Protecting People and the Environment

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

October 2022–March 2023

Note: The period of performance covered by this report includes activities that occurred from the first day of October 2022 to the last day of March 2023. 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 U.S. Nuclear Regulatory Commission (NRC) uses the Reactor Oversight Process (ROP) to assess the performance of operating power reactor licensees and to determine the most effective use of inspection resources. Using inputs from both agency self-assessments and independent evaluations, the NRC adjusts the ROP on an ongoing basis to enhance its effectiveness and efficiency. The NRC staff meets with interested stakeholders periodically to collect feedback on the effectiveness of the process and considers this feedback when making improvements to the ROP.

The agency's most recent 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 2023. The NRC website reflects the latest power reactor plant performance assessments.

On August 3, 2022, Vogtle Electric Generating Plant (Vogtle) Unit 3 transitioned from the Construction Reactor Oversight Process (cROP) to the ROP. On March 3, 2023, Vogtle Unit 3 achieved initial criticality and the licensee expects to start commercial operations in the second quarter of calendar year (CY) 2023.

The NRC staff continues to implement the baseline inspection program and initial operator licensing examinations, while taking precautions recommended by the Centers for Disease Control and Prevention (CDC) to minimize exposure to Coronavirus Disease 2019 (COVID-19). The guidance issued by the Office of Nuclear Reactor Regulation on implementation of inspection programs following re-entry from the public health emergency on November 2, 2021 (Agencywide Documents Access and Management System Accession No. ML21295A302), remains in effect. The NRC staff completed the baseline inspection program for CY 2022, with the ongoing goal of completing the nominal baseline inspection samples for future ROP inspection cycles.

The ROP is a risk-informed, performance-based oversight program that contains provisions for continuous self-assessment and improvement. In July 2022, the Commission approved the NRC staff's recommendations identified in SECY-22-0053 (ML22060A085) to change the periodicity of engineering inspections from a 3-year cycle to a 4-year cycle. As a result, the NRC staff issued a corresponding revision to inspection procedure 71111.21M, "Comprehensive Engineering Team Inspection (CETI)," which was effective January 1, 2023 (ML19084A030).

The NRC staff have also recommended changes to the treatment of greater-than-green inspection findings and Performance Indicators, both of which are inputs to the ROP Action Matrix used to assess licensee performance, in SECY-22-0086 (ML22188A221). Additionally, the staff submitted options to the Commission for the frequency of the Problem Identification and Resolution (PI&R) team inspection in SECY-22-0087 (ML22145A448). In SECY-19-0067 (ML19070A036), the staff recommended changing the frequency of this inspection from biennial to triennial. After considering the recommendations from the comprehensive review of the PI&R inspection conducted in CY 2020, the staff subsequently revised its recommendation to keep the inspection at a biennial frequency. To better risk inform the Significance Determination Process (SDP), the staff also submitted, in SECY-22-0089 (ML22189A201), a recommendation to revise the Emergency Preparedness (EP) SDP. The staff recommended that inspection findings affecting only those planning standards that have a direct impact on public health and safety or on implementation of the emergency plan can have a significance greater-than-green.

In this reporting period, the Commission has approved the staff's recommendations in SECY-22-0086, SECY-22-0087, and SECY-22-0089. The NRC staff is making conforming changes to inspection, assessment, and SDP documents under the ROP to meet the recent Commission direction.

In January 2023, the NRC staff submitted its recommendation to the Commission to eliminate the alert and notification system ROP performance indicator and to develop a replacement performance indicator that measures emergency response facility and equipment readiness in SECY-23-0010 (ML23004A013). The Commission has not yet issued direction to the staff on this recommendation.

On July 28, 2022, the NRC completed a follow-on review of the lessons learned, best practices, and challenges during the COVID-19 public health emergency (ML22172A159). The follow-on review identified multiple recommendations for NRC management consideration for enhancement of the ROP and baseline inspection program. By the end of fiscal year (FY) 2023, a working group will be chartered to implement the selected high- and medium-priority recommendations from the review.

II. Implementing Risk-Informed and Performance-Based Regulations

In 1995, the NRC issued the Probabilistic Risk Assessment (PRA) Policy Statement in the *Federal Register* (FR) (60 FR 42622; August 16, 1995), which formalized the Commission's commitment to risk-informed regulation through the expanded use of PRA. The use of PRA in regulatory decision-making and licensing activities for U.S. light-water reactors (LWRs) has increased in recent years, and licensees continue to adopt many risk-informed initiatives. PRAs provide licensees with risk insights that allow increased flexibility in plant operations. They also enable both licensees and the NRC to better identify and focus on more safety-significant issues. The NRC staff continues to work with industry to support risk-informed and performance-based initiatives.

The industry has communicated plans to 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." This would allow licensees to establish a more risk-informed program for the treatment of structures, systems, and components. In 2014, the NRC approved the pilot application of 10 CFR 50.69 for Vogtle Electric Generating Plant. Since completion of the pilot, the industry has submitted 36 applications to adopt 10 CFR 50.69. The NRC staff has reviewed and approved 32 applications and is currently reviewing 4 applications. The NRC anticipates completing the review of 2 of the 4 applications by the end of CY 2023.

The industry also continues to communicate plans 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. This approach maintains and improves safety through the incorporation of risk assessment and management techniques into a plant's technical specifications, while reducing unnecessary regulatory burden. To date, the industry has submitted 32 applications to adopt RITS Initiative 4b. The NRC staff has reviewed and approved 26 applications and is currently reviewing 6 applications. The NRC anticipates completing 3 of the remaining 6 current applications by the end of CY 2023.

In June 2020, the NRC staff issued enhanced guidance associated with the use of risk insights in the review of licensing actions, “Integrated Risk-Informed Decision-Making for Licensing Reviews” (ML19263A645). It provides enhanced tools and guidance to all technical reviewers for identifying and leveraging risk-insights and using risk-informed decision-making (RIDM) and integrated review teams (IRTs) in their work. The staff also hosted a session at the Regulatory Information Conference dedicated to highlighting innovative risk informed approached as well as to discuss remaining challenges and presented a digital exhibit at the 2023 NRC Regulatory Information Conference to increase awareness of NRC’s practices with regard to RIDM and IRTs. The staff is continuing to look for additional opportunities to promote the expanded use of RIDM and IRTs in our licensing work, across the operating and new reactor business lines.

The Very Low Safety Significance Issue Resolution (VLSSIR) process, implemented in January 2020, is a framework to review, assess, and disposition issues of very low safety significance that are not clearly within a plant’s licensing basis. The process is used regularly and resulted in the closure of six potential issues in CY 2022. In August 2022, the VLSSIR process was expanded (ML22019A175) to include issues of concern that would not be greater than Severity Level IV if the issue was determined to be a violation subject to traditional enforcement.

As part of the VLSSIR initiative, the NRC also 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. RIPE guidance was approved for use on January 7, 2021 (ML21006A324). RIPE was expanded on June 30, 2021, to allow licensees with additional approved risk-informed initiatives to use the process (ML21180A011). RIPE was further expanded on May 10, 2022 (ML22088A140), to allow licensees to use the process for license amendment requests involving changes to the technical specifications. The first licensing action using RIPE was submitted in January 2022 (ML22014A415) and the NRC staff successfully completed its review and issued the safety evaluation (SE) (ML22054A005) in March 2022.

On November 16, 2022, the NRC held a public meeting with industry representatives to discuss the regulatory responses and follow-up actions resulting from the staff’s Integrated Risk-Informed Decisionmaking (LIC-504) analysis where the staff shared information with external stakeholders on high energy arcing fault (HEAF) events that could further enhance a licensee’s response to similar events (ML22299A182). Then, on March 11, 2023, the NRC issued Information Notice (IN)-2023-01 to provide international and domestic operating experience relating to HEAFs, discuss qualitative and quantitative risk insights derived from operating experience using the NRC’s LIC504 analysis. This information notice also provides information about the availability of a new probabilistic risk assessment HEAF methodology developed by the NRC’s Office of Nuclear Regulatory Research in collaboration with the Electric Power Research Institute (ML22326A204).

Beginning in December 2022, the NRC staff embarked on increased use of risk insights in the review of new reactor applications. Specifically, in preparation of the submittal of the NuScale Standard Design Approval application (SDAA), the NRC staff collected preliminary risk insights in support of a graded review of the NuScale VOYGR 460 standard design. These risk insights were leveraged by NRC staff in its early review of the SDAA by: (1) identifying focus areas for the review, (2) grading the review scope and schedule, and (3) supporting decisionmaking

during the acceptance review of the SDAA. This NRC staff initiative is aligned with the implementation of the lessons learned from the previous NuScale Design Certification Application review (ML22294A144) and is an example of being a modern risk informed regulator.

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

There were no generic issues during this reporting period.

IV. Licensing Actions and Other Licensing Tasks

Licensing actions related to operating power reactors include orders, license amendments, exemptions from regulations, relief from inspection or component testing, topical reports submitted on a plant-specific basis, or other actions requiring NRC review and approval before licensees can carry out certain activities. Other licensing tasks for operating power reactors include licensees' responses to NRC requests for information through generic letters or bulletins, NRC review of generic topical reports, and other licensee actions or reports that do not require NRC review and approval before licensees can carry them out.

In FY 2022, the indicators related to the age of the inventory of licensing actions and the age of the inventory of other licensing tasks were discontinued, but the indicator for timely completion of final SEs by the generic milestone date introduced in FY 2021 was retained. Additionally, in FY 2022, two new performance indicators were added; specifically, the percentage of reviews completed within resource estimates and the average percentage of time allotted used in the established schedule. These performance indicators 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 FY 2020 through FY 2023 results to date and the FY 2023 goal for the above-mentioned performance indicators.

The agency continues to communicate with licensees about planned licensing submittals. The NRC's senior management remains fully engaged in monitoring the licensing action workload to maintain both the staff's safety focus and target performance goals.

Table 1 Results and FY 2023 Goals for the NRC's Congressional Budget Justification Performance Indicators

Output Measure	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	FY 2023 Current	FY 2023 Goal
Licensing Actions	Discontinued	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Age of inventory of licensing actions	99% ≤1 year 100% ≤2 year	100% ≤2 year	Discontinued	Discontinued	Discontinued
Other licensing tasks completed per year	Discontinued	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Age of inventory of other licensing tasks	96% ≤1 year 100% ≤2 year	97% ≤2 year	Discontinued	Discontinued	Discontinued
Timely completion of final SEs	Not Applicable	100% ≤24 months	99% ≤24 months[1]	99% ≤24 months[2]	100% ≤24 months
Average Percentage of Time Allotted Used in the Established Schedule	Not Applicable	Not Applicable	81.75%	97.93%	≤115% or ≥75%
Percentage of Reviews Completed within Resource Estimates	Not Applicable	Not Applicable	97.3%	94%	80%

During this reporting period, the NRC staff did not receive any licensing requests for power or non-power reactors related to the COVID-19 pandemic. The NRC continues to evaluate and document lessons learned to identify long-term improvements to oversight and licensing programs.

V. Status of License Renewal Activities

During this reporting period, the NRC staff completed the acceptance reviews of one license renewal application (LRA) and one subsequent LRA (SLRA) for a total of three power reactors.

[1] 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.

[2] To date one final SE was not issued within the NRC's established generic milestone schedule. Additional time was needed to bring to closure all safety aspects of the review which included a supplement to the operating license application for a phased approach to startup operations.

Applications Currently Under Review

Comanche Peak Nuclear Power Plant, Units 1 and 2

On October 3, 2022, Vistra Operations Company LLC (Vistra OpCo) submitted an LRA (ML22276A082) for the Comanche Peak Nuclear Power Plant to extend the current operating licenses an additional 20 years beyond their current expiration dates. On November 23, 2022, the NRC staff accepted the LRA for review with a projected 22-month review schedule (ML22297A007).

The agency published a notice of opportunity to request a hearing and petition to intervene in the *Federal Register* on December 1, 2022. A request was filed on January 30, 2023, and amended on March 1, 2023. The Atomic Safety and Licensing Board held an oral argument on contention admissibility on April 19, 2023.

Monticello Nuclear Generating Plant, Unit 1

On January 9, 2023, the Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy, submitted an SLRA (ML23009A352) for the Monticello Nuclear Generating Plant (MNGP) to extend the current operating license an additional 20 years beyond its current expiration date. On February 23, 2023, the NRC staff accepted the SLRA for review with a projected 22-month review schedule (ML23047A175).

The agency published a notice of opportunity to request a hearing and petition to intervene in the *Federal Register* on March 3, 2023. Any such request must be filed by May 2, 2023.

Site Specific Environmental Reports

By letter dated June 9, 2022 (ML22160A301), Florida Power & Light Company submitted an Environmental Report, Supplement 2, related to its 2018 application (ML18037A812) for SLR of Renewed Facility Operating License Nos. DPR-31 and DPR-41 for the Turkey Point Nuclear Generating Station, Units 3 and 4. This site-specific environmental report is currently under NRC staff review. The NRC staff is scheduled to issue the final Supplemental Environmental Impact Statement (SEIS) supplement in October 2023.

The NRC also received site-specific environmental report supplements for SLRAs for North Anna, Units 1 and 2, in September 2022 (ML22272A041); and Oconee Units 1, 2, and 3, in November 2022 (ML22311A036). These site-specific environmental report supplements are currently under NRC staff review. The NRC staff is scheduled to issue the final SEIS supplement for North Anna in January 2024; and issue the final SEIS for Oconee in June 2024.

Commission Direction Related to Subsequent License Renewal

On February 22, 2022, the Commission issued orders CLI-22-02, CLI-22-03, and CLI-22-04 (ML22055A496, ML22055A533, ML22055A557, respectively) regarding the agency's National Environmental Policy Act review of subsequent license renewal (SLR) applications. Also on February 22, 2022, the Commission issued a Staff Requirements Memorandum (SRM) to SECY-21-0066, "Rulemaking Plan for Renewing Nuclear Power Plant Operating Licenses – Environmental Review" (ML22053A308), directing the staff to develop a rulemaking plan that aligns with the Commission orders. In the SRM, the Commission directed the staff to develop a rulemaking plan to fully evaluate the environmental impacts of reactor SLR in NUREG-1437,

“Generic Environmental Impact Statement for License Renewal of Nuclear Plants” (GEIS), within 30 days.

On March 25, 2022, the staff provided to the Commission for its consideration SECY-22-0024, “Rulemaking Plan for Renewing Nuclear Power Plant Operating Licenses – Environmental Review” (ML22062B592), which recommended that a dedicated team of staff complete the rulemaking within two years. On April 5, 2022, the Commission issued SRM-SECY-22-0024, which approved the staff’s recommendation and directed the staff to continue to seek opportunities to accelerate the schedule, working as efficiently as possible while still maintaining the integrity of the review (ML22096A035).

On March 3, 2023, staff issued the proposed rule and draft GEIS for license renewal of nuclear power plants for a 60-day public comment period (88 FR 13329; ML23011A063). Staff is conducting outreach during the public comment period.

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, as well as the escalated enforcement data associated with 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, the significance is assessed using the SDP under the ROP, which uses risk insights, as appropriate, to assist the NRC in determining the safety or security significance of inspection findings identified within the ROP.

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 23	0	1	0	2	3
	2nd Half FY 23	0	0	0	0	0
	FY 23 YTD Total	0	1	0	2	3
	FY 22 Total	0	8	0	2	10
	FY 21 Total	0	6	0	4	10
Non-cited Severity Level IV or Green	1st Half FY 23	33	47	55	65	200
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	33	47	55	65	200
	FY 22Total	80	81	69	108	338
	FY 21 Total	48	53	39	78	218
TOTAL Cited and Non-cited Severity Level IV or Green	1st Half FY 23	33	48	55	67	203
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	33	48	55	67	203
	FY 22Total	80	89	69	110	348
	FY 21 Total	48	59	39	82	228

* 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 23	0	0	0	0	0
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
	FY 22 Total	0	0	0	0	0
	FY 22 Total	0	0	0	0	0
Severity Level II	1st Half FY23	0	0	0	0	0
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
	FY 22 Total	0	0	0	0	0
	FY 21 Total	0	1	0	0	1
Severity Level III	1st Half FY 23	0	0	0	0	0
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
	FY 22 Total	0	1	0	1	2
	FY 21 Total	0	4	0	4	8
TOTAL Violations Cited at Severity Level I, II, or III	1st Half FY 23	0	0	0	0	0
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
	FY 22 Total	0	1	0	1	2
	FY 21 Total	0	5	0	4	9

* 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 23	0	0	0	0	0
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
	FY 22 Total	0	0	0	0	0
	FY 21 Total	0	0	0	0	0
Violations Related to Yellow Findings	1st Half FY 23	0	0	0	0	0
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	0	0	0	0	0
	FY 22 Total	0	0	0	0	0
	FY 21 Total	0	0	0	0	0
Violations Related to White Findings	1st Half FY 23	2	2	1	1	6
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	2	2	1	1	6
	FY 22 Total	0	2	1	1	4
	FY 21 Total	1	0	0	0	1
TOTAL Related to Red, Yellow, or White Findings	1st Half FY 23	2	2	1	1	6
	2nd Half FY 23	0	0	0	0	0
	FY 23 Total	2	2	1	1	6
	FY 22 Total	0	2	1	1	4
	FY 21 Total	1	0	0	0	1

* 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. These data do not include Red, Yellow, or White findings that do not have associated violations and may not reflect security violations, which are considered official use only.

Reactor Escalated Enforcement Actions and Other Significant Actions

Dominion Energy South Carolina, Inc. (Virgil C. Summer Nuclear Station) EA-22-093

On February 2, 2023, a Notice of Violation was issued to Dominion Energy South Carolina, Inc., for a violation associated with a Greater-than-Green Significance Determination Process finding at Virgil C. Summer Nuclear Station. The details of the finding are official use only-security-related information.

Waterford Steam Electric Station, Unit 3 (EA-22-119)

On February 1, 2023, the NRC issued a Notice of Violation associated with a White SDP finding to Entergy Operations, Inc. (licensee) at the Waterford Steam Electric Station, Unit 3. The White finding, an issue of low-to-moderate safety significance, involved licensee errors associated with the engineering conversion factors used with the plant stack wide range gas monitor (WRGM) which made the results of radiological dose projection modeling inaccurate in cases using the plant stack WRGM. Accordingly, the licensee failed to maintain the effectiveness of an emergency plan that met the requirements in 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," and the planning standards of 10 CFR 50.47(b) as required by 10 CFR 50.54(q)(2).

Constellation Energy Generation, LLC (Calvert Cliffs Nuclear Power Plant, Unit 1) (EA-22-089)

On December 5, 2022, the NRC issued a Notice of Violation associated with a White SDP finding to Constellation Energy Generation, LLC (licensee) at Calvert Cliffs Nuclear Power Plant, Unit 1. The White finding, an issue of low-to-moderate safety significance, involved the licensee's failure to prevent the introduction of foreign material into the Calvert Cliffs Unit 1 '1A' emergency diesel generator leading to its failure during routine testing required by the facility's technical specifications.

Constellation Energy Generation, LLC (Quad Cities Nuclear Power Station, Unit 2) (EA-022-062)

On November 29, 2022, the NRC issued a Notice of Violation associated with a White SDP finding to Constellation Energy Generation, LLC (licensee) at the Quad Cities Nuclear Power Station, Unit 2. The White finding, an issue of low-to-moderate safety significance, involved the failure of one of the four electromatic relief valves (ERVs) associated with the automatic depressurization subsystem to actuate during surveillance testing. The NRC determined that the ERV inoperability resulted from the licensee's failure to have documented procedures of a type appropriate to the circumstances for rebuilding the 2-0203-3B ERV solenoid actuator, which failed to meet the requirements of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," Criterion V, "Instructions, Procedures, and Drawings."

Constellation Energy Generation, LLC (Peach Bottom Atomic Power Station, Unit 2) (EA-022-071)

On November 28, 2022, the NRC issued a Notice of Violation associated with a White SDP finding to Constellation Energy Generation, LLC (licensee) at Peach Bottom Atomic Power Station, Unit 2. The White finding, an issue of low-to-moderate safety significance, involved the licensee's failure to use a pre-planned procedure during a planned offsite power source outage which is a violation of 10 CFR Part 50, Appendix B, Criterion V.

Virgil C. Summer Nuclear Station (EA-22-039)

On October 18, 2022, the NRC issued a Notice of Violation associated with a White SDP finding to Dominion Energy (licensee) at Virgil C. Summer Nuclear Station. The White finding, an issue of low-to-moderate safety significance, involved the licensee's failure to adequately assess erratic emergency diesel generator (EDG) governor operation which resulted in an inoperable EDG. This failure to document the EDG performance is a violation of 10 CFR 50, Appendix B,

Criterion XVI, “Corrective Action,” and since this inoperable EDG exceeded the licensee’s technical specification (TS) allowed outage time, a TS violation was also issued.

VII. Security and Emergency Preparedness and Incident Response Activities

The NRC continues to maintain an appropriate regulatory infrastructure to provide reasonable assurance of adequate protection of public health and safety and to promote the common defense and security while implementing risk-informed strategies and improving the realism of NRC licensing and oversight activities. The NRC’s security, EP, and incident response programs contribute to these goals.

Physical Security

Under normal circumstances, the NRC conducts force-on-force (FOF) inspections at each nuclear power reactor and Category I fuel cycle facility on a regular 3-year cycle. Each FOF inspection includes both tabletop drills and exercises that simulate combat between a mock adversary force and the licensee’s security force. These inspections assess the ability of power reactor and Category I fuel cycle facility licensees to defend against the design basis threat (DBT) for radiological sabotage. For Category I fuel cycle facilities, the NRC uses FOF inspections to evaluate the effectiveness of licensees’ protective strategies against an additional DBT of theft or diversion of special nuclear material. FOF inspections, along with the other inspections that comprise the NRC’s security baseline inspection program, provide valuable insights that enable the NRC to evaluate the effectiveness of licensees’ security programs.

Starting in CY 2022, the NRC staff reimplemented the full inspection procedure (IP) 71130.03, “Contingency Response – Force-on-Force Testing” (ML21012A329)[3] for licensees that are not experiencing adverse COVID-19 conditions and can safely conduct full FOF exercises. The staff continues to maintain the CY 2021 interim guidance in IP 71130.03 and IP 92707, “Security Inspection of Facilities Impacted by a Local, State, or Federal Emergency Where the NRC’s Ability to Conduct Triennial Force-on-Force Exercises is Limited” (ML21019A452)[4], as tiered measures for FOF inspections if the licensee’s on-site COVID-19 conditions prevent the conduct of full FOF exercises. All FOF inspections performed during the period covered by this report were conducted in accordance with IP 71130.03.

Cybersecurity

Under 10 CFR 73.54, “Protection of digital computer and communication systems and networks,” the NRC requires nuclear power plant licensees and new license applicants to provide high assurance that digital computer and communication systems and networks are adequately protected against cyberattacks. These licensees must implement a cybersecurity program to ensure that safety, security, and EP functions are protected from cyberattacks. In conjunction, the NRC has developed an oversight program for power reactor cybersecurity that includes an inspection program, inspector training, and a process for evaluating the significance of inspection findings.

In 2021, the agency completed the cybersecurity program’s full implementation inspections of all operating nuclear power plant licensees. The inspections verified that the facilities had fully implemented their cybersecurity requirements. In February 2022, the staff began inspecting licensees’ maintenance of their cybersecurity programs as part of the ROP using IP 71130.10,

[3,4] These documents are not publicly available.

"Cybersecurity" (ML21271A106), to ensure continued compliance. From October 2022 to March 2023, the staff completed 18 cybersecurity inspections.

In February 2023, the NRC issued Regulatory Guide 5.71, Revision 1, "Cybersecurity Programs for Nuclear Power Reactors" (ML22258A204), which provides a risk-informed approach for identifying and protecting critical digital assets associated with safety, security, and EP functions. This revision takes into consideration lessons learned from implementation of licensees' cybersecurity programs, as well as the most recent industry cybersecurity guidance issued by the National Institute of Standards and Technology.

Emergency Preparedness and Incident Response

As discussed further in Section X of this report, on May 12, 2020, the NRC published for public comment a proposed rule and draft regulatory guidance on EP for small modular reactors and other new technologies (92 FR 28436). The NRC staff then provided the draft final rule to the Commission for its consideration on January 3, 2022 (ML21200A055).

From October 2022 to March 2023, the NRC staff did not receive any exemption requests to defer onsite and/or offsite biennial EP exercises due to the COVID-19 pandemic.

The NRC staff continues to review proposed licensing submittals to implement enhancements to emergency response organization staffing and response/augmentation times in Revision 2 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

On March 10, 2023, the NRC staff issued license amendments (ML22332A493) to Brunswick Steam Electric Plant, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2; Shearon Harris Nuclear Power Plant, Unit 1; McGuire Nuclear Station, Units 1 and 2; Oconee Nuclear Station, Units 1, 2, and 3; H.B. Robinson Steam Electric Plant, Unit 2; and William States Lee III Nuclear Station, Units 1 and 2, to revise respective Radiological Emergency Response Plans to change the location of the consolidated Duke Energy Emergency Operations Facility (EOF). On March 31, 2023, the NRC staff issued license amendments (ML22357A100) to MNGP and Prairie Island Nuclear Generating Plant (Prairie Island), Units 1 and 2, to create a new Xcel Energy Standard Emergency Plan and to approve a consolidated EOF, which replaced site-specific EOFs and their common back-up EOF.

All licensing reviews for power reactor, non-power production or utilization facility, new power reactor, spent fuel, or fuel facility under the physical security and EP program remain on schedule. The NRC staff is using its established licensing process to ensure that the safety and environmental reviews meet all milestones and provide opportunities for stakeholder input.

In August 2022, the NRC staff began a once-a-decade project to review all nuclear power reactor licensees' evacuation time estimates (ETE). Following the decennial census data release and in accordance with 10 CFR Part 50, Appendix E, Criterion IV, "Content of Emergency Plans," licensees must review and evaluate how long it would take to evacuate permanent and transient populations within the ten-mile emergency planning zone. The ETE is

primarily used to inform protective action decision-making and may also be used to assist in the development of traffic management plans to support an evacuation. In March 2023, the NRC staff completed its review and determined that all 54 submitted ETE studies were found to be consistent with the guidance in NUREG/CR-7002, "Criteria for Development of Evacuation Time Estimate Studies," Revision 1 (ML21013A504), and as such, were found to be complete.

VIII. Power Uprates

Since the 1970s, licensees have applied for and implemented power uprates to increase the output of their plants. The NRC staff has reviewed and approved 170 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. The NRC currently has no power uprate applications under review.

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). In addition, the NRC is actively engaged in several new and existing international cooperative initiatives to improve the international collaboration efforts associated with safety reviews of new reactor designs, and to share construction experience.

Design Certification Reviews

NuScale Power, LLC, Small Modular Reactor Design Certification Application

The NRC staff completed the final SE Report on August 28, 2020 (ML20023A318), and issued a standard design approval to NuScale Power, LLC, on September 11, 2020 (ML20247J564). On January 19, 2023, the NRC published, "Final Rule: NuScale Small Modular Reactor Design Certification (RIN 3150-AJ98; NRC-2017-0029)," to amend 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to certify the 50 MWe (megawatts electric, gross, per module) NuScale standard design (88 FR 3287). The certification's effective date was February 21, 2023.

Standard Design Approval Reviews

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

By letter dated 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 MWe nuclear power module US460 design is capable of producing more power than the certified 50 MWe NuScale design, and features additional design changes. On March 17, 2023, NRC staff issued a letter (ML23058A160) to NuScale explaining the results of its acceptance review. In the letter, the staff identified technical sufficiency issues related to the phenomenon of density wave oscillation (DWO) that will require supplemental information. As a result, the NuScale SDAA is considered tendered, but not docketed, provided the staff's request for supplemental information (RSI) on DWO is resolved within 6-months. If the RSI is not resolved within that timeframe, NuScale will be given the opportunity to withdraw their application or have NRC reject it via letter. In the meantime, NuScale and NRC have agreed the

staff will begin a technical review at NuScale's risk for the parts of the SDAA that are not impacted by the DWO phenomena.

The NRC staff expects a Combined License application to be submitted in January 2024 that will utilize the SDAA design in a proposed construction project at a proposed site at the Idaho National Lab under the control/ownership of the Carbon Free Power Project, LLC (CFPP). CFPP is a subsidiary of Utah Associated Municipal Power Systems (UAMPS). Currently, the NRC staff and the CFPP/UAMPS/NuScale team are conducting public pre-application engagements on various technical subjects such as the quality assurance program, volcanic hazard assessment, limited work authorization, emergency planning, and physical security.

Construction Oversight under 10 CFR Part 52

The NRC performs construction oversight at Vogtle Unit 4 within the regulatory framework of the cROP. The cROP provides reasonable assurance of safety and security through objective, risk-informed, transparent, and predictable NRC oversight during new reactor construction. Plant assessments and the latest cROP information are publicly available on the NRC's website at https://www.nrc.gov/reactors/new-reactors/oversight/crop.html. The NRC also continues to perform inspection, test, analysis, and acceptance criterion/criteria (ITAAC) inspections and review ITAAC closure notifications for Vogtle Unit 4.

The licensee projects Unit 4 commercial operations to start in the first quarter of 2024. Until Unit 4 begins commercial operations, the NRC's Vogtle Readiness Group (VRG) will continue to meet regularly to assess NRC activities and proactively identify any regulatory challenges that may impact the schedule for completion of construction activities. VRG meetings ensure that all NRC organizations are coordinating on issues related to the new units at Vogtle, that NRC senior management is aware of any significant issues, and that there are consistent communications with the licensee's management and the public.

During the reporting period, the staff completed the following actions related to licensing and construction activities at Vogtle Units 3 and 4:

- The NRC held a second public meeting on lessons learned related to 10 CFR Part 52 construction. The working group is identifying best practices and lessons learned that can be applied to construction of new facilities, including small modular reactors and advanced reactor technologies. A public summary report will be issued after Vogtle Unit 3 is in commercial operations.

- The NRC staff held an additional seven public meetings with the licensee to discuss licensing activities for Vogtle Units 3 and 4.

- The NRC approved an exemption request for Vogtle Unit 4 to eliminate and consolidate electrical ITAAC based on lessons learned from Vogtle Unit 3 (ML22245A122).

- The NRC issued emergency (ML23013A220) and exigent (ML23037A091) license amendments to support emergent repairs needed by the licensee during pre-startup testing on Vogtle Unit 3. The NRC staff also provided appropriate oversight of all repair and testing activities leading to the initial criticality being achieved for Unit 3 in early March 2023.

Further, the NRC staff supported training on oversight of the AP1000 technology for a second group of foreign assignees from the Polish regulatory agency from September 2022 to November 2022.

Vendor Inspections

The NRC staff uses the Vendor Inspection Program to confirm that reactor applicants and licensees are fulfilling their regulatory obligations to oversee the supply chain. The NRC staff conducts inspections to verify the implementation of vendor quality assurance (QA) programs to ensure the quality of materials, equipment, and services supplied to the commercial nuclear industry. These inspections ensure that vendors maintain an effective system for reporting defects under 10 CFR Part 21, "Reporting of defects and noncompliance," and verify the use of commercial-grade dedication programs for safety-related materials, equipment, and services. Other activities conducted by the vendor inspection staff include ensuring that counterfeit items are removed and prevented from use in safety-related applications, participation in international cooperation efforts, and the development of industry consensus standards. Focus areas for operating reactors include replacement components, commercial-grade dedication, reverse engineering, software, digital instrumentation and control systems, and fuel fabrication. The NRC staff has also included review of existing commercial nuclear suppliers who have been contracted in support of design approvals related to new and advanced reactor designs. The NRC staff has completed several inspections of these suppliers during this reporting period.

For FY 2023, the NRC plans to perform approximately 20 vendor inspections. During this reporting period, the NRC continued to perform vendor inspections virtually, hybrid, and onsite based on local conditions and vendor facility access restrictions while taking precautions recommended by the CDC to minimize exposure to COVID-19. As such, the NRC uses a vendor inspection modification strategy to plan upcoming inspection activities that consider the safety significance of the vendor activities to be inspected. Additionally, the strategy considers the COVID-19 cases and transmission rate at the vendor facility, changes in component testing schedules due to availability of vendor staff, availability of vendors to support inspections at their facility, social distancing controls in place at the vendor facility, an evaluation of the feasibility for a remote inspection, and the need to technically validate onsite activities.

Nuclear Procurement Issues Corporation (NUPIC) serves as an entity that performs joint utility audits of nuclear facility suppliers. The NRC staff observes NUPIC-led audits up to three times a year to verify the effectiveness of the NUPIC-led audit. The typical NUPIC-led audit scope is to determine the overall acceptability and verify the effective implementation of a vendor's QA and 10 CFR Part 21 programs. While observing the NUPIC-led audit, the NRC staff samples and reviews audit checklist evaluation areas, observes NUPIC's review of the implementation of the vendor's QA program, and evaluates the adequacy of NUPIC's process for documenting audit findings in the associated trip report. The NRC staff attended the last NUPIC General Membership Meeting on January 30 – February 2, 2023. The NRC staff updated the NUPIC membership on the following topics: NRC inspection findings, use of the International Laboratory Accreditation Cooperation alternative, proposed update to NRC guidance on the QA program criteria related to design and construction, commercial grade dedication inspections at licensees, and discussed the upcoming NRC sponsored second virtual Town Hall meeting on vendor oversight.

The NRC staff will be hosting its second virtual Town Hall Meeting on Vendor Oversight on June 21, 2023. The purpose of this meeting is to allow the NRC staff to engage in an open dialogue with external stakeholders to discuss any current issues of importance to the nuclear

industry and to provide guidance and clarification on those concerns. The NRC staff will use this meeting to inform external stakeholders about activities related to vendor inspection, QA, and other relevant topics. Most of the meeting will be dedicated to an open question and answer session for attendees to ask the NRC staff questions on topics such as commercial-grade dedication and 10 CFR Part 21.

The NRC staff is monitoring the impact of rulemaking enacted by the Environmental Protection Agency (EPA), in response to the Stockholm Convention on persistent organic pollutants, that prohibits the manufacture, processing, or distribution of items containing Decabromodiphynyl ether (DecaBDE). DecaBDE is a material that has been used in nuclear qualified cabling and other electrical and electronic components for safety-related applications in the nuclear industry in the U.S. as well as other countries. Based on this rulemaking, safety-related cabling and other components that contain DecaBDE are no longer allowed to be sold or distributed. The NRC staff is frequently communicating with EPA and the Department of Energy on this topic and provided written responses to EPA questions on March 31, 2023 (ML23090A159).

Operator Licensing

The NRC staff continued preparations for operator licensing activities involving advanced reactors as part of the 10 CFR Part 53, "Risk Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors," rulemaking. On March 1, 2023, the NRC staff provided SECY-23-0021, "Proposed Rule: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors (RIN 3150-AK31)," to the Commission for its consideration. These draft proposed regulations provide an integrated, performance-based, and technology-inclusive regulatory framework that covers the areas of staffing, personnel qualifications, training programs, operator licensing examinations, and human factors. Notably, this framework would introduce new flexibilities such as provisions for automatic load following, online refueling, customized licensed operator staffing, a modernization of the traditional Shift Technical Advisor position, allowance for facilities to administer their own operator licensing examinations, and the ability for facilities to develop operator license examinations of appropriate scope and format based on their unique design and operational considerations.

The NRC staff also continued parallel work to make improvements to the operator licensing process at facilities that continue to pursue licensing under 10 CFR Parts 50 and 52, both through a lessons-learned rulemaking and through the development of Advanced Reactor Content of Application guidance on organization and human-system considerations. Additionally, the staff continued to review a number of white papers and topical reports from advanced reactor designers such as X-energy, TerraPower, Westinghouse, and Oklo.

Non-Light-Water 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.

Consistent with NEIMA Section 103(a)(4), the NRC staff continues progress to establish a technology-inclusive, risk-informed, and performance-based regulatory framework, otherwise known as 10 CFR Part 53, and associated guidance for advanced reactors. During the reporting period, the NRC staff concluded its extensive stakeholder engagement on the draft proposed rule, including holding public meetings to engage stakeholders on key Part 53 topics and

making final presentations to the Advisory Committee on Reactor Safeguards before finalizing the draft proposed rule for Commission consideration. The NRC staff provided the draft proposed rule to the Commission in SECY-23-0021, “Risk Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors,” dated March 1, 2023 (ML21162A093), and remains on schedule to publish the final rule significantly ahead of the NEIMA deadline of December 2027. In addition, the NRC staff issued SECY-23-0022, "Advanced Reactor Program Status," (ML22353A284) on March 1, 2023, informing the Commission about the progress of advanced reactor licensing and readiness activities made during 2022 and the plans for 2023.

Other recent accomplishments include:

- The NRC staff continued to hold periodic public meetings with stakeholders on numerous advanced reactor topics.

- The NRC staff issued a final SE for Kairos Power LLC’s (Kairos)’ topical reports on fuel qualification (ML23048A326), graphite materials qualification (ML23062A734), and high temperature metallic materials qualification (ML23062A730).

- The NRC staff issued a final SE to X-Energy LLC (X-energy) for its topical report on fuel qualification (ML22327A198).

- The NRC staff provided options for the Commission’s consideration for licensing and regulating fusion energy systems on January 3, 2023 (ML22273A178).

- The NRC staff issued Revision 2 to Regulatory Guide (RG) 1.87, “Acceptability of ASME Section III, Division 5, ‘High Temperature Reactors’” (ML22101A263) and NUREG-2245, “Technical Review of the 2017 Edition of ASME Section III, Division 5, ‘High Temperature Reactors’” (ML23030B636).

- The NRC staff published draft interim staff guidance on material compatibility for non-LWRs (ML22203A175) in the *Federal Register* for public comment (88 FR 14186; March 7, 2023).

- The NRC staff issued Revision 0 to RG 1.246, “Acceptability of ASME Code, Section XI, Division 2, ‘Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants,’ for Non-Light water Reactors,” on October 24, 2022, (ML22061A244) for the endorsement of the ASME Boiler and Pressure Vessel Code Section XI, Division 2.

With regard to non-LWR licensing activities, the NRC staff continues to implement flexible and staged non-LWR regulatory review processes and preapplication engagement. The staff is reviewing the construction permit application submitted in October 2021 for the Kairos Hermes test reactor in Oak Ridge, TN, which is intended to support the development of its fluoride salt-cooled, high-temperature reactor technology (ML21272A375 and ML21306A131). On February 13, 2023, the NRC staff completed development of the advanced SE. The final SE and environmental impact statement are scheduled for completion in September 2023.

In August 2022, the staff received a construction permit application from Abilene Christian University (ACU) for a molten salt, non-power research reactor (MSRR) (ML22227A201). On September 27, 2022, the staff notified ACU that it was pausing the acceptance review of the construction permit application to allow the applicant to provide supplemental technical information prior to making an acceptance determination on the application (ML22270A170). On October 20, 2022, ACU supplemented its application to provide additional instrumentation and control design information (ML22293B817). The NRC staff performed an acceptance review of the MSRR construction permit application and docketed the application on November 18, 2022 (ML22313A097). On December 16, 2022, the staff issued a letter to ACU (ML22341A615) providing the schedule and resource estimates for the review. The NRC staff is currently conducting a detailed technical review of the safety of the MSRR design, which will lead to a SE. The NRC staff is preparing an environmental assessment for this facility. The staff's review is expected to be complete by May 2024.

The 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 on its tri-structural isotropic particle (TRISO) fuel, fluoride-cooled high temperature commercial power reactor; Terrestrial Energy on its molten salt coolant, molten salt fuel reactor; TerraPower on its sodium-cooled fast reactor; Westinghouse Electric Company on its high temperature heat pipe microreactor; General Atomics on its high-temperature gas-cooled reactor; the University of Illinois, Urbana-Champaign on its power-generating TRISO fuel research reactor; and Oklo, Inc. on its advanced reactor.

With respect to advanced reactor fuel fabrication, in September 2022, the NRC staff received the completed application to construct and operate a TRISO fuel fabrication facility from TRISO-X, which is a subsidiary of X-energy (ML22101A200 and ML22266A269).[5] The application was docketed for formal review on November 4, 2022 (ML22320A110), which initiated a 32-month review scheduled to be completed by June 2025. Additionally, in October 2021 Global Nuclear Fuel – Americas (GNF-A) expressed intent (ML21292A180) to submit a license amendment request to permit HALEU fabrication. In March 2023, GNF-A was granted an exemption (ML23039A151) to submit the license amendment request in two parts. GNF-A submitted the Supplemental Environmental Report (first part) on March 6, 2023 (ML23065A072). The complete license amendment request is scheduled to be submitted by the end of October 2023.

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 NRC also continues to review its internal processes to ensure that the safety and environmental reviews are effective and efficient. As part of the NRC's commitment to openness, the staff continues to provide opportunities for external stakeholder input as part of the agency's processes. The agency also rigorously assesses licensing and oversight performance and uses the results to inform these regulatory infrastructure activities.

[5] In the previous report, the TRISO-X fuel fabrication facility application was erroneously identified as being received in April 2022. The submittal in April 2022 did not include the environmental report that was submitted in September 2022. The NRC staff does not consider an application submittal to be complete without the safety and safeguards analysis report and the environmental report.

The previous section discussed infrastructure activities that are largely for non-LWRs. The sections below describe other infrastructure activities conducted during the reporting period.

Environmental Reviews for Advanced Nuclear Reactors

The NRC staff 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 staff to initiate rulemaking for the GEIS. The staff provided this draft GEIS and proposed rule to the Commission on November 29, 2021 (ML21222A044), for its consideration. Additional information about this rulemaking is available at: https://www.nrc.gov/reading-rm/doc-collections/rulemaking-ruleforum/active/ruledetails.html?id=1139.

The NRC staff issued its Draft Environmental Impact Statement for the Kairos Hermes test reactor in September 2022 (ML22259A126), and held a public meeting in Oak Ridge, TN in November 2022 to present the staff's preliminary findings and accept comments on the draft Environmental Impact Statement. The staff is also developing infrastructure and monitoring developments for other advanced nuclear projects as appropriate (e.g., Department of the Air Force, Oklo, and Holtec).

Alignment of Licensing Processes and Lessons Learned from New Reactor Licensing

The NRC staff is working on a rulemaking to address the alignment of licensing requirements of 10 CFR Part 50, "Domestic licensing of production and utilization facilities," and 10 CFR Part 52. The Commission directed the 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 Part 50 or Part 52 licensing process.

On June 6, 2022, the NRC staff submitted the draft proposed rule (ML21159A055) to the Commission for its consideration. In the draft FR notice for the proposed rule, the NRC staff responded to the public comment submissions on the regulatory basis, which were considered in the formulation of the draft proposed rule.

Interim Staff Guidance for New Light-Water Power Reactor Construction Permit Reviews

DNRL-ISG-2022-01, "Safety Review of Light-Water Power Reactor Construction Permit Applications" (ML22189A099) was issued October 2022. This interim staff guidance (ISG) focuses on the safety review of power reactor construction permit applications for any LWR design, including designs similar to those reviewed recently under 10 CFR Part 52. This guidance was developed to supplement the current guidance for staff review of LWR construction permit applications in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition." The ISG also references Regulatory Guide (RG) 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)," which dates from the 1970s (ML011340122) and the more recent LWR application guidance in RG 1.206, "Applications for Nuclear Power Plants"

(ML18131A181), for 10 CFR Part 52 applications (which does not include construction permit applications), to provide additional insights on the level of detail needed to support an LWR construction permit application review. The ISG discusses the regulatory requirements for a construction permit and provides insights on the level of detail required for a preliminary safety analysis report. It includes an appendix that clarifies and supplements the guidance in NUREG-0800 for the review of a construction permit application.

Standard Review Plan Modernization (NUREG-0800)

The NRC staff continued its effort to modernize NUREG-0800.[6] The objective of the Standard Review Plan (SRP) modernization effort is to help the staff focus its review on the regulatory requirements and associated acceptance criteria that determine whether there is reasonable assurance of adequate protection. In addition, the updated SRP will leverage the improved use of risk insights to inform the staff's reviews. During this reporting period, the NRC staff refined the scope of the project to focus on SRP sections prioritized by the staff or industry that will benefit from incorporating concepts beyond SRP modernization guidance. Additionally, the staff is creating a framework for future modernization of SRP sections through the routine update process.

Environmental Guidance Updates

The NRC staff noticed issuance of Revision 3 of RG 4.2, "Preparation of Environmental Reports for Nuclear Power Stations," in the FR on September 24, 2018 (83 FR 48346, ML18071A400). This was the first update to RG 4.2 since July 1976. The staff is currently updating NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan," last revised in July 2007.[7] The update will reflect changes in reactor technology and NRC policies 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 a potential NRC rulemaking, any new environmental regulations issued by the Council on Environmental Quality.

As discussed in Section V, on April 5, 2022, the Commission issued SRM-SECY-22-0024 (ML22096A035), which directed the staff to complete a rulemaking in 24 months for updating the GEIS and implementing regulations on renewing nuclear power plants operating licenses environmental reviews to account for subsequent license renewal applications. On March 3, 2023, staff issued the proposed rule and draft GEIS for license renewal of nuclear power plants for a 60-day public comment period (88 FR 13329; ML23011A063). In the interim, the Commission recognizes that some subsequent license renewal applicants may not want to await the completion of the rulemaking effort and would instead prefer to do a site-specific environmental review. For those applicants, the NRC continues to conduct environmental reviews in accordance with current NRC regulations, while still considering best practices and lessons learned from past reviews.

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

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

Environmental Justice

As directed by the Commission on April 23, 2021, in SRM-M210218B (ML21113A070), the staff conducted a systematic review of how the agency's programs, policies, and activities address environmental justice. On March 29, 2022, the staff submitted the results (ML22031A063) of its review and recommendations to the Commission for its consideration.

X. Planned Rulemaking Activities

The attached report lists the status of NRC rulemaking activities as of April 1, 2023, including their priorities and schedules. Of the 66 rulemaking activities, 62 rulemakings are planned activities. The NRC is also reviewing four petitions for rulemaking. The 62 planned rulemaking activities include 14 proposals in response to industry requests, 14 that could reduce or clarify existing requirements, 10 that are required by statute or are needed to conform NRC regulations to other agency requirements or to international treaties or agreements, and 24 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.