



*Protecting People and the Environment*

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

**October 2019–March 2020**

Note: The period of performance covered by this report includes activities that occurred from the first day of October 2019 to the last day of March 2020. 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 guide the assignment 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 show that all operating power reactor plants continue to operate safely. The 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 2020. The NRC Web site reflects the latest performance assessments as of March of calendar year (CY) 2020.

## **II. Implementing Risk-Informed and Performance-Based Regulations**

In 1995, the NRC implemented the Probabilistic Risk Assessment (PRA) Policy Statement (Volume 60 of the *Federal Register* (FR), page 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 decisionmaking and licensing activities for U.S. light-water reactors (LWRs) has increased in recent years as licensees continue to adopt many risk-informed initiatives. PRAs provide licensees with risk insights that allow increased flexibility in plant operations, and they 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.

Forty-six operating nuclear power reactors have committed to transitioning to the risk-informed, performance-based fire protection licensing basis permitted under Title 10 of the *Code of Federal Regulations* (10 CFR) 50.48(c), by using National Fire Protection Association Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants." Of these 46 reactor units, 44 have received license amendments and have transitioned or are transitioning to the Standard 805 licensing basis. The NRC staff is currently reviewing license amendment requests that cover the remaining 2 units. The staff anticipates completing its review of those requests by the end of the third quarter of fiscal year (FY) 2020.

The industry has communicated plans to continue to submit applications for adoption of 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors," which would allow licensees to establish a more risk-informed program for the treatment of structures, systems, and components (SSCs). 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 19 applications to adopt 10 CFR 50.69. The NRC staff has approved 13 applications and is currently reviewing the remaining 6 applications. The NRC anticipates receiving 13 additional applications by the end of CY 2020.

The industry has also communicated 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 initiative 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 13 applications to adopt RITS Initiative 4b. The NRC staff has approved 8 applications, is currently reviewing the remaining 5 applications, and anticipates receiving an additional 12 applications by the end of CY 2020.

Following the March 2011 accident at the Fukushima Dai-ichi nuclear power plant in Japan, the NRC issued orders (now codified in 10 CFR 50.155, "Mitigation of beyond-design-basis events") to require enhanced mitigation strategies for maintaining or restoring core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. While initially designed to address extreme external events, those strategies (referred to as FLEX) could be effective in mitigating other risks, such as those which could be experienced during complex refueling outage operations. The NRC staff continues to work with industry to enhance safety by enabling the use of FLEX in such applications. For example, the NRC staff and industry have been discussing ways to improve human reliability analysis methods for complex FLEX actions and to evaluate data on FLEX reliability. These are two key components of incorporating FLEX into plant PRAs and are expected to be completed by the end of CY 2020.

The NRC implemented the Very Low Safety Significance Issue Resolution (VLSSIR) process in January 2020. The VLSSIR process was developed based on suggestions from both internal and external stakeholders to improve NRC processes to better handle issues pertaining to a facility's licensing basis that are of very low safety significance, allowing them to be promptly resolved. The process is documented in revised inspection guidance to allow inspectors to close very low safety significance issues early in the inspection process if there is a question of whether an issue is within the licensing basis and that if issue cannot be resolved without a significant level of effort. The revised guidance includes discussion of when the VLSSIR process can be used and what needs to be documented in an inspection report when a very low safety significance issue is closed.

The staff expects that several very low safety significance issues will be closed by using this process during CY 2020.

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

During this reporting period, the NRC staff continued its evaluation of two open generic issues (GIs) and one potential GI.

For the potential GI related to the effects of high-energy arcing faults involving aluminum at nuclear power plants, the staff continued to assess whether the issue should proceed to the implementation stage of the GI process. To accomplish this, the NRC has established an expert working group with the Electric Power Research Institute under a memorandum of understanding to research the safety significance of the issue and make technical recommendations. The expert working group is currently developing a detailed project plan, evaluating existing test data and operating experience, evaluating potential fire modeling and PRA approaches, and surveying U.S. nuclear power plants to determine the locations and extent of aluminum components used in low- and medium-voltage electrical equipment.

The two open GIs are GI-199 and GI-204, which are described below. The NRC provides additional information on the status of open GIs at <https://www.nrc.gov/about-nrc/regulatory/gen-issues/dashboard.html>.

## **GI-199, “Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants”**

This GI addresses how current estimates of the seismic hazard level at some nuclear sites in the central and eastern United States might be higher than the assessments used in their original designs and previous evaluations. The NRC staff later expanded the scope of this GI to include plants in the western United States. Following collaboration with the Electric Power Research Institute, in September 2010, the NRC staff issued a safety/risk assessment report, “Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants.” The NRC staff also issued Information Notice 2010-18, “Generic Issue 199, ‘Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants,’” dated September 2, 2010.

After the March 2011 accident at the Fukushima Dai-ichi nuclear power plant, the NRC incorporated GI-199 into its work in response to the accident, which is discussed further in Section X of this report. Based on current schedules, the staff expects to complete activities associated with GI-199 by the end of CY 2020.

## **GI-204, “Flooding of Nuclear Power Plant Sites Following Upstream Dam Failures”**

This GI relates to potential flooding effects from upstream dam failures on nuclear power plant sites, spent fuel pools, and sites undergoing decommissioning with spent fuel stored in spent fuel pools. The NRC is addressing this GI as part of its response to the Fukushima nuclear accident, discussed further in Section X of this report. Based on current schedules, the staff expects to complete the activities associated with GI-204 by the end of CY 2020.

## **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 the following:

- licensees’ responses to NRC requests for information through generic letters or bulletins;
- NRC review of generic topical reports;
- updates to final safety analysis reports; and
- other licensee actions that do not require NRC review and approval before licensees can carry them out.

The NRC’s “Congressional Budget Justification Fiscal Year 2020” incorporates four output measures (performance indicators) related to the age of the inventory of licensing actions and other licensing tasks.

Table 1 shows the actual FY 2016 through FY 2020 results to date and the FY 2020 goals for NRC performance indicators for operating power reactor licensing actions and other licensing tasks.

**Table 1 Results and FY 2020 Goals for the NRC’s Congressional Budget Justification Performance Indicators<sup>1</sup>**

<b>Output Measure</b>	<b>FY 2016 Actual</b>	<b>FY 2017 Actual</b>	<b>FY 2018 Actual</b>	<b>FY 2019 Actual</b>	<b>FY 2020 Current</b>	<b>FY 2020 Goals</b>
Licensing actions completed per year	837	967	861	847	Not applicable	Not Applicable
Age of inventory of licensing actions	95% ≤1 year 100% ≤2 years	96% ≤1 year 99% ≤2 years	98% ≤1 year 100% ≤2 years	95% ≤1 year 100% ≤2 years	97% ≤1 year and 100% ≤2 years	95% ≤1 year 100% ≤2 years
Other licensing tasks completed per year	641	644	362	337	Not applicable	Not Applicable
Age of inventory of other licensing tasks	90% ≤1 year 99% ≤2 years	100% ≤1 year 100% ≤2 years	98% ≤1 year 100% ≤2 years	98% ≤1 year 100% ≤2 years	92% ≤1 year and 100% ≤2 years	90% ≤1 year 100% ≤2 years

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.

On January 31, 2020, the U.S. Department of Health and Human Services declared a public health emergency (PHE) for the United States to aid the nation’s healthcare community in responding to the Coronavirus Disease 2019 (COVID-19). On March 11, 2020, the COVID-19 outbreak was characterized as a pandemic by the World Health Organization. Shortly before the completion date for this reporting period, NRC began taking precautionary measures in response to COVID-19 and monitoring guidance provided by the Federal Government, including the Centers for Disease Control and Prevention, as well as State and local authorities. Impacts to NRC licensing activities and regulatory duties during this reporting period were minimal and, where appropriate, are noted in this report. In particular, preparatory activities included notification in a March 28, 2020, letter by the Director of the Office of Nuclear Reactor Regulation (NRR) to the industry explaining the process by which NRC will be prepared to grant, upon request from individual licensees, exemptions from the work hour controls specified in 10 CFR 26.205(d)(1)-(d)(7) in accordance with the NRC’s regulations in 10 CFR 26.9, “Specific exemptions.” The objective of the exemptions is to ensure that the control of work hours and management of worker fatigue do not unduly limit licensee flexibility in using personnel resources to most effectively manage the impacts of the COVID-19 PHE on maintaining the safe operation of these facilities. Future reports will also include additional impacts resulting from NRC’s response to COVID-19.

**V. Status of License Renewal Activities**

The staff did not review any initial license renewals during this reporting period. The staff completed the reviews for two subsequent license renewal (SLR) applications and issued the

<sup>1</sup> “Not applicable” is indicated in the chart for those performance indicators that were discontinued for FY 2020 in the Congressional Budget Justification because timeliness metrics associated with licensing actions are better indicators of staff performance.

renewed licenses for Turkey Point Nuclear Generating and Peach Bottom Atomic Power Station in December 2019 and March 2020, respectively. The staff completed the environmental and safety reviews for each of these plants within the established 18-month review schedule. Additionally, the staff is on track to complete the environmental and safety reviews for the Surry Power Station SLR application within the established 18-month review schedule.

### *Surry Power Station, Units 1 and 2*

On October 15, 2018, Virginia Electric and Power Company (Dominion Energy Virginia or Dominion) submitted its SLR application (ADAMS Accession No. ML18291A842) for Surry Power Station, Units 1 and 2. On December 3, 2018, the NRC staff accepted the SLR application for review. Dominion supplemented its application on January 29, 2019 (ADAMS Accession No. ML19042A137), April 2, 2019 (ADAMS Accession No. ML19095A666), June 10, 2019 (ADAMS Accession No. ML19168A028), October 14, 2019 (ADAMS Accession No. ML19294A044), October 31, 2019 (ADAMS Accession No. ML19310E716), November 19, 2019 (ADAMS Accession No. ML19329A287), and February 20, 2020 (ADAMS Accession No. ML20054B996). A notice of opportunity to request a hearing and petition to intervene was published in the *Federal Register* on December 17, 2018. The NRC did not receive any requests for a hearing.

The NRC staff is continuing work on the safety review. Specifically, the staff issued the draft safety evaluation report (SER) on December 27, 2019 (ADAMS Accession No. ML19353C656), to support a meeting with the Advisory Committee on Reactor Safeguards (ACRS) Subcommittee on Plant License Renewal on February 5, 2020. The staff issued the final SER on March 9, 2020 (ADAMS Accession No. ML20052F520), to support an April 8, 2020 meeting with the ACRS Full Committee on Plant License Renewal.

During this reporting period, the NRC staff continued its work on the environmental review. One outstanding issue relates to Dominion's obligations under the federal Coastal Zone Management Act (CZMA). Under the CZMA, Dominion must demonstrate that the proposed license renewal is consistent with and complies with enforceable policies of the Virginia Coastal Zone Management Program before the NRC could issue a renewed license. Dominion had received a conditional certification for Surry, which must be considered as an objection for the purposes of determining whether the NRC could issue the renewed license. The staff issued a request for additional information (RAI) on this issue on April 11, 2019, and noted the issue in its October 17, 2019, draft Supplemental Environmental Impact Statement. On February 5, 2020, the staff issued another RAI requesting information about actions taken by Dominion to fulfill its CZMA obligations. A response to the RAI is due by May 22, 2020. The staff published the final Supplemental Environmental Impact Statement on April 6, 2020 and noted that the CZMA issue was not resolved but that Dominion will provide a status update by May 22, 2020. The NRC currently remains on track to complete its safety and environmental reviews in 18 months.

## **VI. Summary of Reactor Enforcement Actions**

The reactor enforcement statistics in the following tables are arranged by region, half FY, FY, and two previous FYs for comparison. These tables provide the nonescalated 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 significance determination process under the ROP, which uses risk insights, as appropriate, to assist the NRC staff 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 Nonescalated Reactor Enforcement Actions\***

<b>NONESCALATED REACTOR ENFORCEMENT ACTIONS</b>						
		Region I	Region II	Region III	Region IV	TOTAL
Cited Severity Level IV or Green	1 <sup>st</sup> Half FY 20	2	2	0	0	4
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	2	2	0	0	4
	FY 19 Total	1	0	0	1	2
	FY 18 Total	2	4	0	3	9
Noncited Severity Level IV or Green	1 <sup>st</sup> Half FY 20	26	18	45	58	147
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	26	18	45	58	147
	FY 19 Total	88	76	86	112	362
	FY 18 Total	101	69	108	144	422
<b>TOTAL Cited and Noncited Severity Level IV or Green</b>	1 <sup>st</sup> Half FY 20	28	20	45	58	151
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	28	20	45	58	151
	FY 19 Total	89	76	86	113	364
	FY 18 Total	103	73	108	147	431

\* The nonescalated enforcement data reflect the cited and noncited 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\***

<b>ESCALATED REACTOR ENFORCEMENT ACTIONS ASSOCIATED WITH TRADITIONAL ENFORCEMENT</b>						
		Region I	Region II	Region III	Region IV	TOTAL
Severity Level I	1 <sup>st</sup> Half FY 20	0	0	0	0	0
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	0	0	0	0
	FY 19 Total	0	0	0	0	0
	FY 18 Total	0	0	0	0	0
Severity Level II	1 <sup>st</sup> Half FY 20	0	0	0	0	0
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	0	0	0	0
	FY 19 Total	0	1	0	2	3
	FY 18 Total	0	0	0	0	0
Severity Level III	1 <sup>st</sup> Half FY 20	0	1	0	0	1
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	1	0	0	1
	FY 19 Total	0	0	0	4	4
	FY 18 Total	0	1	0	0	1
<b>TOTAL Violations Cited at Severity Level I, II, or III</b>	1 <sup>st</sup> Half FY 20	0	1	0	0	1
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	1	0	0	1
	FY 19 Total	0	1	0	6	7
	FY 18 Total	0	1	0	0	1

\* 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\***

<b>ESCALATED REACTOR ENFORCEMENT ACTIONS ASSOCIATED WITH THE REACTOR OVERSIGHT PROCESS</b>						
		Region	Region II	Region III	Region IV	TOTAL
Violations Related to Red Findings	1 <sup>st</sup> Half FY 20	0	0	0	0	0
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	0	0	0	0
	FY 19 Total	0	0	0	0	0
	FY 18 Total	0	0	0	0	0
Violations Related to Yellow Findings	1 <sup>st</sup> Half FY 20	0	0	0	0	0
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	0	0	0	0
	FY 19 Total	0	0	0	0	0
	FY 18 Total	0	0	0	0	0
Violations Related to White Findings	1 <sup>st</sup> Half FY 20	0	1	0	0	1
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	1	0	0	1
	FY 19 Total	1	1	1	0	3
	FY 18 Total	0	1	3	0	4
<b>TOTAL Related to Red, Yellow, or White Findings</b>	1 <sup>st</sup> Half FY 20	0	1	0	0	1
	2 <sup>nd</sup> Half FY 20	0	0	0	0	0
	FY 20 YTD Total	0	1	0	0	1
	FY 19 Total	1	1	1	0	3
	FY 18 Total	0	1	3	0	4

\* 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.

**Reactor Escalated Enforcement Actions and Other Significant Actions**

*Southern Nuclear Operating Company (Vogtle Electric Generating Plant) EA-19-112*

On March 31, 2020, the NRC issued a notice of violation to Southern Nuclear Operating Company, Inc. (SNC) for a violation of a Technical Specification surveillance requirement at Vogtle Electric Generating Plant, associated with a White significance determination process finding. Specifically, SNC failed to adequately perform periodic channel calibrations for post-accident monitoring equipment since initial startup of Vogtle Units 1 and 2.

*Reed College (Reed Research Reactor) EA-19-071*

On March 16, 2020, the NRC issued a confirmatory order to Reed College, Reed Research Reactor (Reed or licensee), to formalize commitments made as a result of an alternative dispute resolution (ADR) mediation session held on January 23, 2020. The commitments were part of a settlement agreement between Reed and the NRC based on evidence gathered during an investigation in which the NRC had identified multiple apparent violations. The violations involved the licensee's failure to provide information to the Commission that is complete and accurate in all material respects, in accordance with 10 CFR 50.9(a), and failure to follow Renewed Operating License R-112, License Condition 2.C.(3). In response to the apparent violations, the licensee agreed to complete additional corrective actions, as fully discussed in the confirmatory order. In consideration of the corrective actions and commitments outlined in the confirmatory order, the NRC agreed not to pursue any further enforcement action (including issuance of a civil penalty) relating to the apparent violation.

*Tennessee Valley Authority (Browns Ferry Nuclear Plant) EA-19-130*

On March 16, 2020, the NRC issued a notice of violation to Tennessee Valley Authority (TVA) for a violation associated with a Greater-than-Green significance determination process finding at the Browns Ferry Nuclear Plant. The details of the finding are official use only—security-related information.

*Duke Energy Progress, LLC (H.B. Robinson Steam Electric Plant) EA-19-025*

On March 11, 2020, the NRC issued a confirmatory order to Duke Energy Progress, LLC, memorializing commitments reached during an ADR mediation session on December 16, 2019. The ADR session was associated with an apparent violation due to the willful failure of nonlicensed operators to conduct procedurally-required fire watches and operator rounds. As a result of the confirmatory order, the NRC will not cite the apparent violations and will not issue an associated civil penalty.

*Southern Nuclear Operating Company (Vogtle Electric Generating Plant, Units 3 and 4) EA-18-130 and EA-18-171*

On November 20, 2019, the NRC issued a confirmatory order to SNC for two apparent willful violations of 10 CFR 52.5, "Employee protection." The first violation was that SNC directed a contract employee at the construction site for Vogtle Units 3 and 4 to be removed in December 2015, in part for engaging in protected activity. The contract employee was subsequently terminated by his employer on February 3, 2016. The second violation was that an SNC official removed a contract employee from the site on July 13, 2017, in part for engaging in protected activity when he was employed by a different contractor on the site from 2014 to 2015. The contract employee was subsequently terminated by his employer on July 14, 2017.

*Tennessee Valley Authority (Watts Bar Nuclear Plant, Unit 2) EA-19-042*

On November 19, 2019, the NRC issued a notice of violation and proposed imposition of civil penalty in the amount of \$145,000 to TVA for a Severity Level III violation of 10 CFR 50.9, "Completeness and accuracy of information." TVA submitted inaccurate information for NRC licensing decisions on multiple occasions as part of the licensing of Watts Bar Unit 2 from 2010 through 2013 and as part of a license amendment for Watts Bar Unit 1 in 2015. In multiple written exchanges with the NRC from 2010 through 2015, TVA provided incomplete and inaccurate information by stating that appropriate analyses had been performed and

demonstrated that the station's offsite electric power system was fully capable of meeting its design and licensing bases. However, the analyses had not modeled a key design feature.

## **VII. Security and Emergency Preparedness and Incident Response Activities**

The NRC continues to maintain an appropriate regulatory infrastructure to ensure adequate protection of public health and safety and 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 and emergency preparedness and incident response programs contribute to these goals.

### **Security**

The NRC continues to conduct 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 at a nuclear power reactor 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—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.

Currently, FOF inspections for both power reactors and Category I fuel cycle facilities include two exercises. In Staff Requirements Memorandum (SRM)-SECY-17-0010, "Staff Requirements—SECY-17-0100—Security Baseline Inspection Program Assessment Results and Recommendations for Program Efficiencies," dated October 9, 2018 (ADAMS Accession No. ML18283A072), the Commission approved the staff's recommendation to modify the FOF inspection program for power reactors to consist of one NRC-conducted FOF exercise and an enhanced NRC inspection of a licensee-conducted annual FOF exercise. The Commission also directed the staff to revise the baseline security inspection program framework that implements the revised program. In response, on May 21, 2019, the staff provided COMSECY-19-0006, "Revised Security Inspection Program Framework (Option 3) in Response to SRM-SECY-17-0100," (ADAMS Accession No. ML19038A485), to the Commission for review and approval.

Also, in SRM-SECY-17-0010, the Commission directed the staff to identify options to give credit for operator actions; the use of FLEX equipment; and response by Federal, State, and local law enforcement in the security framework. Currently, the NRC staff is developing a paper for the Commission that presents the staff's proposed approach for crediting operator actions, including the use of FLEX equipment, and law enforcement response at operating nuclear power plants. The paper will also include options related to protective strategies. The staff expects to submit its paper to the Commission this spring.

To evaluate a licensee's protective strategy, the NRC uses mock adversary forces to replicate DBT adversary attributes in simulated attacks during FOF inspections. Since 2004, the Nuclear Energy Institute (NEI) has provided an adversary force (the Composite Adversary Force, or CAF) for use in power reactor FOF inspections, and the NRC has overseen that adversary force both to ensure its capability to replicate DBT adversary attributes and to provide assurance that any potential conflicts of interest are mitigated. In early 2018, Entergy and NextEra ended their memberships in NEI; as a result, these two utilities submitted a joint proposal to the NRC for

providing a mock adversary force (the Joint Composite Adversary Force) to support NRC-conducted FOF inspections.

In April 2018, the Commission approved the Joint Composite Adversary Force for NRC-conducted FOF inspections in CY 2018 and CY 2019 only and directed the staff to provide recommendations for a long-term alternative to the NEI-managed CAF. The staff responded with SECY-19-0046, "Options for a Long-Term Alternative to the Nuclear Energy Institute Composite Adversary Force," dated May 6, 2019 (ADAMS Accession No. ML19074A078), for Commission review and approval. In SRM-SECY-19-0046, dated October 9, 2019 (ADAMS Accession No. ML19282B628), the Commission approved the staff's recommendation to use one or more industry-managed mock adversary force (MAF) and to allow the industry to implement and manage the MAFs for use during NRC-conducted FOF exercises.

The Commission approved a draft proposed rule in SRM-SECY-17-0027, "Staff Requirements—SECY-17-0027—Proposed Rulemaking: Fitness-for-Duty Drug Testing Requirements," dated June 3, 2019 (ADAMS Accession No. ML19154A539), that would amend the drug testing requirements of 10 CFR Part 26, "Fitness for duty programs." The proposed rule would better align NRC drug-testing requirements with those of the U.S. Department of Health and Human Services' "Mandatory Guidelines for Federal Workplace Drug Testing Programs" that have been in effect since October 2010. The proposed changes would broaden the panel of drugs used to test individuals during required drug testing; lower cutoff levels for certain types of drug testing; improve the testing methods to identify subversion attempts; and improve the clarity, organization, and flexibility of the rule language. The NRC published the proposed rule on September 16, 2019 (84 FR 48750), for public comment; the comment period closed on December 2, 2019. The NRC received 22 comment submissions from the public on the proposed rule. The staff is currently evaluating the public comments and plans to provide the draft final rule to the Commission in early calendar year 2021.

The NRC continues to support the FBI's efforts to improve the tactical responses of Federal, State, and local law enforcement to beyond-DBT events at nuclear power plant sites. During this reporting period, NRC staff led the planning and coordination with the FBI, a state police tactical team, and the power reactor site scheduled to host the 2-day limited exercise in January 2020. The NRC staff also developed more than 40 exercise mission objectives for participating tactical teams, negotiated exercise design parameters, and established just-in-time training for exercise participants and support personnel

## **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, important-to-safety, security, and emergency preparedness functions are protected from cyberattacks. Because of the extensive work and lead time required to fully implement the provisions called for in licensees' NRC-approved cybersecurity plans, the agency established interim milestones to focus efforts on the highest priority activities. Licensees had taken measures to protect their highest priority digital assets by December 31, 2012.

The NRC has developed an oversight program for cybersecurity that includes an inspection program, inspector training, and a process for evaluating the significance of inspection findings. The agency developed this program in collaboration with stakeholders, including

members of industry and representatives from the U.S. Department of Homeland Security, the Federal Energy Regulatory Commission, and the National Institute of Standards and Technology. The NRC completed inspection activities related to the interim milestones in CY 2015. In July 2017, the NRC began the inspection activities for full implementation; as of the end of March 2020, the agency has completed 45 inspections. This initial round of inspections is planned to continue through CY 2020. COVID-19-related impacts on the scheduled inspections may cause them to extend into CY 2021.

### **Emergency Preparedness and Incident Response**

In December 2019, the NRC and the Federal Emergency Management Agency (FEMA) published NUREG-0654/FEMA-REP-1, Revision 2, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," which the agencies had last revised in November 1980. This is one of the key guidance documents for developing and evaluating onsite and offsite emergency plans for nuclear power plants and for State and local government emergency response organizations. 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, as well as efforts by licensees to re-baseline emergency plans to remove unnecessary details from those plans to allow greater flexibility in implementing changes under 10 CFR 50.54(q)(3).

As discussed further in Section IX of this report, on December 17, 2019, the Commission approved publication of a proposed rule for public comment on emergency preparedness for small modular reactors and other new technologies.

The NRC continues to work with States to replenish potassium iodide supplies for use as a supplement to public protective actions within the 10-mile emergency planning zones around nuclear power plants.

All licensing reviews for new power reactor applications under the physical security and emergency preparedness 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.

The Commission reviewed the NRC's continuity of operations (COOP) program in 2019 and approved an updated revision to the COOP Plan on February 4, 2019. On March 10, 2020, the NRC approved Management Directive 6.2, "Continuity of Operations Program," which gives additional delineation of roles and responsibilities for NRC offices implementing the NRC COOP Plan. The NRC also reviewed and updated the NRC Pandemic Plan on March 5, 2020. These updates and related ongoing planning efforts ensure that NRC emergency plans remain up to date, and that the NRC continues to be prepared to respond to a wide variety of potential emergency situations including impacts of the COVID-19 PHE.

### **VIII. Power Uprates**

Since the 1970s, licensees have applied for and implemented power uprates as a way to increase the output of their plants. The NRC staff has reviewed and approved 164 power uprates to date. Existing plants have gained approximately 23,664 megawatts thermal (MWth) or 7,921 megawatts electric in electric generating capacity (the equivalent of about seven large nuclear power plant units) through power uprates. The NRC currently has six measurement uncertainty recapture power uprates under review, totaling approximately 266 MWth.

## **IX. New Reactor Licensing**

The NRC's new reactor program is (1) focusing on licensing and construction oversight activities for large LWRs and small modular 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 international cooperative initiatives to improve safety reviews of new reactor designs and improve the effectiveness and efficiency of inspections and the collection and sharing of construction experience.

### *Reviews of Applications for Large and Small Modular Light-Water Reactors*

The NRC is currently reviewing applications for design certifications and small modular LWRs that have been submitted under 10 CFR Part 52, "Licenses, certifications, and approvals for nuclear power plants."

### Tennessee Valley Authority Clinch River Early Site Permit Application

On December 19, 2019, the NRC issued the early site permit for one or more small modular reactors to TVA for the Clinch River Nuclear Site near Oak Ridge, Tennessee.

### *Design Certification Reviews*

### NuScale Power, LLC, Small Modular Reactor Design Certification Application

On January 6, 2017, NuScale submitted the first small modular reactor DC application for NRC review. On March 15, 2017, the NRC staff completed its acceptance review and docketed the application. The staff issued the acceptance review letter to NuScale on March 23, 2017, and developed a full review schedule with public milestones, which it sent to NuScale on May 22, 2017. On April 11, 2018, the staff completed Phase 1 of the review. On July 12, 2019, the staff closed Phases 2 and 3 of the review. The NRC staff completed Phase 4 of the review on December 12, 2019. Following the Phase 4 review, NuScale identified a technical issue requiring re-analysis. The NRC staff will assess the applicant's efforts to resolve this issue. The review is currently in Phases 5 and 6. During this reporting period, the NRC staff initiated rulemaking activities and anticipates publishing the proposed rule for public comment in 2020.

### U.S. Advanced Pressurized-Water Reactor

On December 31, 2007, Mitsubishi Heavy Industries, Ltd. (MHI), submitted its application to the NRC for certification of the U.S. Advanced Pressurized-Water Reactor (US-APWR) design. On November 5, 2013, the company issued a letter informing the NRC of its plans to slow down licensing activities related to the application review. Given this request, the NRC staff had been performing this review at a reduced pace with limited use of resources since March 24, 2014.

On March 3, 2020, MHI requested that the staff suspend its review of the design certification application for the US-APWR. The applicant has not indicated when it will ask the staff to resume its review.

## *Design Certification Renewals*

### Advanced Boiling-Water Reactor Renewal (General Electric-Hitachi)

On March 30, 2020, the NRC staff completed its technical review of the General Electric-Hitachi (GEH) Advanced Boiling-Water Reactor (ABWR) DC renewal application. GEH submitted the ABWR design certification renewal application on December 7, 2010; this is the first such renewal that has been completed under 10 CFR Part 52. During this extended period of review, the NRC staff continuously worked with GEH to resolve all open items until alignment was reached. GEH documented that all technical issues were resolved in a letter dated January 21, 2019 (ADAMS Accession No. ML19021A015). The staff completed the ABWR design certification renewal advanced final SER at the end of June 2019 and briefed the ACRS ABWR Subcommittee on August 23, 2019, and the ACRS Full Committee on October 2, 2019.

The NRC staff started rulemaking activities in November 2019. The NRC anticipates publishing the direct final rule, with the companion proposed rule for public comment, by November 2020.

### **Construction Oversight under 10 CFR Part 52**

The NRC continues to implement activities necessary to oversee the construction and operational readiness of the two Advanced Passive 1000 (AP1000) units under construction at the Vogtle site to ensure safety. The NRC's Region II office coordinates, plans, schedules, and implements the construction inspections in coordination with the licensee's construction schedules to verify compliance with the agency's regulations and to ensure that the new plants are built in accordance with their combined licenses (COLs). NRC inspections continue to focus on all activities in support of inspections, tests, analyses, and acceptance criteria (ITAAC).

Construction oversight at Vogtle is performed within the regulatory framework of the Construction Reactor Oversight Process (cROP). The cROP ensures safety and security through objective, risk-informed, transparent, and predictable NRC oversight during new reactor construction. Using practices similar to those of the ROP for operating reactors, the NRC continues to meet periodically with interested stakeholders to collect feedback on the effectiveness of the process, which the agency then considers for potential changes to the cROP. The agency's most recent performance assessments demonstrate that the reactors are being constructed safely and both units are performing well against the cROP criteria. Plant assessments and the latest cROP-related information are publicly available on the NRC Web site.

In October 2019, the Office of New Reactors reorganized and merged with NRR. This merger established the Vogtle Project Office (VPO) within NRR. VPO is charged with coordination of the licensing and oversight activities for Vogtle Units 3 and 4 and facilitation of the safe and timely transition of these units from construction to operation. By focusing entirely on the Vogtle Units 3 and 4 project, VPO has demonstrated agility in decision-making and responding to technical and programmatic issues.

The Vogtle Readiness Group (VRG) continues to meet regularly to assess NRC activities and proactively identify any regulatory challenges that may impact the schedule for transition to operations. VRG meetings ensure that all NRC organizations are coordinating on Vogtle issues, that NRC senior management is aware of any issues, and that there are consistent interactions with the licensee's management. VRG meetings will take place more frequently as the anticipated fuel load date for Vogtle Unit 3 approaches.



Highlights of the licensing and construction activities at Vogtle 3 and 4 during the reporting period include:

- The NRC submitted the licensee's notice of intended operation to the *Federal Register* on February 12, 2020, and announced the opportunity for the public to request a hearing on the licensee's conformance with acceptance criteria in the COL.
- The NRC updated its list of ITAAC targeted for inspection on February 10, 2020 (ADAMS Accession No. ML19329C875). This revision reflects lessons learned during construction inspection and gives NRC inspectors the flexibility to select ITAAC inspections with greater consideration of risk information.
- The NRC held a public meeting on October 30, 2019, to discuss and answer questions related to the procedures for conducting hearings on whether acceptance criteria are met. Acceptance criteria associated with ITAAC must be met before the licensee can operate the facility.
- The NRC's Region II staff completed inspection and verification of the ITAAC closeout notification for the Vogtle Unit 3 protection and safety monitoring system. This system is the primary digital reactor trip and engineered safety feature actuation system for the Vogtle AP1000.
- The NRC completed inspection and planning guidance to support Initial Test Program inspections.
- To date, all construction inspection findings for Vogtle Units 3 and 4 are of low safety significance, and the licensee has addressed these issues appropriately.

#### *Vendor Inspections*

The NRC staff uses the Vendor Inspection Program (VIP) 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 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 of the vendor inspection staff include ensuring that counterfeit items are removed and prevented from use in safety-related applications, participating in international cooperation efforts, and developing industry consensus standards. VIP focus areas for new reactors include integrated system validation for the control room simulators, digital instrumentation and control systems, modular fabrication, safety-related valves, and reactor coolant pumps. Focus areas for operating reactors includes replacement components, commercial-grade dedication, reverse engineering, software, and fuel fabrication.

For FY 2020, the NRC plans to perform approximately 20 vendor inspections. The annual VIP self-assessment showed that the NRC met its goal of completing 20 inspections in FY 2019. In addition, in FY 2019, the NRC staff completed inspections of all design certification applicants and vendors that maintain a safeguards information protection program.

## **Operator Licensing**

The staff supports and provides programmatic oversight for regional implementation of operator licensing training and examinations for new reactors. The staff completed an inspection of the plant-reference simulator at Vogtle Units 3 and 4 and also administered the fourth operator licensing examination in March 2020. The staff is currently preparing to issue operator licenses for Vogtle Unit 3 in summer 2020.

The staff included recommendations for changes to 10 CFR Part 55, "Operator's licenses," in the Alignment of Licensing Processes and Lessons Learned from New Reactor Licensing rulemaking activity. The recommendations are based on the lessons learned from operator licensing activities for the plants under construction at Vogtle and previously under construction at Virgil C. Summer Nuclear Station (also referred to as "cold licensing activities").

The staff continued preparations for operator licensing examinations for the NuScale small modular reactor technology, including the continued development of a knowledge and abilities catalog from which the licensing examinations are generated.

## **Non-Light-Water Reactors**

Many of the staff's activities during this reporting period are consistent with Section 103 of the Nuclear Energy Innovation and Modernization Act. The staff issued SECY-20-0010, "Advanced Reactor Program Status," on January 30, 2020 (ADAMS Accession No. ML19331A034). This paper gives the status of the staff's activities related to advanced reactors. It also summarizes the external factors affecting the staff's preparations for possible licensing and deployment of advanced reactors, including current preapplication interactions. Other activities include:

- Issued SRM-SECY-18-0103, "Staff Requirements—SECY-18-0103—Proposed Rule: Emergency Preparedness for Small Modular Reactors and Other New Technologies," on December 17, 2019 (ADAMS Accession No. ML19351C729), approving publication of the proposed rule for public comment.
- Entered into a memorandum of understanding with the U.S. Department of Energy to implement provisions of the Nuclear Energy Innovation Capabilities Act of 2017 related to sharing technical expertise and knowledge on advanced nuclear reactor technologies and nuclear energy innovation.
- Held several meetings with stakeholders on non-LWR topics.
- Chaired a meeting of the Nuclear Energy Agency's Working Group on the Safety of Advanced Reactors.
- Issued SECY-19-0117, "Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors," on December 2, 2019 (ADAMS Accession No. ML18311A264).
- Hosted a public workshop on the generic environmental impact statement for advanced reactors.
- Issued the NRC's non-LWR analytical code strategy on January 30, 2020 (ADAMS Accession No. ML20030A171).

- Participated in a meeting of the Advanced Reactor Technologies and Small Modular Reactors Subcommittee under the NRC–Canadian Nuclear Safety Commission memorandum of cooperation.
- Issued SECY-20-0020, “Results of Exploratory Process for Developing a Generic Environmental Impact Statement for the Construction and Operation of Advanced Nuclear Reactors,” on February 28, 2020 (ADAMS Accession No. ML20052D175).
- Conducted a briefing of the Commission on advanced reactors and new reactors.
- Published for comment draft interim staff guidance on “Environmental Considerations Associated with Micro-reactors” (85 FR 11127, Feb. 26, 2020)
- Published the Brookhaven National Laboratory report, “Regulatory Review of Micro-Reactors—Initial Considerations,” dated February 5, 2020 (ADAMS Accession No. ML20044E249).
- Completed the safety evaluation for the Argonne National Laboratory Quality Assurance Program Plan for key nuclear fuel and plant development legacy data on March 3, 2020 (ADAMS Accession No. ML20054A297).
- Published the Sandia National Laboratory report, “Simplified Approach for Scoping Assessment of Non-LWR Source Terms,” on January 30, 2020 (ADAMS Accession No. ML20052D133).

With regard to non-LWR licensing activities, on March 11, 2020, Oklo Power LLC, a subsidiary of Oklo Inc., submitted a COL application for the Aurora reactor design proposed to be constructed and operated at the Idaho National Laboratory. This is the first COL application for a non-LWR submitted to the NRC. The design is a non-LWR micro-reactor using metallic fuel to produce about 1.5 megawatts of electrical power. The staff is currently conducting an acceptance review of the application. Once the acceptance review is completed, the staff will decide whether to docket the application and establish the review schedule.

The staff also continues to implement flexible and staged non-LWR regulatory review processes to engage with developers, including X-Energy, LLC, on its pebble bed, high-temperature gas-cooled reactor; Kairos Power on its pebble-fueled, molten-fluoride-cooled reactor; and Terrestrial Energy on its molten salt, molten fuel reactor. The staff also continued preapplication engagement with X-Energy, LLC, for a planned fuel fabrication facility to produce tristructural isotropic fuel.

## **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 enhancing and updating regulatory guidance for large LWRs, small modular reactors, and non-LWRs. In addition to updating regulatory guidance, the NRC continues to review its internal processes to ensure that the safety and environmental reviews are effective and efficient. The NRC provides several opportunities for external stakeholder input as part of these enhancements. The agency also rigorously assesses licensing and oversight performance and uses the results to inform these regulatory infrastructure activities.

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

## *Draft Regulatory Guide 1321*

Draft regulatory guide (DG) 1321, “Guidance for Changes During Construction for New Nuclear Power Plants Licenses Under 10 CFR Part 52,” reinterprets 10 CFR 52.98(c) requirements for the implementation of changes to the design of a facility under construction<sup>2</sup> under a COL. The staff plans to issue DG-1321 for a 60-day public comment period in April 2020. The guidance will retain discussion of the current regulatory requirements that licensees must meet before placing any SSCs into operation, but it will provide additional flexibility for identified milestones for the notification of ITAAC closure. In addition, the guidance will allow COL holders the flexibility to construct SSCs in a plant under construction without first obtaining a license amendment request and any associated exemption. This guidance will also harmonize the staff’s treatment of changes to the design of a facility under construction under a COL with the staff’s treatment of changes to the design of a facility operating under 10 CFR Part 50, “Domestic licensing of production and utilization facilities,” to the extent feasible.

## *NUREG-0800*

The NRC staff began an effort to revise NUREG-0800, “Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition.” The SRP is used to support the staff’s reviews of applications for COLs, design certifications, and ESPs; limited work authorization requests; and license amendment requests. The SRP originally focused on large LWR design reviews. The NRC staff recognized the need to incorporate future small and large LWR applications into the NRC’s licensing process. The SRP update will focus the staff’s review on the regulatory requirements and associated acceptance criteria that determine whether there is reasonable assurance of adequate protection. In addition, the SRP will leverage the improved use of risk insights to inform the staff’s review.

## *Environmental Guidance Updates*

The NRC staff noticed issuance of Revision 3 of Regulatory Guide (RG) 4.2, “Preparation of Environmental Reports for Nuclear Power Stations,” in the *Federal Register* on September 24, 2018. 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. The current update reflects changes in NRC policy and regulations, new environmental regulations, Executive Orders, experience gained from completed environmental reviews, and judicial or administrative hearing board decisions. Given the extensive changes in the environmental review area, the NRC has paused its plan to publish a draft of the revised NUREG-1555 for public comment. In the interim, the NRC continues to conduct environmental reviews in accordance with current NRC regulations and applicable existing and interim staff guidance while continuing to enhance the efficiency and effectiveness of its reviews through the use best practices and lessons learned.

## **X. Response to Lessons Learned from the Fukushima Accident in Japan throughout the First Half of Fiscal Year 2020**

The NRC staff continues to make progress toward completing the regulatory actions undertaken after the accident at Fukushima. Licensees have completed all safety improvements associated

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<sup>2</sup> Construction, as defined in 10 CFR 50.10, “License required; limited work authorization,” is, in part, the in-place assembly, erection, fabrication, or testing for specified SSCs.

with the orders for mitigating strategies, spent fuel pool instrumentation, and severe-accident-capable hardened containment vent systems (HCVSs). All operating power reactors have reported compliance with these orders. In FY 2019, the NRC completed the final onsite inspections to verify licensees' compliance with the orders for mitigating strategies and spent fuel pool instrumentation and the final applicable sites informed the NRC that they are in full compliance with the HCVS order.

In the first half of FY 2020, the NRC completed the final<sup>3</sup> four safety evaluations associated with the HCVS order and completed four onsite inspections to verify compliance with this order. The staff expects to complete the six remaining onsite inspections this year subject to the agency's ongoing COVID-19 PHE response.

The NRC and licensees have completed more than 85 percent of the activities for the reevaluation of potential seismic and flooding hazards under 10 CFR 50.54(f). The NRC received all anticipated licensee responses by February 2020 and remains on track to complete all remaining reviews by the end of CY 2020. The following paragraphs describe these accomplishments in more detail.

One year after the Fukushima accident, the NRC issued a formal request for information under 10 CFR 50.54(f) to each operating power reactor licensee to reevaluate the potential seismic and flooding hazards at its site, using present-day methods and guidance, and to identify any actions planned or taken to address plant-specific vulnerabilities. By February 2020, operating power reactor licensees had completed the assessments and submitted all required information (or have approved deferrals) associated with the 10 CFR 50.54(f) request. The NRC remains on track to complete all remaining staff reviews by the end of CY 2020 to determine whether further regulatory action is needed.

In the first half of FY 2020, the staff completed two flooding assessments and one seismic assessment. In total, the NRC has completed all flooding hazard reevaluation activities for 50 of 58 sites and all seismic reevaluation activities for 49 of 58 sites. The NRC expects to complete the remaining seven flooding and seismic assessments by the end of CY 2020. One flooding and two seismic evaluations are associated with licensees that have been granted deferrals beyond their announced permanent shutdown dates.

## **XI. Planned Rulemaking Activities**

The attached report lists the status of NRC rulemaking activities as of April 3, 2020, including their priorities and schedules. Of the 90 rulemaking activities, 68 rulemakings are planned activities. The NRC is also reviewing 22 petitions for rulemaking. The 68 planned rulemaking activities include 10 proposals in response to industry requests, 18 that could reduce or clarify existing requirements, 24 that are required by statute or are needed to conform NRC regulations to other agency requirements or to international treaties or agreements, and 16 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

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<sup>3</sup> This order only applies to boiling-water reactors with Mark I or Mark II containment designs, or 17 sites total.

actions taken to meet applicable backfitting and issue finality requirements. This includes discussing which, if any, backfitting and issue finality requirements apply and how the NRC staff evaluated the rule with respect to those requirements. To improve consistency in applying these requirements, the agency trains the staff on backfitting and issue finality when these topics arise during their rulemaking activities. The NRC's Committee To Review Generic Requirements also reviews all rulemakings that meet defined criteria to confirm that the agency applies backfitting and issue finality requirements to rulemakings appropriately and consistently.