A)	Yes	If approved, efficiency gains by creating consistency in the decision-making process for inspectors.	Ongoing; Commission approval requested by SECY-24-0009[9]
Revise the EP Significance Determination Process (SDP) risk-informed methodology used to evaluate the safety significance of EP inspection findings (ID35).	507(d)(3)(A)	Yes (Completed)	Expected to yield moderate efficiency gains to the NRC and licensees by establishing consistency with issue screening and reducing time spent on direct inspection and documentation.	Ongoing; Q4 of CY 2025
Revise the EP SDP to address internal and external feedback and incorporate additional risk insights to achieve a result that more closely aligns with the risk significance of an EP finding (ID36).	507(d)(3)(A)	Yes	Expected to yield moderate efficiency gains to the NRC and licensees by establishing consistency with issue screening and reducing time spent on direct inspection and documentation.	Ongoing; Commission paper planned (if required) for Q4 CY of 2025 to approve NRC staff's recommendations
Revise the baseline security SDP (ID37).	507(d)(3)(A)	Yes	Expected to yield moderate efficiency gains to the NRC and	Ongoing; Commission paper

[9] SECY-24-0009, "Proposed Revisions to the U.S. Nuclear Regulatory Commission Enforcement Policy," January 25, 2024 (ML22318A121).

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
			licensees by establishing consistency with issue screening and reducing time spent on direct inspection and documentation.	planned (if required) for Q4 CY of 2025 to approve NRC staff's recommendations
Perform a risk-informed evaluation of all inspection criteria in EP baseline IPs to validate prioritization (ID39).	507(d)(3)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from eliminating duplication, adding guidance when minimum samples are appropriate, and focusing inspection resources on the most risk-significant items.	Ongoing; Q4 of CY of 2025
Enhance the Security Issues Forum process (ID40).	507(d)(3)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees by establishing consistency with issue screening and reducing time spent on evaluating inspection issues.	Ongoing; Q4 of CY 2025
Revise treatment of licensee-identified White findings. Findings would not count as Action Matrix inputs but would still require a follow-up inspection for closure, and multiple White Action Matrix inputs would not aggregate to an assessment in Column 3 of the Action Matrix (ID41).	507(d)(3)(A)	Yes	If approved, expected to yield moderate efficiency gains to the NRC and licensees by reducing resource expenditures and improving the use of inspection approaches that balance the level of resources commensurate with safety significance.	Ongoing; Commission approval requested by SECY-25-0045
Review the more-than-minor criteria for screening performance deficiencies for safety and security significance (ID42).	507(d)(3)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reducing time processing inspection findings.	Ongoing; Q1 of CY 2026

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
Increased Review of the Use of Inspection Program Resources Based on Licensee Performance (Section 507(d)(3)(B))				
Perform a comprehensive review of the entire ROP, to include a review of all baseline inspection procedures, developing new performance indicators, and revising the engineering inspection program and problem identification and resolution team inspections, as well as an effectiveness review of the revised engineering inspection program (ID43).	507(d)(3)(B)	Yes	Expected to yield substantial efficiency gains to the NRC and licensees by providing a new set of performance indicators that cover more licensee performance areas and revision of IPs that cover areas not addressed by performance indicators, which will eliminate duplication of effort and unnecessary activities and will be risk-informed and performance-based. This effort is expected to reduce ROP baseline inspection resources up to 30%.	Ongoing; Q4 of CY of 2025
Evaluate all materials oversight programs to ensure that annual or periodic inspections are conducted only when justified by the facility's current risk or safety significance and expand the use of discretionary procedures to ensure that inspection flexibilities align with licensee performance (ID45).	507(d)(3)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees as clarity will be provided when an inspection program is complete. Specifically, completion does not necessarily mean performance of all procedures but is based on safety significance of actual activities at the site.	Ongoing; Q4 of CY 2026
Expansion of Modern IT to Risk-Inform Oversight and Inspection Decisions (Section 507(d)(3)(C))				
Develop a framework and invest in foundational tools, such as generative artificial intelligence (AI), to support the implementation of AI use cases (ID48).	501(d)(3)(C)	No	Expected to yield substantial efficiency gains to the NRC by enabling AI use cases that help the NRC work more effectively and focus inspection resources on higher-value activities.	Q4 of CY 2025

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact	Status/ Timeframe
Updating the Differing Professional Views or Opinions Process to Ensure Any Impacts on Agency Decisions and Schedules Are Commensurate with the Safety Significance of the Differing Opinion (Section 507(d)(3)(D))				
Develop guidance for the implementation of the changes to the Differing Views Program based on timeliness, resource expenditure, and safety and security significance; (ID50).	507(d)(3)(D)	No	Expected to yield substantial efficiency gains to the NRC and licensees by allocating resources based on safety and security significance.	Ongoing; Q3 of CY 2025
Develop an analysis tool to assess the safety significance of a differing view to grade the level of evaluation and response (ID51).	507(d)(3)(D)	No	Expected to yield substantial efficiency gains to the NRC and licensees by allocating resources based on safety and security significance.	Ongoing; Q3 of CY 2025
Assessment of the Commission's Ability to Enable Licensee Innovations that May Advance Nuclear Reactor Operational Efficiency and Safety (Section 507(D)(4))				
Develop the Advanced Reactor Construction Oversight Program (ID53).	507(d)(4)	No	Expected to yield substantial efficiency gains to the NRC and licensees by using a risk-informed and performance-based framework.	Ongoing; Q4 of CY 2025
Issue a proposed rule for public comment to incorporate by reference IEEE Standard 603-2018 into the NRC's regulations (10 CFR 50.55a(h)) for digital instrumentation and controls (I&C) systems (ID55).	507(d)(4)	Yes	If approved, expected to yield moderate efficiency gains to the NRC and licensees from increased regulatory confidence to use the latest version of the standard in the development of safety systems for nuclear power generating stations and modifications to their facilities.	Ongoing; Expected for Q4 of CY 2025 following Commission approval; will require a final rule to be issued before efficiency gains can be realized

Table 3 – Potential Future NRC Actions Under Development Related to ADVANCE Act Section 507

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact
Elimination of Areas of Duplicative or Otherwise Unnecessary Activities (Section 507(d)(2)(A))			
Evaluate the enforcement process to identify efficiencies and implement opportunities to streamline decision-making for certain escalated enforcement actions under the traditional enforcement process, with specific focus on providing the Regions broader decision authority (ID19).	507(d)(2)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees through reduced time spent on escalated enforcement actions while providing consistency across the agency.
Increased Use of Inspection Approaches that Balance the Level of Resources Commensurate with Safety Significance (Section 507(d)(3)(A))			
Review and update Management Directive 8.10, "NRC Assessment Program for a Medical Event or an Incident Occurring at a Medical Facility," applying risk-informed principles in determining whether adjustments to the timeline or scope of inspections following a medical event are warranted in the materials and inspection programs (ID31).	507(d)(3)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees from reduced travel costs and direct inspection while allowing the licensee to focus on patient safety.
Better integrate ISFSIs into RPS to allow for crosswalk between Part 50 and Part 72 to allow inspectors to link Part 72 Inspection Report numbers and samples with ROP resident inspector's quarterly reports (ID34).	507(d)(3)(A)	No	Expected to yield moderate efficiency gains to the NRC and licensees by streamlining ISFSI inspector planning and documentation efforts such that there would be a reduction in the baseline preparation and documentation hours.

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact
Provide a paper to the Commission with recommendations for the EP and security SDP (ID38).	507(d)(3)(A)	Yes	If approved, expected to yield moderate efficiency gains to the NRC and licensees by incorporating risk insights to align with the risk significance of a finding and helping achieve consistent inspection results.
Increased Review of the Use of Inspection Program Resources Based on Licensee Performance (Section 507(d)(3)(B))			
Provide recommendations to the Commission from the comprehensive review of the ROP (ID44).	507(d)(3)(B)	Yes	If approved, expected to yield substantial efficiency gains to the NRC and licensees through reduced inspection resources.
Develop a program for fuel cycle facilities to credit risk reduction by reducing the core inspection level for sites with additional controls beyond the minimum. Licensees would have to apply for such credit. (ID46).	507(d)(3)(B)	No	Expected to yield moderate efficiency gains to the NRC and licensees in direct inspection hours and in preparation and documentation hours for the affected performance areas. Licensee savings would depend on how many licensees adopt the program.
Review and revise the requirements for the Management Directive 8.14, "Agency Action Review Meeting," and the Agency Action Review Commission Meeting (ID47).	507(d)(3)(B)	Yes	Expected to yield moderate efficiency gains to the NRC licensees by using fewer NRC resources.
Expansion of Modern IT to Risk-Inform Oversight and Inspection Decisions (Section 507(d)(3)(C))			
Deploy Generative AI tools to support inspection activities (ID49).	507(d)(3)(c)	No	Expected to yield substantial efficiency gains to the NRC through reduced time spent on inspection planning and sample selection based on risks insights, operating experience, and previous inspection results, as well as issue screening, inspection report development, and resource optimization.

Action	ADVANCE Act Section 507 Provision	Commission Action Needed?	Impact
Updating the Differing Professional Views or Opinions Process to Ensure Any Impacts on Agency Decisions and Schedules Are Commensurate with the Safety Significance of the Differing Opinion (Section 507(d)(3)(D))			
Institutionalize changes to Differing Views Program in management directives and establish more aggressive performance measures (ID52).	507(d)(3)(D)	No	Expected to yield substantial efficiency gains to the NRC and licensees by enhancing safety and timeliness goals.
Assessment of the Commission's Ability to Enable Licensee Innovations that May Advance Nuclear Reactor Operational Efficiency and Safety (Section 507(D)(4))			
Update guidance in Interim Staff Guidance DI&C-06 and move to the Standard Review Plan (ID54).	507(d)(4)	No	Expected to yield moderate efficiency gains to the NRC and licensees from clearer guidance and improvements based on lessons learned.
Review for possible endorsement Nuclear Energy Institute 20-07, "Guidance for Addressing Software Common Cause Failure In High Safety-Significant Safety-related Digital I&C Systems" (ID56).	507(d)(4)	No	Expected to yield moderate efficiency gains to the NRC and licensees from applying a risk-informed approach to digital I&C failures.

ENCLOSURE 2

STAKEHOLDER ENGAGEMENT

Public Meetings

In developing this report, the U.S. Nuclear Regulatory Commission (NRC) solicited input from a broad range of external stakeholders, consistent with the requirements in Section 507(c) of the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act). Specifically, the NRC sought input from other Federal regulatory agencies that conduct oversight and inspections; the nuclear energy industry; nongovernmental organizations; and other stakeholders.

The NRC received input from external stakeholders during the following public meetings:

- Periodic Reactor Oversight Process Bi-Monthly Public Meetings (Various Dates)

  The NRC conducts periodic meetings to share information and discuss topics related to the oversight of reactors with the nuclear industry and other stakeholders. The public meetings took place on November 20, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24352A001); December 10, 2024 (ML24358A187); December 12, 2024 (ML25002A270); January 15, 2025 (ML25034A096); January 29, 2025 (ML25044A137); and March 26, 2025 (ML25087A007).

- Digital Instrumentation and Controls—ADVANCE Act—Section 507 (February 19, 2025)

  The NRC held this public meeting to solicit input from external stakeholders on digital instrumentation and controls (ML25066A092). The public meeting covered the agency's approach to addressing stakeholder recommendations regarding digital instrumentation and controls.

- ADVANCE Act Commission Meeting (March 4, 2025)

  The NRC held a Commission meeting on March 4, 2025, regarding the actions the NRC is taking in response to the ADVANCE Act (ML25066A005). During the meeting, the Commission heard presentations from, and engaged in a question-and-answer session with, an external panel regarding a range of ADVANCE Act implementation issues.

- Security—ADVANCE Act—Section 507 (Various Dates)

  The NRC held public meetings to solicit input from external stakeholders on the baseline security significance determination process. These public meetings took place on March 20, 2024 (ML24099A216); June 24, 2024 (ML24191A380); December 18, 2024 (ML25014A205); February 20, 2025 (ML25073A099); and June 4, 2025 (ML25161A088).

Correspondence

The NRC received written input related to Section 507 of the ADVANCE Act from the following groups and individuals.

Incoming Correspondence	ADAMS Accession Number
Letter from Andrew Mauer, Senior Director, Regulatory Affairs, Nuclear Energy Institute (NEI), to Michael King, Special Assistant for ADVANCE Act Implementation, NRC, "NEI Input on Improvements to Licensing and Oversight Programs," dated October 28, 2024	ML24302A311
Letter from Douglas True, Senior Vice President and Chief Nuclear Officer, NEI, to Dr. Mirela Gavrilas, Executive Director for Operations, NRC, "Nuclear Energy Institute (NEI) Input on Recent Executive Orders," dated February 10, 2025	ML25058A144
Letter from Wayne A. Norton, Executive Spokesperson, Decommissioning Plant Coalition, to John Lubinski, Director, Office of Nuclear Material Safety and Safeguards, NRC, dated February 25, 2025	ML25062A116
Consolidated Federal Agency Staff Responses to ADVANCE Act Section 507 Survey, dated March 17, 2025	ML25077A175