Protecting People and the Environment

SEMIANNUAL STATUS REPORT ON THE LICENSING ACTIVITIES AND REGULATORY DUTIES OF THE U.S. NUCLEAR REGULATORY COMMISSION

October 2024—March 2025

Note: The period of performance covered by this report includes activities that occurred from the first day of October 2024 to the last day of March 2025. The transmittal letter to Congress accompanying this report provides additional information to keep Congress fully informed of the current licensing and regulatory activities of the U.S. Nuclear Regulatory Commission.

Enclosure

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I. Reactor Oversight Process

The agency's most recent annual performance assessments indicate that all operating power reactor plants continue to operate safely. The NRC staff conducts assessment reviews, communicates changes in licensee performance quarterly, and issues end-of-cycle assessment letters. The NRC issued annual assessment letters to licensees in March 2025. The NRC public website reflects the latest power reactor plant performance assessments: https://www.nrc.gov/reactors/operating/oversight/plant-by-plant-summaries.html.

In March 2024, the NRC staff finalized development of a new performance indicator (PI) for emergency response facility and equipment readiness consistent with Commission direction in Staff Requirements Memorandum (SRM)-SECY-23-0010 (Agencywide Documents Access and Management System Accession No. ML23244A282). The new PI went into effect January 2025, and licensees will submit data to the NRC for the first quarter of calendar year (CY) 2025 in April 2025.

In 2024, the NRC staff initiated an assessment of Inspection Manual Chapter (IMC) 0609, Appendix E, Part I, "Baseline Security Significance Determination Process for Power Reactors (BSSDP)," dated November 8, 2022 (ML22178A222), to determine whether it could be improved or clarified to promote a more consistent application of the BSSDP.[1] The NRC staff chartered a working group and held public meetings on March 20, 2024, June 24, 2024, December 18, 2024, and February 20, 2025, to solicit feedback from external stakeholders. Based on the assessment and external stakeholder feedback, the NRC staff plans to submit a notation vote paper with options to the Commission by October 2025.

The NRC staff is also revising Appendix B of IMC 0609, "Emergency Preparedness Significance Determination Process" (ML15128A462), dated September 22, 2015, as directed by the Commission in SRM-SECY-22-0089, "Recommendation for Enhancing the Emergency Preparedness Significance Determination Process for the Reactor Oversight Process," dated February 9, 2023 (ML23040A378). This revision will further risk inform the significance determination process for inspection findings in the emergency preparedness cornerstone of the ROP. The NRC staff held a public meeting on December 18, 2024, to share an update of the BSSDP activities (ML24339A056). The NRC staff is actively working on developing substantive revisions to the BSSDP to address feedback received from internal and external stakeholders.

See Section XI of this report for discussion of ROP assessment in accordance with the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy (ADVANCE) Act.

II. Implementing Risk-Informed and Performance-Based Regulations

Licensees continue to submit applications for adoption of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.69, "Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors." Section 50.69 allows licensees to establish risk-informed treatment of structures, systems, and components. Since 2014, licensees have submitted 70 unit amendment applications to adopt 10 CFR 50.69. The NRC staff reviewed and approved 63 applications and is currently reviewing the remaining 7 applications. In December 2024, the NRC staff completed an audit for the review of Electric Power Research Institute (EPRI) Topical Report 3002025288, "Enhanced Risk-Informed

[1] The BSSDP is the assessment tool through which the NRC evaluates findings that impact the Security Cornerstone of the ROP and the Construction Reactor Oversight Process.

Categorization Methodology for Pressure Boundary Components," dated July 2024 (ML23234A266), which provides an alternative methodology to adopt 10 CFR 50.69.

Licensees also continue to submit applications to adopt the Risk-Informed Technical Specifications (RITS) Initiative 4b. This initiative allows licensees to temporarily extend certain technical specification completion times up to 30 days, based on plant configuration and a real-time risk calculation. To date, the industry has submitted 71 unit amendment applications to adopt the RITS Initiative 4b. The NRC staff has reviewed and approved 62 unit amendment applications and is currently reviewing the remaining 9 applications.

The Very Low Safety Significance Issue Resolution (VLSSIR) process is a framework to review, assess, and disposition issues of very low safety significance that are not clearly within a plant's licensing basis. NRR Office Instruction COM-106, Revision 6, "Technical Assistance Request (TAR) Process" (ML19176A098), establishes a structured process with a safety significance determination tool that can be used to inform the VLSSIR decision-making. The NRC staff is currently working to expand the applicability of VLSSIR beyond issues involving the licensing basis to include issues in which it is not clear whether a regulatory requirement has been met. This expansion of VLSSIR applicability will be implemented in CY 2025 once updated guidance in IMC 0612, "Issue Screening," and Appendix B to IMC 0612, "Issue Screening Directions," has been issued.

In addition, the NRC staff developed the Risk-Informed Process for Evaluations (RIPE) to resolve very low safety-significant issues commensurate with their risk significance using existing regulations under 10 CFR Section 50.12, "Specific exemptions," or 10 CFR Section 50.90, "Application for amendment of license, construction permit, or early site permit," and risk information. The NRC expects a RIPE submittal later in CY 2025 from Browns Ferry to eliminate certain technical specification limiting conditions for operation actions for the rod worth minimizer being inoperable during reactor startup.

On December 19, 2024, and February 5, 2025, the NRC staff presented to the Advisory Committee of Reactor Safeguards (ACRS) Subcommittee and Full Committee, respectively, the draft proposed rulemaking titled, "Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors." The staff presented proposed revisions to the regulations to support the use of light-water reactor (LWR) fuels enriched to greater than 5 and up to 20 weight percent uranium-235 while continuing to provide reasonable assurance of adequate protection of public health and safety. These changes aim to enable the licensing and deployment of conventional and accident-tolerant fuel designs with increased enrichment, offering benefits such as improved fuel and reactor performance, enhanced safety margins, and longer fuel cycles.

On February 7, 2025, the NRC staff presented to the ACRS Full Committee proposed revisions to Draft Regulatory Guide (RG) 1.183, Revision 2, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." This RG would serve serves as one of the implementing guidance documents for the increased enrichment rulemaking.

During the reporting period, the NRC staff also reviewed requests to use, as an alternative to certain requirements of 10 CFR 50.55a(b) through (h), Code Case N-752, "Risk-Informed Categorization and Treatment for Repair/Replacement Activities in Class 2 and 3 Systems, Section XI, Division 1" (ML24149A286). The requests concern American Society of Mechanical Engineers (ASME) Code Section XI and risk-informing the categorization of certain Class 2 and 3 components. The NRC staff is currently reviewing applications for Duke Energy (Brunswick,

Catawba, McGuire, Harris, and Robinson) and Southern Nuclear (Vogtle, Hatch, and Farley) to use Code Case N-752.

On February 10, 2025, the NRC issued Information Notice (IN) 25-01, "Lessons Learned When Implementing ASME Code Case-N-752" (ML24323A057). IN 25-01 informs licensees and permit holders of recently observed inconsistencies between the language in licensee programs during the implementation of Code Case N-752 and the risk-informed methods the NRC approved to be acceptable to satisfy the requirements of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."

On March 5, 2025, the NRC staff conducted a joint public workshop with the Nuclear Energy Institute (NEI) and other industry representatives to share lessons learned from the 10 CFR 50.69 licensing and oversight programs. There were approximately 400 attendees, including NRC staff from offices throughout the agency and industry representatives from various facilities. The NRC staff and industry representatives provided shared experiences and lessons learned from the initial development of the 10 CFR 50.69 license amendment request (LAR) to the implementation of the 50.69 program following NRC approval. Industry also discussed the safety benefits of adopting this program. The workshop was successful in enhancing knowledge management to support the expansion and integration of risk information into the staff's decision-making practices for both licensing and oversight activities.

In March 2024, the NRC staff submitted an information paper to the Commission SECY-24-0026, "Achieving Timely Completion of License Renewal Safety and Environmental Reviews (License Renewal Roadmap)", outlining the NRC staff's plan to ensure the license renewal (LR) program conducts timely and predictable reviews and achieves the goal of 18-month reviews (ML24059A131). The License Renewal Roadmap introduced the "Tiered Approach," which tailors the level of NRC staff review of each safety technical area of the application, considering characteristics such as risk significance to establish the level of review for each aging management program. In February 2025 and March 2025, the staff piloted the Tiered Approach to the reviews of the Clinton Power Station, Unit 1, LR and Dresden Nuclear Power Station, Units 2 and 3, Subsequent License Renewal (SLR), respectively.

The NRC staff also increased the use of risk insights in the review of new and advanced reactor applications. Specifically, in preparation for the receipt of the NuScale Standard Design Approval Application (SDAA), the NRC staff collected preliminary risk insights to support a graded review of the NuScale US460 standard design. The NRC staff used risk insights to inform its technical reviews of the SDAA and the associated topical reports to resolve complex technical issues identified during the review. The NRC staff also leveraged risk insights in its review of the Kairos Power Hermes 2 construction permit application. The Hermes 2 design contains many structures, systems, and components identical to those in the Hermes 1 design. Therefore, the NRC staff review of Hermes 2 focused on the design differences between Hermes 1 and Hermes 2. As a result, the NRC staff was able to incorporate by reference portions of the Hermes 1 safety evaluation (SE) into the Hermes 2 SE.

III. Status of Issues Tracked in the Reactor Generic Issues Program

There were no generic issues during this reporting period. Additional detail of the NRC staff's evaluation may be found on the Generic Issues Dashboard: https://www.nrc.gov/about-nrc/regulatory/gen-issues/dashboard.html.

IV. Licensing Actions and Other Licensing Tasks

Currently there are three Congressional Budget Justification PIs for operating power reactor licensing actions: (1) timely completion of the final SE by the generic milestone date, (2) the percentage of reviews completed within resource estimates, and (3) the average percentage of time allotted used in the established schedule. These PIs are applicable to all "requested activities of the Commission" that involve a final SE as defined by the Nuclear Energy Innovation and Modernization Act (NEIMA) in the Operating Reactor Business Line.

Table 1 shows the actual fiscal year (FY) 2022 through FY 2025 results and the FY 2025 goals for the above-mentioned PIs.

Table 1 Results and FY 2025 Goals for the NRC's Congressional Budget Justification Performance Indicators

Output Measure	FY 2022 Actual	FY 2023 Actual	FY 2024 Actual	FY 2025 Current	FY 2025 Goal
Timely Completion of Final SEs	99% completed by the generic milestone schedule[2]	99% completed by the generic milestone schedule[3]	99% completed by the generic milestone schedule[4]	100% completed by the generic milestone schedule	100% completed by the generic milestone schedule
Average Percentage of Time Allotted Used in the Established Schedule	81.75%	98%	92.12%	89%	Average should be ≥75% and ≤ 115%
Percentage of Reviews Completed Within Resource Estimates	97.3%	94%	92.40%	96%	80%

[2] In FY 2022, one final SE was not issued within the NRC's established generic milestone schedule due to a delay in the applicant's response to NRC's request for additional information.

[3] In FY 2023, two final SEs were not issued within the NRC's established generic milestone schedule. The first required additional time to bring closure to all safety aspects of the review, which included a supplement to the operating license application for a phased approach to startup operations. The second required additional time to address technical issues identified during an operational event at the plant.

[4] One review exceeded the generic milestone schedule; the delay was due to the licensee's action and beyond the staff's control. All appropriate notifications for the delay (i.e., Commission/Congress) of the SE were completed on-time.

V. Status of License Renewal Activities

During this reporting period, the NRC staff issued four subsequent renewed licenses (Monticello Unit 1 and Oconee Units 1, 2, and 3); issued the SE for one SLR application (Summer Unit 1); and issued the draft supplemental environmental impact statement (SEIS) for one LR application (Diablo Canyon Units 1 and 2), the draft SEIS for one SLR application (Summer Unit 1), and the final SEIS for two SLR applications (Monticello Unit 1 and Oconee Units 1, 2, and 3). In addition, the NRC staff modified the Turkey Point Units 3 and 4 licenses to reinstate the expiration dates appropriate to the SLR term. Eight total applications are currently under review.

Commission Direction Related to SLR

On February 24, 2022, the Commission issued three orders (CLI-22-2, CLI-22-3, and CLI-22-4) addressing SLR proceedings for five operating nuclear plants, affecting a total of 11 reactor units. The Commission determined that NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants", (LR GEIS), Revision 1, which the agency relied on in part to meet its obligations under the National Environmental Policy Act, did not consider SLR, and thus the NRC staff's environmental reviews of the SLR applications were incomplete. The Commission noted that SLR applicants could wait for the agency to finish efforts to update the LR GEIS to address SLR or could perform their own site-specific environmental analyses. The impacted applications were for the following units:

- Turkey Point Units 3 and 4
- Oconee Units 1, 2, and 3
- Point Beach Units 1 and 2
- North Anna Units 1 and 2
- Peach Bottom Units 2 and 3

The final rule and Revision 2 to the LR GEIS and guidance were published in the *Federal Register* on August 6, 2024 (89 FR 64166), with a correction published on August 13, 2024 (89 FR 65755).

In August 2024, the licensees for Point Beach, St. Lucie, and Peach Bottom requested that the NRC resume their environmental reviews. The NRC staff has resumed the environmental reviews for these facilities. For Peach Bottom, the NRC staff is preparing a supplement to the final SEIS such that the period of extended operation can be restored. The supplement will first be issued for public comment. For Point Beach, the NRC staff is preparing a supplement to the draft SEIS for comment and then preparing a final SEIS. For St. Lucie, the NRC staff is resuming efforts to prepare a draft SEIS.

Applications with Milestones Completed During this Reporting Period

Monticello (SLR)

On January 9, 2023, Xcel Energy submitted an SLR application for Monticello Nuclear Generating Plant (ML23009A353). On February 23, 2023, the NRC staff issued a formal acceptance letter for the application (ML23047A175). A draft SEIS was issued in April 2024 (ML24102A276). On March 18, 2024, the final SE was issued (ML24077A001). The final SEIS was issued on November 15, 2024 (ML24309A221). The subsequent renewed licenses were issued on December 30, 2024.

Perry (LR)

On July 3, 2023, Energy Harbor submitted an LR application for Perry Nuclear Power Plant (ML23184A081). On September 22, 2023, the NRC staff issued the formal acceptance letter for the application (ML23256A359). A draft SEIS was issued on August 30, 2024 (ML24241A256). The final SEIS is expected in April 2025. The final SE is expected in May 2025.

Clinton (LR)

On February 14, 2024, Constellation submitted an LR application for Clinton Power Station. (ML24045A026). On April 11, 2024, the NRC staff issued the formal acceptance letter for the application (ML24089A222). A draft SEIS is expected in April 2025. The final SE is expected in August 2025. The final SEIS is expected in October 2025.

Dresden (SLR)

On April 17, 2024, Constellation submitted an SLR application for Dresden Nuclear Power Station (ML24108A008). On June 14, 2024, the NRC staff issued the formal acceptance letter for the application (ML24128A274). A draft SEIS is expected in June 2025. The final SE is expected in September 2025. The final SEIS is expected in October 2025.

Oconee (SLR)

On June 7, 2021, Duke Energy submitted an SLR application for Oconee Units 1, 2, and 3. On November 7, 2022, Duke submitted an environmental report related to its SLR application for Oconee Units 1, 2, and 3 (ML22311A036). The NRC staff issued the SE on December 19, 2022 (ML22349A145). The NRC staff issued the final SEIS in January 2025 (ML25031A307). The subsequent renewed licenses were issued on March 31, 2025 (ML25058A002).

Diablo Canyon (LR)

On November 7, 2023, Pacific Gas and Electric Company submitted an LR application for Diablo Canyon Units 1 and 2 (ML23311A154). On December 19, 2023, the NRC staff issued the formal acceptance letter for the application (ML23341A002). On October 25, 2024, the NRC staff issued a draft SEIS (ML24299A167). The final SEIS is expected in June 2025. The final SE is expected in June 2025.

Summer (SLR)

On August 17, 2023, Dominion Energy submitted an SLR application for Summer Unit 1 (ML23233A175). On October 11, 2023, the NRC staff issued the formal acceptance letter for the application (ML23275A010). On November 26, 2024, the NRC staff issued a draft SEIS (ML24330A271). On January 21, 2025, the NRC staff issued the SE (ML25021A228). The final SEIS is expected in June 2025.

VI. Summary of Reactor Enforcement Actions

The reactor enforcement statistics in the tables below are arranged by region, half FY, FY, and two previous FYs for comparison purposes. These tables provide the non-escalated and escalated reactor enforcement data including traditional enforcement and the ROP. The severity level assigned to a violation (i.e., traditional enforcement) generally reflects the significance of a

violation. However, for most violations at power reactors, the significance is assessed using the Significance Determination Process (SDP) under the ROP, which uses risk insights, as appropriate, to assist the NRC in determining the safety or security significance of inspection findings.

Brief descriptions of the escalated reactor enforcement actions associated with traditional enforcement and the ROP (as well as any other significant actions) taken during the applicable fiscal half-year follow the tables.

Table 2 Non-escalated Reactor Enforcement Actions*

NON-ESCALATED REACTOR ENFORCEMENT ACTIONS						
		Region I	Region II	Region III	Region IV	TOTAL
Cited Severity Level IV or Green	1st Half FY 25	0	1	0	0	1
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	0	1	0	0	1
	FY 24 Total	1	0	0	3	4
	FY 23 Total	1	4	0	6	11
Non-cited Severity Level IV or Green	1st Half FY 25	39	51	43	66	194
	2nd Half FY 25	0	0	0	0	194
	FY 25 Total	39	51	43	66	194
	FY 24Total	95	129	100	129	453
	FY 23 Total	79	115	99	118	411
TOTAL Cited and Non-cited Severity Level IV or Green	1st Half FY 25	39	52	43	66	195
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	39	52	43	66	195
	FY 24 Total	96	129	100	132	457
	FY 23 Total	80	119	99	124	422

*The non-escalated enforcement data reflect the cited and non-cited violations either categorized at Severity Level IV (the lowest level) or associated with green findings during the indicated time periods. The numbers of cited violations are based on Enforcement Action Tracking System data that may be subject to minor changes following verification. These data do not include green findings that do not have associated violations.

Table 3 Escalated Reactor Enforcement Actions Associated with Traditional Enforcement*

ESCALATED REACTOR ENFORCEMENT ACTIONS ASSOCIATED WITH TRADITIONAL ENFORCEMENT						
		Region I	Region II	Region III	Region IV	TOTAL
Severity Level I	1st Half FY 25	0	0	0	0	0
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	0	0	0	0	0
	FY 24Total	0	0	0	0	0
	FY 23Total	0	0	0	0	0
Severity Level II	1st Half FY 25	0	0	0	0	0
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	0	0	0	0	0
	FY 24 Total	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
Severity Level III	1st Half FY 25	0	0	0	0	0
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	0	0	0	0	0
	FY 24 Total	2	2	0	1	5
	FY 23 Total	0	2	0	0	2
TOTAL Violations Cited at Severity Level I, II, or III	1st Half FY 25	0	0	0	0	0
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	0	0	0	0	0
	FY 24 Total	2	2	0	1	5
	FY 23 Total	0	2	0	1	2

*The escalated enforcement data reflect the severity level I, II, or III violations or problems cited during the indicated time periods.

Table 4 Escalated Reactor Enforcement Actions Associated with the Reactor Oversight Process*

ESCALATED REACTOR ENFORCEMENT ACTIONS ASSOCIATED WITH THE REACTOR OVERSIGHT PROCESS						
		Region I	Region II	Region III	Region IV	TOTAL
Violations Related to Red Findings	1st Half FY 25	0	0	0	0	0
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	0	0	0	0	0
	FY 24 Total	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
Violations Related to Yellow Findings	1st Half FY 25	0	0	0	0	0
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	0	0	0	0	0
	FY 24 Total	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
Violations Related to White Findings	1st Half FY 25	2	2	0	1	5
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	2	2	0	1	5
	FY 24 Total	1	3	0	1	5
	FY 23 Total	2	3	1	4	10
TOTAL* Related to Red, Yellow, or White Findings	1st Half FY 25	2	2	0	1	5
	2nd Half FY 25	0	0	0	0	0
	FY 25 Total	2	2	0	1	5
	FY 24 Total	1	4	0	1	6
	FY 23 Total	2	6	1	4	13

*The escalated enforcement data reflect the violations or problems cited during the indicated time periods that were associated with either red, yellow, or white findings. This data does not include red, yellow, or white findings that do not have associated violations. The total will include escalated security violations (i.e., greater-than-green) but are designated “Official Use Only – Security-Related Information” (OUO-SRI) and not disclosed to the public.

Reactor Escalated Enforcement Actions and Other Significant Actions

James A. FitzPatrick Nuclear Power Plant

On October 29, 2024, the NRC issued a notice of violation associated with a white significance determination process finding to Constellation Energy Generation, LLC (licensee) at James A. FitzPatrick Nuclear Power Plant. The white finding, an issue of low-to-moderate safety significance, involved the licensee's failure to provide adequate qualitative or quantitative acceptance criteria in work instructions during maintenance, which resulted in the inoperability of the 'B' emergency diesel generator (EDG), contrary to 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and Technical Specifications.

Browns Ferry Nuclear Plant

On November 18, 2024, the NRC issued a notice of violation to Tennessee Valley Authority (licensee) associated with a white significance determination process finding at Browns Ferry Nuclear Plant. The white finding, an issue of low-to-moderate safety significance, involved the licensee's failure to identify and correct a degraded rupture disc, which resulted in the inoperability of the high-pressure coolant injection system. The failure to promptly identify and correct the deficiency was contrary to 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions."

North Anna Power Station

On December 11, 2024, the NRC issued a notice of violation to Dominion Energy (licensee) associated with a white significance determination process finding at North Anna Power Station. The white finding, an issue of low-to-moderate safety significance, involved the licensee's failure to implement adequate procedural instructions to control foreign material during the assembly and installation of a control circuit relay, which resulted in the inoperability of an EDG. The failure to implement adequate instructions was contrary to 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings."

South Texas Project Nuclear Operating Company

On January 21, 2025, the NRC issued a notice of violation to South Texas Project Nuclear Operating Company (licensee) associated with a white significance determination process finding at South Texas Project Electric Generating Station. The white finding, an issue of low-to-moderate safety significance, involved the licensee's failure to demonstrate that the performance of a Unit 2 load center breaker had been effectively controlled through the performance of appropriate preventive maintenance such that the component remained capable of performing its intended function as required by 10 CFR Part 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants."

Susquehanna Steam Electric Station

On January 27, 2025, the NRC issued a notice of violation to Susquehanna Nuclear, LLC (licensee) associated with a white significance determination process finding at Susquehanna Steam Electric Station, Units 1 and 2. The white finding, an issue of low-to-moderate safety significance, involved the licensee's failure to promptly identify and correct a condition adverse to quality for the 'B' EDG, which resulted in the inoperability of the EDG. This failure to correct a condition adverse to quality was contrary to 10 CFR Part 50, Appendix B, Criterion XVI,

"Corrective Action" and licensee Technical Specifications.

VII. Security and Emergency Preparedness and Incident Response Activities

The NRC continues to maintain an appropriate regulatory infrastructure that provides reasonable assurance of adequate protection of public health and safety and promotes common defense and security. The NRC also implements risk-informed strategies to improve the realism of NRC's licensing and oversight activities. The NRC's security, emergency preparedness (EP), and incident response programs contribute to these goals.

Physical Security

In 2024, the NRC published two proposed rules that would offer applicants increased flexibility in the design of their physical security programs, including the option to implement certain security alternatives commensurate with the risk profiles of their facilities. The first proposed rule, "Alternative Physical Security Requirements for Advanced Reactors" (89 FR 65226), was published on August 9, 2024, for public comment, and includes draft guidance (DG), DG-5072, "Guidance for Alternative Physical Security Requirements for Small Modular Reactors and Non-Light-Water Reactors" (ML20041E037) and DG-5071, Revision 2 to RG 5.81, "Target Set Identification and Development for Nuclear Power Reactors" (non-public). The public comment period closed on October 23, 2024. The staff is scheduled to submit the final rule package to the Commission by September 9, 2025.

The other proposed rule, "Risk-Informed, Technology Inclusive Regulatory Framework for Advanced Reactors" (known as Part 53) (89 FR 86918), was published on October 31, 2024, for public comment. The public comment period closed on February 28, 2025. The staff plans to submit the draft final rule to the Commission in the first half of 2026.

The NRC staff also held pre-application engagements and other public meetings to support the physical security aspects of various licensing actions. These engagements included a pre-submittal meeting with representatives from TerraPower on March 26, 2025, to discuss the planned operating licensing application for the Kemmerer 1 Natrium reactor, and a public meeting, on November 20, 2024, to discuss the restart of the Palisades power reactor.

During the reporting period, the NRC staff continued to implement its normal security inspection activities. The NRC's security oversight program conducted 80 security inspections, including 12 force-on-force (FOF) inspections.

In addition, consistent with Commission direction in SRM-COMSECY-19-0006, "Staff Requirements – COMSECY-19-0006 – Revised Security Inspection Program Framework (Option 3) in Response to SRM-17-0100," (ML24138A045) the NRC staff is revising applicable FOF inspection procedures and inspection manual chapters. Specifically, the Commission approved a revised security inspection program, including one NRC-conducted force-on-force (FOF) exercise, an enhanced NRC inspection of a licensee-conducted annual FOF exercise, and guidance for addressing an indeterminate outcome from an NRC-conducted FOF exercise. The staff will continue to engage external stakeholders by communicating planned changes to FOF inspections, specific revisions to inspection procedures, and process milestones. Implementation of the revised inspection framework is planned for the start of the eighth triennial FOF cycle in January 2026.

The NRC is currently preparing its annual report to Congress on the security inspection program, which will be published by July 2025. This report will provide results of the NRC's security inspection activities for CY 2024. Additionally, during this reporting period, the NRC revised and issued 11 inspection procedures to support security inspection and oversight activities for formerly decommissioned reactors undergoing restart. The NRC staff also developed a security inspection and oversight framework to support development of necessary inspection procedures in preparation for the construction of advanced reactors. Under this framework, the NRC staff will develop new physical security and cybersecurity inspection procedures to facilitate scalable, technology-inclusive, performance-based inspections for advanced reactors.

Cybersecurity

In January 2024, the NRC staff began its second biennial inspection cycle of licensees' cybersecurity programs as part of the ROP using Inspection Procedure 71130.10, "Cybersecurity" (ML21271A106). Between October 2024 and March 2025, the NRC staff completed 12 cybersecurity inspections.

On October 21, 2024, and February 5, 2025, the NRC staff held public meetings to discuss potential changes to cybersecurity guidance and the biennial inspection cycle, including changes to inspection frequency and team composition. These proposed changes are based on lessons learned and insights gained from the first biennial inspection cycle. The NRC staff intends to apply the lessons learned in future efforts to continue to improve cybersecurity inspection efficiency.

Emergency Preparedness

On November 16, 2023, the NRC issued a final rule, "Emergency Preparedness for Small Modular Reactors and Other New Technologies" (88 FR 80050), that includes alternative EP requirements for small modular reactors and other new technologies. On March 5, 2025, the staff conducted a workshop to update stakeholders on NRC guidance and processes for EP for new and advanced reactor designs and to understand perspectives and regulatory issues from stakeholders (ML25044A448). The staff also continues to update the ROP SDP for EP to implement efficiencies commensurate with risk.

During the reporting period, the NRC staff continued its review of proposed changes to the emergency plan for the Palisades Nuclear Plant in support of its requested restart. The staff also participated in pre-application meetings on proposed licensing plans and emergency plans for the proposed restarts of NextEra's Duane Arnold Energy Center and the Three Mile Island Nuclear Generating Station as the Crane Clean Energy Center. In parallel, the staff engaged stakeholders and partner agencies, such as the Federal Emergency Management Agency, to ensure that offsite organizational responsibilities are considered in the emergency plans for reactor restarts.

Incident Response

The NRC staff continued to ensure that the incident response program and NRC-licensed facilities are ready to respond to emergencies through exercises with facilities and international partners, enhancements to procedures, and coordination with Federal partners. From March 14-21, 2025, NRC staff participated with several Federal, State, local, and international response

organizations in the Cobalt Magnet 2025 exercise led by the Department of Energy (DOE) National Nuclear Security Administration. The exercise provided a rare opportunity to simulate the coordination of a national response to a nuclear plant emergency across all levels of the U.S. government. The NRC intends to use the outcomes of the exercise to improve its incident response program, implementation procedures, and training process.

VIII. Power Uprates

The NRC staff has reviewed and approved 172 power uprates to date. Existing plants have gained approximately 24,089 megawatts thermal or 8,030 megawatts in electric generating capacity (the equivalent of about 8 large nuclear power plant units) through power uprates. Although the NRC currently has no power uprate applications under review, the NRC staff continues to engage with licensees through pre-application meetings. On November 7, 2024, the NRC staff met with Constellation to discuss a potential power uprate amendment request for an unnamed plant. On March 5, 2025, the NRC staff met with PSEG Nuclear to discuss the status of licensee's activities to support their future power uprate applications for Salem Nuclear Generating Station, including a measurement uncertainty recapture power uprate in the first quarter of FY 2026, and stretch power uprate in the fourth quarter of FY 2027 (ML25056A067).

On November 14, 2024, the NRC staff held a public meeting with NEI to discuss potential enhancements for power uprate applications and reviews (ML24318C512, ML24318C453, and ML25003A199). The NRC staff discussed its efforts to develop a graded approach to power uprate reviews that would better align staff review effort with safety and risk significance of technical review areas.

On February 7, 2025, the NRC staff issued a Regulatory Issue Summary 25-02, "Planned Power Uprate-Related Licensing Submittals for All Power Reactor Licensees" (ML25007A001) to gather information about planned power uprate-related licensing submittals to assist the NRC in determining resource and budget needs with respect to future licensing submittals.

Lastly, on March 11, 2025, the NRC staff held a technical session at the NRC's 37th Annual Regulatory Information Conference (RIC) entitled, "Advancing Reactor Licensing Efficiencies through Streamlined Power Uprate Reviews." The NRC staff and industry representatives discussed respective plans and initiatives to support efficient and effective power uprate reviews.

IX. New Reactor Licensing

The NRC's new reactor program is (1) focusing on licensing and construction oversight activities for large LWRs, small modular LWRs, and non-LWRs and (2) continuing to develop the specific regulatory framework and infrastructure for advanced reactors (non-LWRs).

Standard Design Approval Reviews

NuScale Power, LLC, Small Modular Reactor Standard Design Approval Application

On December 31, 2022, NuScale submitted an SDAA for its US460 small modular reactor design under 10 CFR Part 52, Subpart E, "Standard Design Approvals" (ML22339A066). The proposed 77 megawatt electric nuclear power module US460 design can produce more power than the certified 50 MWe NuScale modular design and features additional design changes.

The review of the SDAA is progressing on schedule. During the reporting period, the NRC staff completed developing the SE without open items for all 19 SDAA chapters and the 3 associated topical reports. All NRC staff presentations to the ACRS were completed, and the next milestone is a final ACRS letter to the Commission on May 31, 2025.

Vogtle Units 3 and 4

Construction of Vogtle Units 3 and 4 is complete. Units 3 and 4 began commercial operations on July 31, 2023, and April 29, 2024, respectively, and all inspection activities for both units are being conducted under the ROP. Unit 3 and Unit 4 are in Licensee Response Column of the NRC Action Matrix. All inspection findings were green for both Units 3 and 4. This will be the last update for Vogtle Units 3 and 4 in this section of the report.

Vendor Inspections

During the reporting period, the NRC completed 8 vendor inspections. The NRC staff is on track to complete all planned vendor inspections for FY 2025. In addition, in December 2024, the NRC staff observed one vendor audit performed by Nuclear Procurement Issues Corporation (NUPIC). NUPIC is a licensee-operated organization that performs joint utility audits of nuclear facility suppliers to determine the overall acceptability and verify the effective implementation of a vendor's quality assurance (QA) and 10 CFR Part 21 programs. The NRC staff observes NUPIC-led audits up to three times a year to verify the effectiveness of the audits.

On November 1, 2024, the NRC staff issued a response letter (ML24204A242) to NuScale Power, LLC regarding its request (ML24177A233) for the NRC to enable construction of ASME code items without the establishment of an "Owner" (an NRC licensee). The NRC staff stated in its response letter that the NRC does not currently have the regulatory authority in accordance with the Atomic Energy Act of 1954, as amended, to carry out NuScale's request as without rulemaking. On March, 6, 2025, the NRC staff held a public meeting with NEI to discuss ASME code requirements for construction of items prior to establishment of an Owner (ML25063A372).

On March 13, 2025, during the NRC's RIC, the NRC staff held a technical session on QA titled: "Quality Assurance: The Foundation for the Safe Operation of Nuclear Power Plants." Topics included the (1) application of graded QA for systems classified as non-safety related with special treatment; (2) Canadian Nuclear Safety Commission's classification of safety systems; (3) industry challenges when implementing NQA-1; and (4) the role of Appendix B to 10 CFR Part 50 in the licensing process and pathways for meeting Appendix B to 10 CFR Part 50.

Operator Licensing

In parallel with Part 53 efforts, the NRC staff is making improvements to operator licensing and human factors-related reviews for new facilities that pursue licensing under 10 CFR Parts 50 and 52. The NRC staff is using the Advanced Reactor Content of Application Project guidance issued in March 2024 (ML23277A143) to facilitate the ongoing Kemmerer Power Station (a non-LWR design) construction permit safety review.

During the reporting period, the NRC staff participated in collaborative research with stakeholders, including collaboration with Idaho National Laboratory on the remote operation of nuclear power plants and Brookhaven National Laboratory on the development of new human factors engineering review-related guidance. In addition, the NRC staff is coordinating with the Canadian Nuclear Safety Commission regarding operator licensing activities for new reactors

and with the Nuclear Energy Agency regarding human factors-related considerations in areas such as small modular reactors, artificial intelligence, and remote and autonomous operations.

Non-LWR Reactors

The NRC staff continues to make significant progress executing its vision and strategy for advanced reactor readiness and meeting the requirements in Section 103 of NEIMA. Additional information on the status of advanced reactor readiness and activities is available on the NRC's public website at https://www.nrc.gov/reactors/new-reactors/advanced.html.

Non-LWR Infrastructure Activities

During the reporting period, the NRC staff held several public workshops and meetings on advanced reactor topics and engaged with stakeholders on various initiatives related to establishing a technology-inclusive, risk-informed, and performance-based regulatory framework.

- On November 6, 2024, the NRC staff held a public meeting to inform stakeholders and the public about the NRC staff's Draft White Paper, "Nth-of-a-Kind Micro-Reactor Licensing and Deployment Considerations" (ML25022A070).

- On November 19–21, 2024, the NRC staff conducted a public meeting on the 10 CFR Part 53 proposed rule (ML24311A084).

- On December 3–5, 2024, the NRC conducted a workshop on Storage and Transportation of TRISO and Metal Spent Nuclear Fuels cosponsored by DOE and EPRI (ML24324A304).

- On December 10, 2024, the NRC staff conducted a public workshop on the Advanced Reactor Construction Oversight Program (ML25002A037).

- On December 12, 2024, the NRC held an advanced reactor stakeholder public meeting to discuss advanced reactor related topics of interest (ML24365A121).

- On January 8, 2025, the NRC staff conducted a public meeting on the 10 CFR Part 53 proposed rule (ML25007A095).

- On January 16, 2025, the NRC staff held a public meeting to discuss the NRC Staff Prepared White Paper, "Alternative Risk-Informed, Technology-Inclusive Approaches to Advanced Reactor Regulation" (ML25015A231).

- On February 5, 2025, the NRC staff issued a draft microreactor activities integration plan, which includes topics related to microreactor licensing and deployment considerations and completed, ongoing, and planned actions to address them (ML25036A199).

- On February 13, 2025, the NRC held an advanced reactor stakeholder public meeting to discuss advanced reactor related topics of interest (ML25051A187).

- On February 20, 2025, the NRC staff conducted a public workshop to discuss microreactor licensing and deployment activities being considered by the staff, including the proposed prioritization, planned timeframes, potential interdependencies, and lead organizations (ML25049A268).

Non-LWR Licensing Activities

The NRC staff continues to implement flexible and staged non-LWR regulatory review processes and pre-application engagement. Additional information on the status of advanced reactor licensing activities is available on the NRC's public website at https://www.nrc.gov/reactors/new-reactors/advanced/who-were-working-with.html.

Construction Permit Applications

On July 14, 2023, Kairos submitted a construction permit application for a two-unit test reactor facility (Hermes 2) that would be located on the same site as the Hermes 1 test reactor (ML23195A121). On July 19, 2024, the NRC staff issued the SE for the Hermes 2 construction permit application (ML24200A114). On August 30, 2024, the NRC staff issued the final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) (ML24240A034). On November 21, 2024, the NRC staff issued construction permits authorizing the construction of the two reactors for the Hermes 2 test reactor facility (ML24324A021, ML24324A022). Issuance of the construction permits was authorized by Commission Order CLI-24-03 (ML24325A378). Application documents and information regarding the review are available on the NRC's public website at https://www.nrc.gov/reactors/non-power/new-facility-licensing/hermes2-kairos.html.

On March 28, 2024, TerraPower, LLC (TerraPower), on behalf of US SFR Owner, LLC, a wholly owned subsidiary of TerraPower, submitted a construction permit application for Kemmerer Power Station Unit 1 (Kemmerer Unit 1) (ML24088A059). Kemmerer Unit 1 would be sited in Lincoln County, WY, and would be used to demonstrate the Natrium sodium fast reactor technology under DOE's Advanced Reactor Demonstration Program. The NRC staff accepted the TerraPower application for review on May 21, 2024 (ML24135A109). On June 12, 2024, the NRC staff issued a letter to TerraPower outlining the estimated schedule and resources needed to complete the safety and environmental reviews for the construction permit application (ML24162A063). Also, on June 12, 2024, the NRC published in the *Federal Register* a Notice of Intent to conduct scoping and prepare an Environmental Impact Statement (EIS) (89 FR 49917). The NRC staff held a public scoping meeting in Kemmerer, WY, on July 16, 2024. On February 26, 2025, the NRC staff issued a letter informing US SFR Owner, LLC, of the completion of the draft SE with open items (ML25055A019). The letter also stated that the NRC staff is targeting completion of the final SE by June 2026, ahead of the August 2026 date communicated in the original scheduler letter. Application documents and information regarding the review are available on the NRC's public website at https://www.nrc.gov/reactors/new-reactors/advanced/who-were-working-with/applicant-projects/terrapower.html.

On March 31, 2025, Long Mott Energy, LLC submitted a construction permit application for Long Mott Generating Station (LMGS). LMGS would be sited at the Dow Seadrift Site in Calhoun County, Texas, and would consist of a four-unit, X Energy, LLC (X-energy) Xe-100 nuclear power facility. The NRC staff plans to begin the acceptance review of the application in April 2025.

Pre-Application Activities

The NRC staff is reviewing pre-application reports and meeting regularly with vendors on potential future applications, including: X-energy on its pebble-bed, high-temperature gas-cooled reactor; Kairos Power LLC on its TRISO particle fuel, fluoride-cooled high-temperature commercial power reactor; Terrestrial Energy Inc on its molten salt coolant, molten salt fuel reactor; Westinghouse Electric Company LLC on its high-temperature heat pipe micro-reactor; General Atomics on its high-temperature gas-cooled reactor; the University of Illinois at Urbana-Champaign on its power-generating TRISO fuel research reactor; and Oklo Inc. on its liquid-metal-cooled fast reactor.

Reactor Fuel Fabrication

In September 2022, the NRC staff received an application from TRISO-X, a subsidiary of X-energy to operate a TRISO fuel fabrication facility (ML22101A200 and ML22266A269). The application was docketed for formal review on November 18, 2022 (ML22320A110). TRISO-X submitted supplemental information for the application on February 29, 2024 (ML24060A239). TRISO-X later revised the license application and environmental report to account for a modified facility design via letters dated December 30, 2024, January 31, 2025, and March 28, 2025. The NRC staff is actively reviewing the revised license application to develop the safety evaluation report, draft EIS, and requests for additional information (RAIs), as needed. The NRC staff issued a revised schedule letter on March 14, 2025 (ML23305A193), which modified the proposed completion date from June 2025 to May 2026. The revised completion date is dependent on TRISO-X providing timely and comprehensive responses to resolve the RAIs.

In October 2021, Global Nuclear Fuel-Americas (GNF-A) expressed intent to submit an LAR to permit high-assay low-enriched uranium (HALEU) fuel fabrication (ML21292A180). In January 2023, GNF-A requested an exemption to submit the license amendment application supporting the development of Natrium fuel in two parts: the supplemental environmental report followed by the safety and safeguards portion (ML23039A151). In March 2023, the NRC approved the request (ML23039A151). The exemption allowed GNF-A to submit the safety and safeguards portion one year from the submittal of the supplemental environmental report. GNF-A submitted the supplemental environmental report on March 6, 2023 (ML23065A072). On July 11, 2023, GNF-A informed the NRC of concerns with the near-term availability of HALEU and asked for a 24-month delay in the review of the supplemental environmental report (until early 2025). GNF-A also indicated that the safety and safeguards portion would be delayed to the third quarter of CY 2025. GNF-A verbally informed the NRC of its intent to withdraw the supplemental environmental report on March 6, 2024, and followed up by letter documenting the withdrawal request on March 8, 2024 (ML24068A130). In a pre-application meeting held on June 13, 2024, GNF-A informed the NRC of plans to submit a complete application in the second quarter of CY 2026.

Regulatory Infrastructure

The NRC continues to enhance its regulatory infrastructure to meet its goals of improving the planning, licensing, and oversight of future new reactor applications; making timely and effective policy decisions; and updating regulatory guidance for large LWRs, small modular reactors, and non-LWRs. The previous section discussed infrastructure activities that are largely for non-LWRs. The sections below describe infrastructure activities focused on LWRs conducted during the reporting period.

Environmental Reviews for New Nuclear Reactors

The NRC staff initially developed a draft GEIS and proposed rulemaking for the environmental review process for the construction and operation of advanced nuclear reactors as described in SECY-20-0020, "Results of Exploratory Process for Developing a Generic Environmental Impact Statement for the Construction and Operation of Advanced Nuclear Reactors" (ML20052D029). This GEIS would use a technology-neutral regulatory framework and performance-based assumptions to determine generic environmental impacts for new commercial advanced nuclear reactors. On September 21, 2020, in SRM-SECY-20-0020 (ML20265A112), the Commission directed the NRC staff to initiate rulemaking for the GEIS. The NRC staff provided this draft GEIS and proposed rule to the Commission on November 29, 2021 (ML21222A044), for its consideration. On April 17, 2024, in SRM-SECY-21-0098 (ML24108A200), the Commission directed the NRC staff to proceed with publication of the draft GEIS after modifying it to be applicable to any new nuclear reactor application. Given this Commission direction, the NRC has retitled this rulemaking from "Advanced Nuclear Reactor Generic Environmental Impact Statement" to "Generic Environmental Impact Statement for Licensing of New Nuclear Reactors" to reflect the change in the applicability of the GEIS and rule. The proposed rule was published on October 4, 2024. Additional information about this rulemaking is available at https://www.nrc.gov/reading-rm/doc-collections/rulemaking-ruleforum/active/ruledetails.html?id=1139.

Alignment of Licensing Processes and Lessons Learned from New Reactor Licensing

The NRC staff is working on a rulemaking to align the licensing requirements in 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." The Commission directed the NRC staff to pursue rulemaking to incorporate lessons learned from recent new power reactor licensing reviews. This rulemaking would help ensure consistency in new reactor licensing reviews, regardless of whether an applicant chooses to use the 10 CFR Part 50 or Part 52 licensing process. On June 6, 2022, the NRC staff submitted the draft proposed rule to the Commission for its consideration (SECY-22-0052; ML21159A055). On November 20, 2024, the Commission approved publication of the revised proposed rule, including certain items from the draft proposed rule (SRM-SECY-22-0052; ML24326A003). The Commission also directed the NRC staff to develop a paper evaluating options for providing regulatory flexibility in 10 CFR Part 52 during construction and operational phases. Publication of the proposed rule is paused until completion of the options paper. The NRC staff is working to revise the rule as directed.

Standard Review Plan Modernization

The NRC staff is working to modernize NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition."[6] The Standard Review Plan (SRP) modernization effort aims to provide guidance to the NRC staff to focus licensing reviews on the regulatory requirements and associated acceptance criteria that determine whether there is reasonable assurance of adequate protection. During this reporting period, the NRC staff began developing the SRP modernization template that will be used for risk-informing and modernizing SRP sections through the routine update process.

[6] The SRP for safety reviews is available online at https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/index.html.

Environmental Guidance Updates

The NRC staff is currently updating NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan", which was last revised in July 2007.[7] The update will reflect changes in reactor technology and NRC policy and regulations and will incorporate streamlined processes based on experience gained through completed environmental reviews. The update will also reflect statutory requirements, applicable Executive Orders, judicial developments, and agency administrative decisions and will consider, as appropriate and in coordination with any potential NRC rulemaking, any new environmental regulations issued by the Council on Environmental Quality.

X. Potential Restarts

Palisades Nuclear Plant

On February 1, 2023, superseded by letter dated March 13, 2023, Holtec Decommissioning International, LLC submitted a Regulatory Path to Reauthorize Power Operations at the Palisades Nuclear Plant (ML23032A399 and ML23072A404, respectively). The plan consists of an exemption from 10 CFR 50.82(a)(2), a license transfer, and a series of licensing amendments to restore the plant's operating licensing basis. In September 2023, the licensee began submitting the licensing and regulatory actions to transition from a decommissioning status to an operational status, beginning in August 2025.

This is the first application to re-authorize operation of a reactor that has been permanently shut down and defueled. In November 2023, the Palisades Restart Panel was created to proactively identify and promptly resolve any licensing, inspection, or regulatory challenges that concern the Palisades restart. The panel provides high-level assessments, coordination, oversight, and management direction of NRC activities associated with the licensing inspection, testing, and operation of Palisades. In April 2024, the NRC issued IMC 2562, "Light-Water Reactor Inspection Program for Restart of Reactor Facilities Following Permanent Cessation of Power Operations" (ML24150A239), to provide guidance for NRC inspection and oversight of a decommissioning reactor facility that the licensee seeks to transition to an operational power reactor.

On January 31, 2025, the NRC staff published a draft Enforcement Action and draft FONSI for the Palisades Nuclear Plant Reauthorization of Power Operations Project for public comment (90 FR 8721; ML24353A157). The comment period closed on March 3, 2025. The NRC maintains a public website for the Palisades restart effort that contains the licensee's submittals, public meeting information, inspection reports, and other relevant documents at https://www.nrc.gov/info-finder/reactors/pali.html.

Three Mile Island Nuclear Plant, Unit 1

On September 20, 2024, Constellation publicly announced its plan to restart Three Mile Island Nuclear Plant, Unit 1 (TMI-1). On November 4, 2024, Constellation submitted its Regulatory Path to Reauthorize Power Operations in 2027 (ML24310A104). Constellation noted its intent to submit an exemption request from 10 CFR 50.82(a)(2) along with a series of license amendments to restore the plant's operating licensing basis. On November 19, 2024,

[7] The SRP for environmental reviews is available online at https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1555/updates.html.

Constellation requested an exemption from 10 CFR 50.82(a)(2) thereby notifying the NRC of its intention to return TMI-1 to power operation (ML24324A048). On January 13, 2025, Constellation submitted an amendment to rename the site the Christopher M. Crane Clean Energy Center (ML25013A311). On March 6, 2025, the NRC staff issued a charter establishing the Crane Restart Panel (ML25013A196). The NRC maintains a public website for this restart effort which contains the licensee's submittals, public meeting information, inspection reports, and other relevant documents at https://www.nrc.gov/info-finder/reactors/tmi1/ccec.html.

Duane Arnold Energy Center

On January 23, 2025, NextEra submitted its Regulatory Path to Potentially Reauthorize Power Operations and an exemption request from 10 CFR 50.82(a)(2), formalizing its intent to return Duane Arnold Energy Center to power operation in 2028 (ML25023A265 and ML25023A270, respectively). NextEra noted its intent to request an exemption from 10 CFR 50.82(a)(2) along with a series of license amendments to restore the plant's operating licensing basis. The NRC maintains a public website for the Duane Arnold restart effort which contains the licensee's submittals, public meeting information, inspection reports, and other relevant documents at https://www.nrc.gov/info-finder/reactors/duan.html.

XI. ADVANCE Act of 2024

This section highlights significant actions taken by the NRC during the reporting period to implement the ADVANCE Act of 2024, which was enacted in July 2024.

In July 2024, the NRC Executive Director for Operations established a dedicated Core Team with a lead executive to coordinate the agencywide efforts for implementation of the Act. The agency issued 36 taskings to NRC offices for actions required by the Act or related to its implementation. To date 9 of the 36 taskings have been completed. Project teams, in several cases spanning multiple offices within the agency, were established and are actively working on each of these taskings.

To facilitate stakeholder engagement, the NRC staff hosted over 30 public meetings during the reporting period to engage interested parties on ADVANCE Act topics, including a public meeting on October 16, 2024, to provide an overview of the actions underway at the NRC to implement the ADVANCE Act and obtain feedback on its efforts from stakeholders (ML24288A003). In addition, on March 4, 2025, the NRC staff participated in a Commission meeting to share the progress on the provisions of the Act, including the scope of the reports issued, initiatives conducted in the spirit of the Act, and the path forward.

Section 206 of the ADVANCE Act

The NRC staff held two public meetings to discuss Section 206 of the ADVANCE Act, "Regulatory issues for nuclear facilities at brownfield sites." The NRC staff is using the insights and recommendations provided by presenters in both meetings to inform the NRC's congressional report on expediting licensing at brownfield sites.

- On November 21, 2024, the NRC staff invited speakers from the Gateway for Accelerated Innovation in Nuclear (GAIN), NEI, the Electric Power Research Institute, Duke Energy, Energy Northwest, and Oklo Inc. to participate in an information exchange on licensing issues related to siting new nuclear at brownfield sites. Participants provided feedback on improving licensing efficiency by leveraging existing brownfield

site data and information, alternative methodologies for meteorological data collection, and population-related siting considerations (ML24345A048).

- On January 16, 2025, the NRC staff held a virtual public meeting that included presentations by the NRC on financial assurance requirements for brownfields and population-related siting requirements, Kentucky and Tennessee on their State brownfield programs, NEI on their preliminary population recommendations, GAIN on socioeconomic benefits of repowering retired coal sites with nuclear, and the Energy Communities Alliance and the Eastern Tennessee Economic Council on community engagement (ML25016A112).

Section 301 of the ADVANCE Act

The NRC staff formed a working group to update NRC regulations and guidance on foreign ownership to comply with Section 301 of the ADVANCE Act. The NRC staff plans to deliver the associated rulemaking package to the Commission by summer 2025.

Section 401 of the ADVANCE Act

On January 6, 2025, the NRC submitted to Congress the report on Section 401 "Report on Advanced Methods of Manufacturing and Construction for Nuclear Energy Projects," (ML24292A171). On February 27, 2025, the NRC staff held a knowledge management session on current and future actions related to Section 401, as part of the NRC Knowledge Management and Transfer Program.

Section 404 of the ADVANCE Act

The NRC staff coordinated closely with DOE to develop the "Memorandum of Understanding on Advanced Nuclear Fuel Concepts," which was signed on December 12, 2024 (ML24351A069).

Section 501 of the ADVANCE Act

On January 24, 2025, the Commission approved updating the NRC's mission statement, as required by subsection 501(a) of the ADVANCE Act, as follows:

> *The NRC protects public health and safety and advances the nation's common defense and security by enabling the safe and secure use and deployment of civilian nuclear energy technologies and radioactive materials through efficient and reliable licensing, oversight, and regulation for the benefit of society and the environment.*

Consistent with Section 501(b)(2) of the Act, the ADVANCE Act Team developed the mission statement implementation guidance. The ADVANCE Act Team solicited feedback from both NRC staff and external stakeholders (see March 2025 public meeting (ML25084A138) on the mission statement implementation guidance.

Section 502 of the ADVANCE Act

In December 2024, the NRC submitted to Congress the report on Section 502, "Strengthening the U.S. Nuclear Regulatory Commission Workforce Implementation Plan and Report," (ML24304B072).

Section 504 of the ADVANCE Act

To facilitate the focus on performance metrics and milestones, the NRC formed a working group that includes management, program evaluators, data scientists, and subject matter experts to evaluate licensing actions. The working group is currently engaged in work to review, revise, and improve generic milestone schedules (GMSs) established under NEIMA subsection 102(c) for requested activities of the Commission. That work includes compiling datasets of current and historical licensing activity, considering risk insights, and evaluating the likelihood of meeting different milestone schedule lengths. The data driven analysis identified areas for milestone schedule adjustments that streamline schedule timelines and improve effectiveness. Staff and stakeholder engagement have been part of the evaluation process. Target implementation of the new GMSs is the first quarter of FY 2026.

To support the proposed GMS changes, system upgrades and adjustments to applicable processes are underway. A repeatable and systematic process for reviewing and revising the GMSs will be established so future GMS reviews and updates will be completed on a 3-year periodic basis or more frequently if necessary.

Section 505 of the ADVANCE Act

The NRC staff established licensing efficiencies and process project (LEAP) teams in the reactor and materials program areas to lead initiatives for improving licensing efficiency, predictability, and timeliness across the agency.

The NRC staff held several public meetings related to Section 505 during this reporting period.

- On January 23, 2025, the NRC staff held a public meeting regarding its nuclear licensing efficiency initiatives (ML25043A103).

- On February 13, 2025, the NRC staff held a public meeting to discuss opportunities to increase efficiencies for the SLR reviews (ML25042A134).

- On February 19, 2025, the NRC staff held a public meeting to discuss NEI's comments (ML24302A311) related to promoting timely acceptance of digital technologies (ML25028A146).

- On March 24, 2025, NRC staff held a public meeting regarding its nuclear licensing efficiency initiatives (ML25080A137).

Section 506 of the ADVANCE Act

In January 2025, the NRC submitted to Congress the report on Section 506 "Modernization of Nuclear Reactor Environmental Reviews," (ML24290A159). On March 20, 2025, the NRC staff held a knowledge management session on current and future actions related to continuous improvement of the NRC's environmental review process, as part of the NRC Knowledge Management and Transfer Program.

Section 507 of the ADVANCE Act

Section 507 of the ADVANCE Act directs the Commission to develop and submit to the appropriate committees of Congress a report identifying 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. This report is due to Congress on July 9, 2025. During this reporting period, the staff completed several intermediate milestones to comply with Section 507.

Additional highlights include:

- On December 10, 2024, the NRC staff held a public meeting to discuss initial ideas for the actions in Section 507 on operating reactor oversight and inspection and to seek feedback from NEI, members of the public, and nongovernmental organizations (NGOs) (ML24358A187).

- On December 12, 2024, the NRC staff held a public meeting to discuss ideas under consideration on implementation of Section 507 of the ADVANCE Act for the nuclear materials and waste safety program business lines (ML25002A270).

- On December 18, 2024, the NRC staff held a public meeting to solicit feedback from external stakeholders on revisions to the BSSDP (ML25014A205).

- On January 15, 2025, the NRC staff held a public meeting with interested members of the public and external stakeholders to discuss ideas under consideration on implementation of Section 507 of the ADVANCE Act for operating reactors oversight and inspection (ML25034A096).

- On February 19, 2025, the staff held a public meeting to discuss the staff's approach for addressing stakeholder recommendations regarding digital instrumentation and controls (ML25066A092).

- The NRC staff completed three ROP bi-monthly public meetings. These include:

    - On November 20, 2024, at the ROP bi-monthly public meeting, the NRC staff discussed current work on Section 507 of the ADVANCE Act and asked clarifying questions on input from NEI (ML24302A311) regarding improvements to licensing and oversight programs (ML24352A001).

    - On January 29, 2025, at the ROP bi-monthly public meeting, the NRC staff gave an update on proposed Section 507 actions for the ROP, discussed planned security-related initiatives, proposed initiatives for operating reactors and fuel cycle facilities, and gave an update on actions ongoing for review of the Differing Views Program (ML25044A137; slides at ML25027A321).

    - On March 26, 2025, at the ROP bi-monthly public meeting, the NRC staff gave an update on proposed Section 507 actions for the ROP. The staff also discussed the projected plan for revising the ROP PIs and gave an update on the revision to the VLSSIR process (ML25087A007).

XII. Planned Rulemaking Activities

The attached report lists the status of NRC rulemaking activities as of March 31, 2025, including their priorities and schedules. Of the 71 rulemaking activities, 64 rulemakings are planned activities. The NRC is also reviewing seven petitions for rulemaking. The 64 planned rulemaking activities include 13 proposals in response to industry requests, 15 that could reduce or clarify existing requirements, 11 that are required by statute or are needed to conform NRC regulations to other agency requirements or to international treaties or agreements, and 25 that could establish new requirements. The NRC uses a single tracking and reporting system to provide real-time updates on all NRC rulemaking activities. Members of the public can access the NRC's rulemaking activity information at https://www.nrc.gov/about-nrc/regulatory/rulemaking/rules-petitions.html.

At the time of publication, each proposed and final rule includes a statement that addresses actions taken to meet applicable backfitting and issue finality requirements, including which, if any, backfitting and issue finality requirements apply and how the NRC staff evaluated the rule with respect to those requirements. Moreover, per Executive Order 14215 and the related interim implementing guidance from the Office of Information and Regulatory Affairs (OIRA) at the Office of Management and Budget, some rules will be subject to review by OIRA as outlined in Executive Order 12866.