Protecting People and the Environment

SEMIANNUAL STATUS REPORT ON THE LICENSING ACTIVITIES AND REGULATORY DUTIES OF THE UNITED STATES NUCLEAR REGULATORY COMMISSION

October 2014–March 2015

Note: The period of performance covered by this report includes activities that occurred from the first day of October 2014 to the last day of March 2015. The transmittal letter to Congress accompanying this report provides additional information to keep Congress fully and currently informed of the licensing and regulatory activities of the U.S. Nuclear Regulatory Commission.

CONTENTS

I. Reactor Oversight Process

The NRC continues to rely on the Reactor Oversight Process (ROP) at all nuclear power plants to assess performance of reactor licensees and to guide assignment of inspection resources. NRC staff meets with interested stakeholders periodically to collect feedback on the effectiveness of the process, which is then considered in making future refinements to the ROP. Additionally, the NRC is making progress on the ROP Enhancement Project, which is a project to enhance the effectiveness of the ROP using inputs from both self-assessments and independent evaluations.

The agency's most recent performance assessments show that all plants continue to operate safely. The NRC issued a press release on March 6, 2015, summarizing the 2014 end-of-cycle annual performance assessments for all nuclear plants and associated annual assessment letters, which are publicly available on the NRC Web site. The web site has also been updated to reflect the latest performance assessments as of the end of the first quarter of calendar year 2015

II. Implementing Risk Informed and Performance Based Regulations

Currently, 28 operating nuclear power reactors have committed to transition to the risk-informed, performance-based, fire-protection licensing basis permitted under Title 10, "Energy," of the *Code of Federal Regulations* (10 CFR) paragraph 50.48(c). This licensing basis is also known as National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants." This number does not include the 18 reactor units that have already received their license amendment.

In April 2011, the Commission approved a policy paper (see SECY-11-0033, "Proposed NRC [U.S. Nuclear Regulatory Commission] Staff Approach To Address Resource Challenges Associated with Review of a Large Number of NFPA 805 License Amendment Requests," dated March 4, 2011), which allowed submittal of the remaining license amendment requests (LARs) on a staggered basis, in a way similar to the approach used for license renewal applications (LRAs).

Correspondingly, the Commission changed the Enforcement Policy (see SECY-11-0061, "A Request To Revise the Interim Enforcement Policy for Fire Protection Issues on 10 CFR 50.48(c) To Allow Licensees to Submit License Amendment Requests in a Staggered Approach," dated April 29, 2011) to match this staggered approach. Five LARs (for six reactor units) were submitted in fiscal year (FY) 2011; one licensee (one reactor unit) withdrew its application. Nine LARs (for 13 reactor units) were submitted in FY 2012. One licensee's application, submitted in FY 2012, was not accepted for review (one reactor unit). Eleven LARs (for 19 reactor units) were submitted in FY 2013. Two LARs (for three reactor units) were submitted in FY 2014. One additional LAR (for one reactor unit) is scheduled to be submitted in FY 2016, and another LAR (for two reactor units) is scheduled to be submitted in FY 2017. Licensees for five reactor plants that were actively transitioning have informed the staff that they will not transition to NFPA 805, including three plants that have announced plans to decommission. Therefore, the staff is currently planning on a total of 46 reactor units transitioning to NFPA 805 (including the pilot reactor units).

On November 5, 2012, the Commission directed the staff to develop an approach for allowing licensees to propose to the NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis for

Commission review and approval. NRC staff refers to this initiative as the risk-prioritization initiative (RPI) and worked with external stakeholders to develop a proposed process for Commission review. During the current reporting period, NRC staff briefed the Advisory Committee for Reactor Safeguards (ACRS) on the draft SECY paper, which contained several options for carrying out RPI. The ACRS sent a letter to the Chairman supporting the staff's recommendations. The staff completed the SECY paper for Commission consideration and approval in March 2015 and will participate in a Commission briefing on RPI in May 2015.

Southern Nuclear Operating Co. ("Southern") submitted its proposal to implement 10 CFR 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors," for Vogtle Electric Generating Plant (VEGP), Units 1 and 2, on August 31, 2012. The staff completed the technical review and issued a safety evaluation in December 2014. Southern submitted a second proposal to implement risk-informed allowed outage times for VEGP's technical specifications on September 13, 2012. This submittal is under staff review, and the NRC staff is completing the safety evaluation.

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

The Generic Issues Program is evaluating four open generic issues (GIs) and tracking their resolution. The status of each open issue is described below:

GI-191, "Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR) Sump Performance"

GI-191 is in the regulatory office implementation stage of the GI program and concerns the possibility that, after a loss-of-coolant accident (LOCA) in a PWR, debris accumulating on the emergency core-cooling system (ECCS) sump screen may result in clogging and restrict water flow to the pumps.

Because of this GI and the related Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004, all PWR licensees increased the size of their containment sump strainers, significantly reducing the risk of strainer clogging. A related unresolved issue is the potential for debris to bypass the sump strainers and enter the reactor core. In 2008, NRC staff determined that additional industry-sponsored testing was necessary to resolve this issue. In 2012, the industry performed and completed the additional testing and submitted a topical report to the NRC. In 2013, NRC staff issued a safety evaluation of the topical report, finding it an acceptable model for assessing the effect of sump-strainer-bypassed fibrous, particulate, and chemical debris on core cooling in PWRs.

Based on the interactions with stakeholders and the results of the industry testing, NRC staff in 2012 developed three options for licensees to resolve GI-191. These options were documented and proposed to the Commission in SECY-12-0093, "Closure Options for Generic Safety Issue 191, 'Assessment of Debris Accumulation on Pressurized-Water Reactor Sump Performance'," dated July 9, 2012. All options require licensees to demonstrate compliance with 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors." The options allow for alternative approaches for resolving GI-191. The Commission issued a staff requirements memorandum on December 14, 2012, approving the options for closure of GI-191. Licensees have since notified the NRC of the option that they have selected and are developing proposed technical resolutions based on the option selected.

The staff is reviewing the proposed technical resolutions as they are submitted by licensees. To date, six facilities have successfully resolved GI-191.

GI-193, "Boiling-Water Reactor (BWR) Emergency Core Cooling System Suction Concerns"

GI-193 is in the assessment stage of the GI program and it involves an evaluation of possible failure or degraded performance of the ECCS pumps caused by unknown quantities of noncondensable gas in the suction piping that could cause gas binding, vapor locking, or cavitation. The NRC staff is attempting to quantify the gas void fraction present at different locations in the suppression pool as a function of time after a LOCA. Ultimately, this might identify a need for a post-LOCA suppression pool ECCS pump suction strainer "exclusion zone." An exclusion zone is the volume below or around the downcomer exhaust, which is expected to contain a large concentration of noncondensable gas from the drywell. If a suction strainer is in an exclusion zone, the ECCS pump might be vulnerable.

Computational fluid dynamics (CFD) models have been developed and analyses have been completed using test results performed at the Purdue University Multidimensional Integral Test Assembly and Finnish test facilities. CFD analyses, using computational methods used from the two test programs, to simulate full-scale Mark I suppression pool behavior after a large break LOCA have been completed. Results from the full-scale CFD analyses can be used to determine the time dependent "exclusion zone." Once the technical assessment is complete, NRC staff will evaluate whether the issue will proceed to regulatory office implementation.

GI-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants"

GI-199 is in the regulatory office implementation stage of the GI program and it addresses estimated seismic hazard levels at some current nuclear plants in the central and eastern United States (CEUS) that might be higher than the values used in designs and previous evaluations.

The NRC evaluated the effects of new seismic hazard data and methods on U.S. nuclear plants and it collaborated with the Electric Power Research Institute (EPRI) to ensure a sound technical approach was developed. The NRC issued Information Notice 2010-18, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants," on September 2, 2010, to inform stakeholders that the NRC will request that operating plants and independent spent fuel storage installations provide specific information about their facilities to enable the staff to complete the regulatory assessment and identify and evaluate candidate backfits. After the March 2011 nuclear event in Japan, the agency incorporated GI-199 into the work being performed in response to the accident. The NRC has requested that all nuclear power plants reevaluate seismic hazards using present-day guidance and methods, and by March 31, 2014, licensees of nuclear plants in the CEUS submitted reports on the reevaluated seismic hazard for their sites. NRC staff reviewed the CEUS reports in accordance with the NRC-endorsed guidance.

On May 9, 2014, the NRC issued a screening review and prioritization letter to the 58 CEUS sites currently operating, documenting the need to complete future seismic risk evaluations. Sites that screened-in for a seismic risk evaluation submitted interim actions or evaluations in December 2014 as part of the Expedited Seismic Evaluation Process (ESEP). The ESEP submittals serve as an engineering review of interim evaluations. The evaluations look at the systems and components that can be used to shut down a plant safely under certain accident

conditions. The ESEP will either confirm that a plant has sufficient margin to continue with a longer-term evaluation without any modifications or identify the need to enhance the seismic capacity of the plant. NRC staff is reviewing the ESEP submittals that were required for those sites that screened-in for further seismic evaluations.

The three plants in the Western United States (WUS) completed their seismic hazard reevaluations by March 2015. As with the CEUS sites, WUS plants will be required to complete a risk assessment if the reevaluated hazard exceeds the plant's design basis. If required, those risk assessments must be completed between 2017 and 2020, depending on the priority assigned as determined by the amount of ground motion exceedance.

GI-204, "Flooding of Nuclear Power Plant Sites Following Upstream Dam Failures"

GI-204 is in the regulatory office implementation stage of the GI program. It relates to potential flooding effects from upstream dam failure(s) on nuclear power plant sites, spent fuel pools, and sites undergoing decommissioning with spent fuel stored in spent fuel pools. This GI is being addressed as part of the agency's efforts associated with responding to the lessons learned from the Fukushima nuclear accident in Japan. In March 2012, letters were sent by the NRC to licensees, which requested the reevaluation of all flood hazards (including dam failures) using present-day guidance and methods.

Currently, most sites have completed flood hazard reevaluations in response to the March 2012 request. Some licensees have requested and been granted extensions, where appropriate. For example, some licensees were granted extensions to allow time for the U.S. Army Corps of Engineers to provide input necessary to complete the analyses. The NRC has begun to issue safety evaluations of the flood hazard reevaluation reports that were received in March 2013.

IV. Licensing Actions and Other Licensing Tasks

Operating power reactor licensing actions are orders, license amendments, exemptions from regulations, relief from inspection or component testing, topical reports submitted on a plant-specific basis, notices of enforcement discretion, or other actions requiring NRC review and approval before they can be carried out by licensees. The FY 2015 NRC Performance Budget plan incorporates two output measures related to licensing actions: the number of licensing actions completed per year and the age of the licensing action inventory.

Other licensing tasks for operating power reactors include:

- licensee responses to NRC requests for information through generic letters or bulletins;
- NRC responses to petitions filed under 10 CFR 2.206, "Requests for Action under this Subpart";
- NRC review of generic topical reports;
- responses by the NRC's Office of Nuclear Reactor Regulation to NRC regional office requests for assistance;
- NRC inspection of licensee analyses under 10 CFR 50.59, "Changes, Tests and Experiments";

- final safety analysis report (FSAR) updates; and

- other licensee actions not requiring NRC review and approval before licensees can carry them out.

The FY 2014 NRC Performance Budget plan incorporates two output measures related to other licensing tasks: the number of other licensing tasks completed each year and the age of the other licensing task inventory.

The table below shows the actual FY 2012, FY 2013, and FY 2014 results and the FY 2015 goals for the NRC Congressional Budget plan performance indicators for operating power reactor licensing actions and other licensing tasks. The Fukushima Tier 1 activities continue to be worked on under aggressive schedules that require close monitoring to ensure that implementation of the activities is successful. The NRC prioritizes all licensing action reviews in accordance with their safety significance; however, because of Fukushima-related work competing for the same critical skill sets, the backlog inventory of operating reactor licensing actions has increased. In late FY 2014, the staff applied extra resources to support stabilizing and reducing the licensing action backlog, and as a result the NRC has seen the backlog inventory stabilize in FY 2015 and also expects to begin to see improvement towards reducing the backlog this FY. To improve the agency's projections, manage workload, and identify needed skills, the NRC issued a regulatory information summary to request that licensees supply information on their plans to submit licensing actions over the next 3 years. The agency plans to request updates to this information later this year. The NRC's senior management remains heavily engaged in monitoring the licensing action workload towards an objective of achieving target performance goals.

CONGRESSIONAL BUDGET PERFORMANCE INDICATORS					
Output Measure	**FY 2012 Actual**	**FY 2013 Actual**	**FY 2014 Actual**	**FY 2015 Goals**	**FY 2015 YTD**
Licensing actions completed per year	770	668	607	737	328
Age of inventory of licensing actions	95.8% ≤ 1 year and 100% ≤ 2 years	95% ≤ 1 year and 100% ≤ 2 years	87% ≤ 1 year and 99% ≤ 2 years	95% ≤ 1 year and 100% ≤ 2 years	87% ≤ 1 year and 97.9% ≤ 2 years
Other licensing tasks completed per year	674	529	402	500	213
Age of inventory of other licensing tasks	94.6% ≤ 1 year and 100% ≤ 2 years	97.6% ≤ 1 year and 100% ≤ 2 years	87% ≤ 1 year and 100% ≤ 2 years	90% ≤ 1 year and 100% ≤ 2 years	82.9% ≤ 1 year and 97.6% ≤ 2 years

V. Status of License Renewal Activities

The NRC has issued renewed licenses for 74 power reactor units currently licensed to operate. The NRC has 10 LRAs for 18 reactor units under review.

Applications Currently under Review

The following is the status of each application under review during the reporting period. Previously issued semiannual reports describe activities that occurred before October 2014.

Indian Point Nuclear Generating Units 2 and 3

On April 30, 2007, Entergy Nuclear Operations, Inc., submitted an LRA for Indian Point Nuclear Generating Units 2 and 3 to extend the operating licenses for an additional 20 years beyond the current license periods. On September 9, 2014, the staff notified Entergy of its intent to prepare a second supplement to the December 2010 final supplemental environmental impact statement (FSEIS). The staff expects to publish the final supplement in March 2016. On November 6, 2014, staff issued Supplement 2 to the safety evaluation report (SER). The staff briefed the ACRS on Supplement 2 on April 23, 2015. Also, activities related to the Atomic Safety and Licensing Board (ASLB) hearing process continued.

The operating license for Indian Point Nuclear Generating Unit 2 was set to expire on September 28, 2013. Given the timely submittal of the LRA, Unit 2's continued operation is permitted under NRC regulations until the NRC makes a final determination on whether to issue a renewed license. A final determination will be made once the staff's review is complete and the ASLB hearing is concluded. Entergy has put into place aging management programs, as described in the LRA, and the NRC continues normal reactor oversight to ensure safe operations.

Diablo Canyon Nuclear Power Plant, Units 1 and 2

On November 24, 2009, Pacific Gas and Electric Co. (PG&E) submitted an LRA for the Diablo Canyon Power Plant, Units 1 and 2, to extend the operating licenses for 20 years beyond the current license periods. In April 2011, PG&E requested that the NRC delay its final licensing decision to allow PG&E to satisfy State of California requests for studies made pursuant to the Coastal Zone Management Act. In December 2014 and February 2015, in response to staff requests, PG&E submitted updates to its LRA that provided most of the information the staff identified as necessary to complete its review. The staff is developing a schedule for the remainder of its review of the LRA. Also, activities related to the ASLB hearing process continued.

Seabrook Station, Unit 1

On June 1, 2010, NextEra Energy Seabrook, LLC, submitted an LRA for the Seabrook Station, Unit 1, to extend the operating license for 20 years beyond the current license period. In April 2013, the staff issued a second draft supplement environmental impact statement (SEIS), which included a revised severe accident mitigation alternatives analysis and updates to comply with the NRC's revised environmental protection regulations. Staff is working on and intends to publish the final supplement in May 2015. During the reporting period, the staff also worked toward resolution of the open items identified in the staff's June 2012 SER with Open Items. Additionally, activities related to the ASLB hearing process continued.

Davis-Besse Nuclear Power Station, Unit 1

On August 30, 2010, FirstEnergy Nuclear Operating Co. (FENOC) submitted an LRA for the Davis-Besse Nuclear Power Station, Unit 1, to extend the operating license for 20 years beyond the current license period. During the current reporting period, the staff identified a new open item and is working toward its resolution to be documented in a supplemental SER. The staff issued the draft SEIS in February 2014 and published the final supplement in April 2015. Activities related to the ASLB hearing process are completed.

South Texas Project, Units 1 and 2

On October 28, 2010, South Texas Project (STP) Nuclear Operating Co. submitted an LRA for STP Units 1 and 2, to extend the operating licenses for 20 years beyond the current license periods. The staff issued the final SEIS in November 2013. During the reporting period, the staff continued its work toward resolution of the open items identified in the staff's February 2013 SER with Open Items.

Limerick Generating Station, Units 1 and 2

On June 22, 2011, Exelon Generation Co., LLC ("Exelon"), submitted an LRA for the Limerick Generating Station, Units 1 and 2, to extend the operating licenses for 20 years beyond the current license periods. On October 20, 2014, the NRC issued renewed facility operating licenses to Exelon for Limerick Generating Station, Units 1 and 2.

Grand Gulf Nuclear Station, Unit 1

On November 1, 2011, Entergy submitted an LRA for the Grand Gulf Nuclear Station, Unit 1, to extend the operating license for 20 years beyond the current license period. During the current reporting period, the staff continued its work toward resolution of the open items identified in the staff's January 2013 SER with Open Items. The staff issued the draft SEIS in November 2013 and the final SEIS in November 2014.

Callaway Plant, Unit 1

On December 19, 2011, Union Electric Co. (doing business as Ameren Missouri) submitted an LRA for Callaway Plant, Unit 1, to extend the operating license for 20 years beyond the current license period. The staff issued the SER with Open Items in April 2013 and the final SER in August 2014. The staff issued the draft SEIS in February 2014 and the final SEIS in October 2014. On March 4, 2015, the Commission directed the staff to issue the renewed license, and on March 6, 2015, the Office of Nuclear Reactor Regulation issued a renewed facility operating license to Ameren Missouri for Callaway Plant, Unit 1. Activities related to the ASLB hearing process are complete.

Sequoyah Nuclear Plant, Units 1 and 2

On January 7, 2013, Tennessee Valley Authority (TVA) submitted an LRA for Sequoyah Nuclear Plant, Units 1 and 2, to extend the operating licenses for 20 years beyond the current license periods. The staff issued the draft SEIS in July 2014 and the SER with Open Items in September 2014. In January 2015, the staff issued the final SER and then the final SEIS in March 2015.

Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2

On May 29, 2013, Exelon submitted LRAs for Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2, to extend the operating licenses for 20 years beyond the current license periods. During the reporting period, the staff continued work on the environmental and safety reviews of the application, completing the Byron draft SEIS in December 2014 and the Braidwood draft SEIS in March 2015. The staff issued its SER with Open Items on October 30, 2014.

Fermi, Unit 2

On April 30, 2014, Detroit Edison Co. (DTE) submitted an LRA for Fermi, Unit 2 to extend the operating license for 20 years beyond the current license period. During the reporting period, the staff conducted onsite audits related to the environmental and safety reviews of the application. Also activities related to the ASLB hearing process continued.

LaSalle County Station, Units 1 and 2

On December 9, 2014, Exelon Generation Co., LLC, submitted an LRA for LaSalle County Station, Units 1 and 2, to extend the operating licenses for 20 years beyond the current license periods. During the reporting period, the staff conducted public environmental scoping meetings and onsite audits related to the environmental and safety reviews of the application.

VI. Summary of Reactor Enforcement Actions

The reactor enforcement statistics in the tables below are arranged by region, half year, most recent half year, fiscal year to date, and two previous fiscal years for comparison purposes. Separate 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 the violation (i.e., traditional enforcement) generally reflects the significance of a violation. However, for most violations, the significance of a violation is assessed using the significance determination process under the ROP, which uses risk insights, where appropriate, to assist the NRC in determining the safety or security significance of inspection findings identified within the ROP.

These tables are followed by 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 half-year period.

NON-ESCALATED REACTOR ENFORCEMENT ACTIONS						
		Region I	Region II	Region III	Region IV	TOTAL
Cited Severity Level IV or Green	1st Half FY 15	4	1	1	9	15
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	4	1	1	9	15
	FY 14 Total	8	5	3	2	18
	FY 13 Total	6	8	1	4	19

NON-ESCALATED REACTOR ENFORCEMENT ACTIONS						
Non-Cited Severity Level IV or Green	1st Half FY 15	57	53	96	93	299
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	57	53	96	93	299
	FY 14 Total	124	147	223	257	751
	FY 13 Total	155	117	201	203	676
TOTAL Cited and Non-Cited Severity Level IV or Green	1st Half FY 15	61	54	97	102	314
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	61	54	97	102	314
	FY 14 Total	132	152	226	259	769
	FY 13 Total	161	125	202	207	695

NOTE: The non-escalated enforcement data above 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 after verification. The monthly totals generally lag by 30 days because of the time needed for inspection report and enforcement development. These data do not include green findings that do not have associated violations.

ESCALATED REACTOR ENFORCEMENT ACTIONS ASSOCIATED WITH TRADITIONAL ENFORCEMENT						
		Region I	Region II	Region III	Region IV	TOTAL
Severity Level I	1st Half FY 15	0	0	0	0	0
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	0	0	0	0	0
	FY 14 Total	0	0	0	0	0
	FY 13 Total	0	0	0	0	0
Severity Level II	1st Half FY 15	0	0	0	0	0
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	0	0	0	0	0
	FY 14 Total	0	0	0	0	0
	FY 13 Total	0	0	0	0	0
Severity Level III	1st Half FY 15	2	1	0	1	4
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	2	1	0	1	4
	FY 14 Total	1	0	0	0	1
	FY 13 Total	1	6	1	2	10
TOTAL Violations Cited at Severity Level I, II, or III	1st Half FY 15	2	1	0	1	4
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	2	1	0	1	4
	FY 14 Total	1	0	0	0	1
	FY 13 Total	1	6	1	2	10

NOTE: The escalated enforcement data above reflect the Severity Level I, II, or III violations or problems cited during the indicated time periods.

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 15	0	0	0	0	0
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	0	0	0	0	0
	FY 14 Total	0	0	0	0	0
	FY 13 Total	0	0	0	0	0
Violations Related to Yellow Findings	1st Half FY 15	0	0	0	2	2
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	0	0	0	2	2
	FY 14 Total	0	0	0	2	2
	FY 13 Total	0	1	1	0	2
Violations Related to White Findings	1st Half FY 15	2	1	2	0	5
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	2	1	2	0	5
	FY 14 Total	1	2	3	4	10
	FY 13 Total	2	7	7	2	18
TOTAL Related to Red, Yellow, or White Findings	1st Half FY 15	2	1	2	2	7
	2nd Half FY 15	0	0	0	0	0
	FY 15 YTD Total	2	1	2	2	7
	FY 14 Total	1	2	3	6	12
	FY 13 Total	2	8	8	2	20

NOTE: The escalated enforcement data above 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 Taken

The list below includes security-related actions and confirmatory actions not included in the tables above. The NRC does not make details of security-related violations publicly available.

Dominion Energy Kewaunee, Inc. (Kewaunee Power Station) EA-14-231

On March 31, 2015, a notice of violation and proposed imposition of a civil penalty in the amount of $17,500 was issued to Dominion Energy Kewaunee, Inc., for a violation associated with an escalated enforcement finding at the Kewaunee Power Station. The details of the finding are official use only—security-related information.

Southern Nuclear Operating Co., Inc. (Vogtle Electric Generating Plant) EA-14-158

On March 30, 2015, the NRC issued a notice of violation associated with a white significance determination process finding to Southern Nuclear Operating Co., Inc., for the licensee's failure to maintain accurate records of radioactive waste being stored in designated areas which resulted in a violation of Vogtle Electric Generating Plant Technical Specification 5.4.1. Specifically, information about the location and contents of the high-integrity containers was not updated when the contents of process shield #10 were changed. This failure to maintain accurate records resulted in a shipment of Type B quantity of radioactive material in a container that was not approved or tested for that purpose. The significance of this event was based on the increased risk to the public and accident hazard posed when a Type B quantity of radioactive material was shipped in a container that was not approved or tested for that purpose.

Exelon Generation Co., LLC (Dresden Nuclear Power Station, Unit 3) EA-15-001

On March 26, 2015, the NRC issued a notice of violation associated with a white significance determination process finding to Exelon Generation Co., LLC, for a violation, identified because of an inspection at its Dresden Nuclear Power Station, Unit 3, involving the failure to establish measures to ensure the suitability of materials, parts, equipment, and processes essential to the safety-related functions of structures, systems, and components as required by 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” Criterion III, “Design Control.” Specifically, the licensee failed to ensure that the application of the automatic depressurization system electromatic relief valve (ERV) actuators, which are essential to perform the safety-related reactor vessel depressurization and overpressure protection functions, remained suitable for operation. As a result, multiple failures of the 3E ERVs occurred during testing before operating cycle D3C23. In addition, there was an indeterminate period of inoperability and unavailability greater than allowed by the Unit 3 technical specifications during operating cycle D3C23. The 3E ERV inoperability during the operating cycle was identified after the failure of the valve during its first operational test following the Unit 3 shutdown for refueling.

TVA (Sequoyah Nuclear Plant) EA-14-003

On March 9, 2015, the NRC issued a notice of violation and proposed imposition of civil penalty in the amount of $70,000 to TVA for a Severity Level III problem involving two violations. The first violation involved the failure to conduct compensatory fire watches as required by TVA corporate procedures and 10 CFR 50.48, “Fire protection.” Specifically, on multiple occasions during October and November 2012, hourly fire watches required as compensatory measures

for fire protection equipment that was out of service in the emergency diesel generator building were not performed. In addition, the designated fire watch foremen willfully failed to have proper oversight of fire watch activities. The second violation involved the failure to maintain complete and accurate records as required by 10 CFR 50.9(a). Specifically, on multiple occasions during the same timeframe, fire watch patrol records were falsified when individuals initialed that fire watches were completed when, in fact, these fire watches had not been performed.

Northern States Power Co., Minnesota (Monticello Nuclear Generating Plant) EA-14-165

On February 26, 2015, a notice of violation was issued to Northern States Power Co., Minnesota, for a violation associated with a greater-than-green significance determination process finding at the Monticello Nuclear Generating Plant. The details of the finding are official use only—security-related information.

Exelon Generation Co., LLC (R. E. Ginna Nuclear Power Plant) EA-14-235

On February 24, 2015, the NRC issued a notice of violation to Exelon Generation Co., LLC, for a Severity Level III problem involving two related violations identified during an inspection at its R.E. Ginna Nuclear Power Plant (Ginna). The first violation involved the submittal by Ginna of information to the NRC that was not complete and accurate in all material respects as required by 10 CFR 50.9, "Completeness and Accuracy of Information." Specifically, on October 8, 2008, Ginna submitted a senior reactor operator application that did not specify that the applicant had a medical condition that required medication for hypertension. Subsequently, the NRC issued a senior reactor operator license to the individual without a medical restriction. The second violation involved the failure to notify the NRC within 30 days of a permanent disability of a licensed senior operator as required by 10 CFR 50.74(c). Specifically, Ginna staff was informed in July 2008 that the operator was taking prescribed medication for hypertension. Ginna did not report this permanent medical condition to the NRC when they submitted NRC Form 396 as part of the senior operator license application in October 2008 and during subsequent biennial requalification medical examinations in 2010 and 2012. Ginna also did not request an amended license with a condition to account for the medical issue until July 16, 2014.

Entergy Operations, Inc. (Palisades Nuclear Plant) EA-14-168

On February 23, 2015, the NRC issued a notice of violation associated with a white significance determination process finding to Entergy Nuclear Operations, Inc., for two violations involving the failure to comply with the requirements of 10 CFR 20.1201(c) and Technical Specification 5.4.1.a, which occurred during control rod drive housing replacement activities between February 6 and March 8, 2014, at the Palisades Nuclear Plant. Specifically, the licensee failed to (1) properly use the deep-dose equivalent, and (2) determine the effective dose equivalent using a dosimetry method approved by the NRC, as required by 10 CFR 20.1201(c). In addition, the licensee failed to establish a procedure for personnel monitoring covering all practical worker positions and shielding geometries as required by Technical Specification 5.4.1.a.

Pacific Gas and Electric Co. (Diablo Canyon Power Plant) EA-14-010

On February 11, 2015, the NRC issued a notice of violation to Pacific Gas and Electric Co. for a Severity Level III violation of 10 CFR 50.54(q), “Conditions of Licenses,” involving the failure to apply to and receive approval from the Commission for a proposed change that decreased the effectiveness of the approved emergency plan. In addition, a white significance determination process finding was issued. The finding involves a change to the emergency plan which decreased its effectiveness. Specifically, on November 4, 2005, without approval from the NRC, the licensee removed instructions in its emergency plan putting procedures into place for making protective action recommendations for members of the public on the ocean within the 10-mile emergency planning zone, decreasing the plan's effectiveness.

Dominion Nuclear Connecticut, Inc. (Millstone Power Station Units 2 and 3) EA-14-126

On February 10, 2015, the NRC issued a notice of violation to Dominion Nuclear Connecticut, Inc. for a Severity Level III violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” involving the failure to obtain a license amendment under 10 CFR 50.90 before putting a change into place that resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety previously evaluated in the updated final safety analysis report (UFSAR). Specifically, Dominion allowed a design change to the offsite power system (removal of the severe line outage detection system, a system described in the UFSAR), and failed to conduct a written evaluation or provide a basis for the determination that the change did not require a license amendment in accordance with 10 CFR 50.59(c)(2).

Entergy Operations, Inc. (Arkansas Nuclear One, Unit 1 & 2) EA 14-088

On January 22, 2015, the NRC issued a notice of violation associated with a yellow significance determination process finding to Entergy Operations, Inc. (Entergy). The finding was associated with the failure to design, construct, and maintain the Arkansas Nuclear One, Unit 1 & 2, auxiliary building and emergency diesel fuel storage building flood barriers so that those barriers could protect safety-related equipment from flooding. Entergy was cited for a violation of 10 CFR Part 50, Appendix B, Criterion III, and 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings.” Both violations included multiple examples for each violation.

Entergy Nuclear Operations, Inc. (River Bend Station) EA-14-009

On December 3, 2014, the NRC issued a confirmatory order (CO) to Entergy Nuclear Operations, Inc. (Entergy), to formalize commitments made because of an alternative dispute mediation session held on September 22, 2014. Entergy agreed that a notice of violation and a civil penalty of $70,000 would be included in the CO. The specific commitments that were made as part of the settlement agreement between Entergy and the NRC about the apparent violation of NRC security requirements are discussed in the non-public enclosures to the CO. The violation involved unidentified security officer’s willful actions, which occurred at Entergy's River Bend Station on March 18, 2012. The NRC and Entergy agree that the actions of an unidentified security officer constitute a willful violation of the requirements of 10 CFR Part 73, “Physical Protection of Plants and Materials.” However, the NRC and Entergy disagree on the specific aspects of the willful characterization of the violation. In light of the significant corrective actions Entergy has already taken and the other actions it has committed to take to enhance the security program at River Bend and across the Entergy Nuclear Fleet, the NRC exercised

enforcement discretion to reduce the severity level of the escalated enforcement sanction that was initially proposed in the preliminary determination. The NRC's rationale behind its decision to exercise enforcement discretion in characterizing the violation is incorporated in an attachment to the CO. The attachment to the CO and the notice of violation will not be made publicly available because they contain security-related information.

Omaha Public Power District (Fort Calhoun Station) EA-14-187

On November 25, 2014, the NRC issued a notice of violation associated with a white significance determination process finding to Omaha Public Power District (OPPD). The finding involved the failure to properly put into place high energy line break and environmental qualification design requirements at the Fort Calhoun Station. OPPD was cited for a violation of 10 CFR Part 50, Appendix B, Criterion III, involving the failure to assure that applicable regulatory requirements and the design basis were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to fully incorporate applicable design requirements to ensure that components subjected to a harsh environment maintained the capability to shut down the reactor and maintain it in a safe shutdown condition following a postulated high energy line break.

Exelon Generation Co., LLC (Peach Bottom Atomic Power Station) EA-14-102

On November 3, 2014, a notice of violation was issued to Exelon Generation Co., LLC, for a violation associated with an escalated enforcement finding at the Peach Bottom Atomic Power Station. The details of the finding are official use only—security-related information.

Exelon Generation Co., LLC (Calvert Cliffs Nuclear Power Plant) EA-14-100

On October 27, 2014, the NRC issued a notice of violation to Exelon Generation Co., LLC, for a violation of 10 CFR 50.54, and risk significant planning standard 10 CFR 50.47(b)(4) associated with a white significance determination process finding. This violation involved Calvert Cliffs Nuclear Power Plant (CCNPP) staff incorporating incorrect threshold values into its emergency action levels (EALs). Specifically, during the replacement of the Unit 2 main steam line radiation monitors, CCNPP's staff inaccurately calculated the associated EALs effluent threshold values for the alert, site area emergency, and general emergency classifications. These thresholds were subsequently incorporated into Table R-1, “Effluent Monitor Classification Threshold” of the EALs. This calculation error could have resulted in an over-classification of an event, an unnecessary protective action recommendation, and could have caused offsite response organizations to carry out unnecessary protective actions for the public. The finding is also associated with violation of NRC requirements specified in 10 CFR 50.54(q)(2), 10 CFR 50.47(b)(4), and 10 CFR Part 50, Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities.”

Exelon Generation Co., LLC (Limerick Generating Station) EA-14-111

On October 23, 2014, a notice of violation was issued to Exelon Generation Co., LLC, for a violation associated with a greater-than-green significance determination process finding at the Limerick Generating Station. The details of the finding are official use only—security-related information.

Exelon Generation Co., LLC (Clinton Power Station) EA-14-109

On October 23, 2014, a notice of violation was issued to Exelon Generation Co., LLC, for a violation associated with a greater-than-green significance determination process finding at the Clinton Power Station. The details of the finding are official use only—security-related information.

FirstEnergy Nuclear Operating Co. (Davis-Besse Nuclear Power Station) EA-14-129

On October 22, 2014, a notice of violation was issued to FirstEnergy Nuclear Operating Co. for a violation associated with a greater-than-green significance determination process finding at the Davis-Besse Nuclear Power Station. The details of the finding are official use only—security-related information.

Dominion Nuclear Connecticut, Inc. (Millstone Power Station, Unit 3) EA-14-092

On October 20, 2014, the NRC issued a notice of violation associated with a white significance determination process finding to Dominion Nuclear Connecticut, Inc., for a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," involving the failure to identify and correct a significant condition adverse to quality for the Millstone 3 turbine-driven auxiliary feed water (TDAFW) pump. Specifically, in spite of the TDAFW pump experiencing three over speed trips from August 11, 2013, to February 3, 2014, Dominion did not identify that the pump was operating in an adverse configuration. The adverse configuration was because of the installation of an inappropriate cam follower bearing within the turbine control valve linkage. This condition rendered the TDAFW pump inoperable for periods of time exceeding the limiting condition for operation specified in the Millstone 3 Technical Specification 3.7.1.2.

VII. Power Reactor Security and Emergency and Incident Response Activities

The NRC continues to maintain an appropriate regulatory infrastructure and perform its licensing and oversight functions to ensure protection of public health and safety, promote the common defense and security, and protect the environment. NRC security and emergency preparedness (EP) programs contribute to fulfilling this mission.

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 includes both tabletop drills and exercises that simulate combat between a mock adversary force and the licensee's security force. FOF inspections assess the ability of power reactor facilities to defend against the design-basis threat (DBT) of radiological sabotage. They also provide valuable insights that enable the NRC to evaluate the effectiveness of licensee security programs. At Category I fuel cycle facilities, a similar process assesses the effectiveness of the licensees' protective strategy against two DBTs—one for radiological sabotage and another to prevent the theft or diversion of special nuclear material.

The NRC is developing a final rule that amends security requirements in 10 CFR Part 73, "Physical Protection of Plants and Materials," to carry out statutory authority provided to the Commission under Section 161A of the Atomic Energy Act of 1954, as amended. These new regulations will allow certain classes of Commission-designated facilities and activities to apply for NRC authorization to use enhanced weapons and large-capacity ammunition-feeding devices, notwithstanding State, local, and certain Federal firearms laws. In advance of the final rulemaking, the NRC has designated, by order, seven power reactor licensees and one

Category I fuel facility licensee as being eligible to apply for Section 161A preemption authority to address the site-specific needs of these facilities. The NRC has taken these actions in consultation and coordination with the U.S. Attorney General, the U.S. Department of Justice, the Federal Bureau of Investigation (FBI), and the Bureau of Alcohol, Tobacco, Firearms, and Explosives.

The NRC plans to publish a proposed rule in 2015 that amends the drug-testing requirements of 10 CFR Part 26, "Fitness-for-Duty Programs," to 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." Specifically, the proposed changes would broaden the panel of drugs to be tested for during required drug testing, enhance medical review officer guidance, and improve the clarity of the organization and language of the rule.

The NRC continues to be an active participant in the Integrated Response (IR) Program, which is a partnership between the Federal government (the NRC and FBI) and the nuclear industry to improve Federal, State and local law enforcement tactical responses to beyond-DBT events at nuclear power plant sites. A schedule of IR Program activities is currently under development.

In accordance with 10 CFR Part 73.54, "Protection of Digital Computer and Communication Systems and Networks," nuclear power plant licensees and new license applicants are required to put a cyber-security program into place to ensure safety, important-to-safety, security, and emergency preparedness functions are protected from cyber attacks. Because of the significant amount of work and lead time required to carry out fully the provisions called for in the licensees' NRC-approved cyber-security plans, interim milestones were established to focus efforts on the highest-priority activities. Licensees completed the highest-priority activities in December 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. This was accomplished collaboratively 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 has begun inspecting activities related to the interim milestones and will complete these inspections in calendar year 2015.

The agency plans to amend 10 CFR Part 73 further by adding timely notification requirements for certain cyber-security events in 10 CFR 73.77, "Cyber Security Event Notifications." This rule would make generally applicable certain voluntary reporting activities associated with cyber-security events contained in security advisories. The rule also would establish new cyber-security event notifications that would contribute to the NRC's analysis of the reliability and effectiveness of licensees' cyber-security programs, playing an important role in the continuing effort to ensure digital computer and communication systems and networks are protected adequately against cyber attacks, up to and including the DBT. This rulemaking would increase the NRC's ability to respond to emergencies, monitor ongoing events, assess trends and patterns, and identify precursors of more significant events. This rulemaking also would enhance the NRC's ability to inform other NRC licensees, the U.S. Department of Homeland Security, and Federal intelligence and law enforcement agencies of cyber-security-related events and will enhance the agency's safety and security efforts.

The NRC is putting into place a cyber-security roadmap (SECY-12-0088, "The Nuclear Regulatory Commission Cyber Security Roadmap") to evaluate the need for cyber-security

requirements for fuel cycle facilities, non-power reactors, independent spent fuel storage installations, and byproduct materials licensees. Implementation of the roadmap will help ensure that appropriate cyber-security actions are carried out promptly and efficiently at all NRC-licensed facilities. Also, implementation of the roadmap will identify whether, or to what extent, the program needs to be improved.

The NRC is putting into place a path forward on EP communications and staffing issues identified in the NRC's assessment of the accident at the Fukushima Dai-ichi nuclear power plant in Japan (Near-Term Task Force Recommendation 9.3). The NRC has received and reviewed responses to information requests concerning licensee EP staffing and communications capabilities during severe accidents. Having completed its reviews of the communication assessments submitted to the NRC by licensees, the staff determined that proposed interim actions (e.g., portable satellite phones) combined with long-term enhancements (e.g., new radio systems, sound-powered telephones, battery-powered radio repeaters, and satellite phone systems) will help to ensure that licensees can communicate effectively during a station blackout event affecting multiple units. The staff also has completed its review of staffing assessments submitted by licensees and determined that the minimum onsite staff, as described in licensees' emergency plans, is sufficient to support required plant actions and emergency plan functions. Also, the staff has received and reviewed licensee submittals regarding current and planned multiunit/multisource dose assessment capabilities. Sixty-one power reactor sites submitted plans to implement an automated capability by December 31, 2014, and one power reactor site indicated it would implement an automated capability in 2015. In the interim, that site has the ability to perform multisource dose assessments through manual calculations until an automated capability can be implemented. The NRC also is in the process of incorporating several emergency preparedness related enhancements, including those described above, into a proposed rulemaking package.

The NRC revised EP regulations in 10 CFR Part 50, effective December 23, 2011. This was the first significant revision to the EP rules in over 30 years; implementation continued throughout FY 2014. Specifically, during this reporting period, the staff focused on the conduct of hostile-action-based (HAB) exercises at all nuclear power reactor sites. Power reactor licensees are required to demonstrate response to an HAB event as part of a biennial exercise by December 31, 2015. As of March 25, 2015, 34 HAB exercises have been completed. Licensees have demonstrated their ability to respond to a HAB event; carry out their emergency plans in response to the event; and coordinate onsite security, operations, and emergency response personnel with offsite response organizations.

In April 2012, the NRC and the Federal Emergency Management Agency (FEMA) began a multiyear initiative to revise NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," one of the key guidance documents for developing and evaluating onsite and offsite emergency plans for nuclear power plants and for the State and local governments whose personnel would respond to the plant sites. This initiative continued in FY 2014. The joint NRC/FEMA working group completed initial drafts of the introductory information in Section I and emergency plan evaluation criteria in Section II. Staff from the NRC and FEMA jointly conducted a series of public meetings on October 29–31, 2013, and June 25, 2014, to solicit feedback from stakeholders and members of the public on the initial drafts. The staff expects that a draft revision will be issued for public comment in the third quarter of FY 2015.

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 physical security and EP program licensing reviews for new power reactor applications remain on schedule. NRC staff is using its established licensing process to ensure that the safety and environmental reviews meet all milestones and provide appropriate opportunities for stakeholder input.

VIII. Power Uprates

There are three types of power uprates. A measurement uncertainty recapture power uprate increases licensed power output by less than two percent and it is based on using more accurate feed water flow measurement techniques. Stretch power uprates typically increase licensed power output up to seven percent and are within the design capacity of the plant. Stretch power uprates require only minor plant modifications. Extended power uprates increase licensed power beyond the original design capacity of the plant; therefore, they require major plant modifications.

Licensees have applied for and carried out power uprates since the 1970s as a way to increase the power output of their plants. NRC staff has reviewed and approved 156 power uprates to date. Approximately 21,979 megawatts thermal (MWt) or 7,326 megawatts electric (MWe) in electric generating capacity (the equivalent of about seven large nuclear power plant units) have been gained through the implementation of power uprates at existing plants. The NRC has two power uprate applications under review, which would add 1,674 MWt or 558 MWe to the Nation's electrical grid, if approved.

In December 2014, NRC staff conducted its most recent survey of nuclear power plant licensees' plans to submit power uprate applications over the next five years. This latest information says licensees plan to request power uprates for seven nuclear power plants during the next five years.

IX. New Reactor Licensing

The NRC is focusing on licensing and construction activities that support large light-water reactor applicants and licensees and is positioning itself for success in the advanced reactor program by investing in activities to establish the necessary regulatory framework and infrastructure for advanced reactors. The NRC's new reactor program is also actively engaged in several international cooperative activities to promote enhanced safety in new reactor designs, strengthen reactor siting reviews, and improve the effectiveness and efficiency of inspections and the collection and sharing of construction experience.

Large Light-Water Reactor Application Reviews

Although most new reactor applications have been or will be submitted and reviewed under the provisions of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," the NRC is reviewing one large light-water reactor application for an operating license using 10 CFR Part 50, which is discussed below.

10 CFR Part 50 Operating License Reviews

Watts Bar Nuclear Plant Unit 2

Watts Bar Nuclear Plant Unit 2 (WB2) is the only nuclear plant being reviewed for an operating license using 10 CFR Part 50. TVA received a construction permit for Watts Bar Nuclear Plant Units 1 and 2 in 1973 and submitted operating license applications for both units in 1976. Because of the identification of a large number of deficiencies, WB2 construction was suspended in the mid-1980s, with major structures in place and equipment such as reactor coolant system piping installed. TVA resumed construction on Unit 2 in late 2007 and submitted an updated operating license application in 2009.

NRC staff has issued seven supplemental safety evaluation reports (SSERs) documenting its safety review and published a supplement to the final environmental impact statement (FEIS). NRC staff is nearing completion of its safety review, which will be documented in future SSERs. The remaining open items that NRC staff is working to complete are instrumentation and control, emergency preparedness, fire protection, and confirmatory items that will be closed through inspections. The NRC expects to make a decision on issuing the operating license by July 2015.

Early Site Permit Reviews

PSEG Power, LLC, and PSEG Nuclear, LLC

PSEG Power, LLC, and PSEG Nuclear, LLC, submitted an early site permit (ESP) application on May 25, 2010. This application uses the plant parameter envelope approach, which includes design parameter information from four reactor designs, namely the U.S. EPR (formerly the U.S. Evolutionary Power Reactor), the Advanced Boiling-Water Reactor (ABWR), the U.S. Advanced Pressurized Water Reactor (US-APWR), and the AP1000®.

On March 5, 2014, NRC staff wrote PSEG identifying technical issues that need to be resolved for the staff to complete its review of the applicant's first-of-a-kind storm-surge analysis. In September 2014, PSEG submitted calculation packages to the NRC to support its storm-surge analysis. NRC staff is completing its detailed technical review of the applicant's information. On November 5, 2014, NRC staff issued a revised safety review schedule to PSEG and expects to issue its final safety evaluation report in September 2015.

NRC staff issued the draft environmental impact statement (DEIS) for the PSEG ESP application in August 2014 and conducted a public meeting in support of the DEIS in Carneys Point, NJ, on October 1, 2014, followed by a second public meeting in Middletown, DE, on October 23, 2014. The public comment period on the DEIS closed on December 6, 2014, and NRC staff is finalizing responses to all of the comments. NRC staff expects to issue the FEIS in September 2015.

Design Certification Reviews

Economic Simplified Boiling Water Reactor

NRC staff issued the final safety evaluation report (FSER) and final design approval for the Economic Simplified Boiling Water Reactor (ESBWR) on March 9, 2011, and published the proposed rule in the *Federal Register* on March 25, 2011. The NRC published a supplemental

proposed rule in the *Federal Register* on May 6, 2014, and issued the final supplemental FSER in June 2014. The NRC published the final rule in the *Federal Register* on October 15, 2014, and the rule became effective on November 14, 2014.

U.S. Evolutionary Power Reactor

AREVA, Inc., submitted the U.S. EPR design certification (DC) application on December 11, 2007.

On February 25, 2015, AREVA requested that the NRC suspend the U.S. EPR DC application review. AREVA further requested that the NRC post no new charges to the U.S. EPR DC docket after March 27, 2015, unless specifically authorized by AREVA. AREVA did not define an end date for the suspension period and said that it will contact the NRC before restarting the DC review. NRC staff is completing all actions to suspend its review, as requested by the applicant.

U.S. Advanced Pressurized Water Reactor

Mitsubishi Heavy Industries, Ltd. (MHI) submitted its US-APWR DC application on December 31, 2007. On November 5, 2013, MHI issued a letter informing the NRC of its plans to implement a coordinated slowdown of licensing activities related to the US-APWR DC application review. MHI stated that the slowdown is necessary to focus its resources on supporting Japanese utilities in restarting Mitsubishi-designed PWRs in Japan. On March 24, 2014, NRC staff began limiting its review of the US-APWR design to individual review areas identified by MHI and within MHI's budgetary allowance for this review. NRC staff will continue with its limited review, in a coordinated manner, until further notice from the applicant regarding a change to the review pace.

Advanced Power Reactor 1400

On December 23, 2014, under Subpart B, "Standard Design Certifications," of 10 CFR Part 52, Korea Electric Power Corp. (KEPCO) and Korea Hydro & Nuclear Power Co., Ltd (KHNP) submitted to the NRC their application for the certification of the Advanced Power Reactor 1400 (APR1400) standard plant design. NRC staff conducted an acceptance review and determined that the application is sufficiently complete and technically adequate to conduct its technical review. On March 4, 2015, NRC staff issued a letter to KHNP and KEPCO accepting the APR1400 design certification application for docketing and the docketing decision was published in the *Federal Register* on March 12, 2015. NRC staff has started its detailed technical review and is in the process of developing its review schedule.

DC Renewals

Advanced Boiling Water Reactor Renewal (Toshiba)

On November 2, 2010, Toshiba tendered an ABWR DC renewal application. Toshiba notified NRC staff of its intent to submit a revised application by letter dated February 9, 2011, and submitted Revision 1 of its ABWR DC renewal application on June 22, 2012. On October 22, 2012, NRC staff wrote Toshiba requesting consideration of amendments to the application. In response, Toshiba stated in a letter dated December 14, 2012, that it would carefully consider each of the staff's requests. In a letter to the NRC dated December 13, 2013, Toshiba stated

that it plans to submit Revision 2 of the renewal application no sooner than mid-2016 and requested that the NRC postpone its review of the application until Toshiba submits Revision 2.

ABWR Renewal (GEH)

On December 7, 2010, GEH tendered an ABWR DC renewal application. NRC staff wrote the applicant on July 20, 2012, requesting consideration of amendments to the application. By letter dated March 17, 2014, GEH informed the NRC that it plans to submit a revised application no sooner than May 2015.

COL Application Activities

As of March 31, 2015, the NRC has received 18 COL applications for review. Six of the COL reviews are suspended at the request of the applicants because of changes in the applicants' business strategies (River Bend, Bellefonte, Callaway, Harris, Comanche Peak, and Calvert Cliffs). Three COL applications have been withdrawn (Victoria, Nine Mile Point 3, and Grand Gulf Nuclear Station, Unit 3). COLs were issued for the Vogtle and Virgil C. Summer sites in 2012. NRC staff completed its review of the Fermi COL application in November 2014, and the Commission held the mandatory hearing on February 4, 2015. On April 30, shortly after the reporting period ended, the Commission issued a decision approving the issuance of the Fermi COL and on May 1, NRC staff issued the Fermi COL.

NRC staff is actively reviewing six COL applications for a total of ten units, as discussed below.

Levy County COL Application

On July 30, 2008, Progress Energy Florida, Inc. submitted a COL application for two AP1000 units to be located at its site in Levy County, FL.

NRC staff issued its FEIS for the Levy County COL application on April 27, 2012.

On December 8, 2014, NRC staff issued a letter to Duke Energy Florida (DEF). In the letter, NRC staff informed the applicant that because it has not provided the necessary information to resolve the outstanding technical issues on the Levy Units 1 and 2, COL application, the current safety review schedule cannot be achieved. The letter listed the specific unresolved technical issues that DEF needs to address to establish a revised review schedule. These unresolved technical issues relate to design modifications to the containment condensate return system as well as emerging AP1000 design issues that Westinghouse is addressing for the Vogtle and V.C. Summer COL licensees. The staff believes that three of these issues could be applicable to the Levy COL application safety review. The three issues involve main control room dose, main control room temperature during design-basis accidents, and the location of a hydrogen vent in containment.

William States Lee III COL Application

On December 13, 2007, Duke Energy Carolinas, LLC, submitted a COL application for two AP1000 units at its Lee site near Charlotte in Cherokee County, SC.

The NRC issued the FEIS on December 27, 2013.

NRC staff expects to issue the FSER for the Lee COL application in December 2015. However, the Lee COL application review also may be affected by the same AP1000 design issues described above for the Levy COL application review. By letter dated January 21, 2015, Duke Energy designated the Levy COL application as the lead for these AP1000 generic issues and acknowledged the potential schedule effects for the Lee COL application review. NRC staff is in the process of finalizing all other aspects of the Lee COL safety evaluations.

Turkey Point COL Application

On June 30, 2009, Florida Power & Light (FPL) submitted a COL application for two AP1000 units at the existing Turkey Point Nuclear Generating site in Miami–Dade County, FL.

On August 26, 2014, NRC staff notified FPL that the staff has resumed its review activities in the areas of geology, seismology, and geotechnical engineering and has established a review schedule. NRC staff expects to complete its safety review and issue an FSER in October 2016.

Technical issues remain with the geology, seismology, and geotechnical engineering reviews. FPL supplied information to address these technical areas on October 3, 2014, and Revision 6 of the application on October 29, 2014. NRC staff issued requests for additional information to the applicant in February 2015 and the applicant plans to submit its responses in July 2015.

On February 27, 2015, NRC staff submitted the DEIS for the Turkey Point, Units 6 and 7, COL application to the U.S. Environmental Protection Agency (EPA). The DEIS was developed in cooperation with the U.S. Army Corps of Engineers, Jacksonville District, and the National Park Service. The NRC and EPA notices of availability of the DEIS were published in the *Federal Register* on March 5 and March 6, 2015, respectively. Public meetings to solicit comments on the DEIS were held April 22, 2015, in Miami, FL, and April 23, 2015, in Homestead, FL. The DEIS comment period closes on May 22, 2015. The staff expects to publish the final EIS in February 2016.

South Texas Project COL Application

On September 20, 2007, STP Nuclear Operating Co. submitted a COL application for two ABWR units at its site near Bay City, in Matagorda County, TX. Subsequently, Nuclear Innovation North America LLC (NINA) became the lead applicant for STP, Units 3 and 4. The NRC published the FEIS on February 24, 2011.

NRC staff expects to issue the FSER for the STP COL application in September 2015. A significant open issue remains regarding the financial qualification of the applicant to receive a license. NRC staff determined that the applicant does not appear to meet the requirements of 10 CFR 50.33, “Contents of Applications; General Information,” and has not provided reasonable assurance that they can obtain funding for construction and operation of the new units.

By letter dated May 31, 2012, NINA informed the NRC that, as a merchant power plant, it would be difficult to secure funding before the issuance of a license. By the same letter, NINA requested that the Commission provide guidance to NRC staff regarding financial qualification of merchant plants.

NRC staff provided a policy paper to the Commission in November 2013 describing options for modifying the requirements for financial qualification reviews. In a staff requirements

memorandum dated April 24, 2014, the Commission directed the staff to engage in rulemaking to amend 10 CFR Part 50 financial qualifications demonstration requirements and to conform reactor financial qualification requirements to the standards of 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material." The rulemaking would allow a license to be issued with license conditions addressing financial qualifications.

On June 19, 2014, NINA submitted an exemption request to the NRC related to financial qualifications. NRC staff is reviewing the applicant's exemption request and is developing a path forward and schedule for addressing the issue. In accordance with the Commission's April 2014 staff requirements memorandum, NRC staff is coordinating its review of the exemption request with the rulemaking effort that is underway.

Calvert Cliffs COL Application

On July 13, 2007, and March 14, 2008, Calvert Cliffs Unit 3 Nuclear Project, LLC, and UniStar submitted a two-part COL application for a U.S. EPR at the Calvert Cliffs site near Lusby in Calvert County, MD.

On February 27, 2015, UniStar Nuclear Energy (UNE) requested that the NRC suspend its review of the Calvert Cliffs, Unit 3, COL application. UNE stated that its request to suspend this review is because of AREVA's request to suspend all review activities for the U.S. EPR DC application. UNE did not define an end date for the suspension period in its letter to the NRC. NRC staff is completing all actions to suspend its review, as requested by the applicant.

Bell Bend COL Application

On October 10, 2008, PPL Bell Bend, LLC (PPL), submitted a COL application for a U.S. EPR at a new site adjacent to its Susquehanna Steam Electric Station in Luzerne County, PA.

On January 9, 2014, PPL, wrote the NRC requesting the Commission withhold further review of the safety portion of the Bell Bend COL application until further notice. PPL also requested that the NRC continue to support the necessary work leading to the issuance of the FEIS. NRC staff has suspended its review of the safety portion of the COL application as requested by the applicant. By letter dated March 4, 2015, PPL reiterated its request to withhold further review of the safety portion of the Bell Bend COL application, in light of the suspension of both the U.S. EPR design certification and Calvert Cliffs COL reviews, until further notice.

On October 15, 2014, NRC staff issued a revised schedule for the Bell Bend COL application environmental review. Under the new schedule, the staff plans to issue the DEIS in April 2015, followed by the FEIS in April 2016.

Fermi COL Application

On September 19, 2008, DTE submitted a COL application for an ESBWR at its Fermi site near Newport City, in Monroe County, MI.

NRC staff published the FEIS in January 2013 and issued its FSER in November 2014. The Commission held the mandatory hearing for the Fermi 3 COL application on February 4, 2015.

The U.S. Fish and Wildlife Service (FWS) made its final determination to list the red knot bird on December 11, 2014, as a threatened species under the Endangered Species Act. On February

20, 2015, the NRC issued a supplemental biological assessment to the FWS related to the listing of the red knot as a threatened species in the vicinity of the proposed Fermi 3 site. In the biological assessment, NRC staff determined that the proposed action may affect but is not likely to adversely affect the rufa red knot. By letter dated March 23, 2015, the FWS concurred with the staff's conclusion.

The northern long-eared bat (NLEB) was also listed as a threatened species under the Endangered Species Act on April 2, 2015. Subsequently, the staff submitted a biological assessment to the FWS addressing the NLEB that concluded that constructed and operation of Fermi Unit 3 may affect but is not likely to adversely affect the NLEB. The listing of the NLEB was not effective until May 4, 2015, however, by letter dated April 28, 2015, the FWS concurred with the staff's conclusion. The Commission authorized issuance of the COL for Fermi 3 on April 30, 2015.

North Anna COL Application

On November 27, 2007, Dominion Virginia Power submitted a COL application for an ESBWR at its North Anna Power Station site near Richmond, in Louisa County, VA. The FSEIS was issued in February 2010.

On June 28, 2010, Dominion submitted a revised application to cite the US-APWR design. However, on April 25, 2013, Dominion notified the NRC of its intent to revert back to the ESBWR design. Dominion submitted its partially revised COL application in July 2013 to reflect its revised nuclear technology decision and submitted all remaining application sections to the NRC in December 2013.

NRC staff's current schedule contemplates completing its FSER for the North Anna COL application in March 2016. On October 22, 2014, however, Dominion submitted its seismic closure plan which describes a modified approach to performing certain aspects of its seismic analysis to address exceedances to the ESBWR seismic design limitations. The schedule that Dominion outlined in its closure plan includes issuing technical reports and responses to staff questions through calendar year 2015 and does not support a March 2016 review completion. NRC staff is evaluating impacts to the overall safety review schedule.

On January 29, 2015, NRC staff issued a *Federal Register* notice withdrawing its previously noticed intent to prepare a supplement to the 2010 COL FSEIS. The staff continues to follow its routine process for determining whether newly identified information meets the criteria of 10 CFR 51.92, "Supplement to the Final Environmental Impact Statement," for supplementing the FSEIS. NRC staff is consulting with the National Marine Fisheries Service and FWS to update its biological assessments required under Section 7 of the Endangered Species Act.

Comanche Peak COL Application

On September 19, 2008, Luminant submitted a COL application for two US-APWR units at its Comanche Peak site near Glen Rose in Somervell County, TX. The FEIS was issued in May 2011.

On November 7, 2013, Luminant submitted a letter to the NRC requesting that all review activities associated with the Comanche Peak Units 3 and 4, COL application be suspended by March 31, 2014.

Shearon Harris COL Application

On February 19, 2008, Progress Energy Carolina, Inc. submitted a COL application for two AP1000 units at its Shearon Harris Nuclear Power Plant site near New Hill in Wake County, NC.

On May 2, 2013, Duke Energy wrote the NRC requesting that the Commission suspend review of the Shearon Harris, Units 1 and 2, COL application.

Bellefonte COL Application

On October 30, 2007, TVA submitted a COL application for two AP1000 units (Units 3 and 4) at its Bellefonte site near Scottsboro in Jackson County, AL.

On August 18, 2011, the TVA board approved plans for the completion of Bellefonte Unit 1, with the goal of having it completed and operational by 2020. By letter dated December 19, 2011, TVA reaffirmed that the Bellefonte Units 3 and 4, COL applications continue to be deferred indefinitely.

Callaway COL Application

On July 28, 2008, the AmerenUE subsidiary, now known as Ameren Missouri, of Ameren Corp. submitted a COL application for a U.S. EPR at its Callaway plant site in Callaway County, MO. The NRC suspended the Callaway review at the request of the applicant in June 2009 and it remains suspended.

Grand Gulf COL Application

On February 27, 2008, Entergy submitted a COL application for an ESBWR at its Grand Gulf Nuclear Station site near Port Gibson in Claiborne County, MS.

By letter dated January 9, 2009, Entergy asked the NRC to suspend, until further notice, its review of the docketed COL applications for the River Bend Station, Unit 3, and Grand Gulf Unit 3. On February 9, 2015, Entergy Operations, Inc. (Entergy) wrote the NRC announcing withdrawal of the Grand Gulf Unit 3 COL application. NRC staff is in the process of formally closing the COL application and will publish a *Federal Register* notice announcing Entergy's withdrawal of the application.

River Bend Station COL Application

On September 25, 2008, Entergy submitted a COL application for an ESBWR at its River Bend Station site near St. Francisville, LA. By letter dated January 9, 2009, Entergy requested a suspension, until further notice, of the NRC's review of the docketed COL applications for River Bend Station, Unit 3, and Grand Gulf, Unit 3. The review remains suspended.

Regulatory Infrastructure

The NRC continues to enhance its regulatory infrastructure to support planning, licensing, and oversight of new and advanced reactor applications by carrying out timely and effective policy decisions and by enhancing and updating regulatory guidance for light-water reactors. In addition to updating regulatory guidance, the NRC is also reviewing its internal processes to enhance the efficiency and effectiveness in its application review process. The NRC conducts

these regulatory infrastructure enhancements in an open and transparent manner with several opportunities for external stakeholder input. In addition, the NRC rigorously assesses licensing and oversight performance and uses the results to inform these regulatory infrastructure activities.

Examples of infrastructure activities completed during the reporting period are described below.

New Reactor Lessons-Learned Activities

The NRC continues to address lessons learned that have been documented in staff performed self-assessments, "New Reactor Licensing Process Lessons Learned Review: 10 CFR Part 52," dated March 2013 and "Title 10 of the Code of Federal Regulations Part 52 Implementation Self-Assessment Review: 1 Year Post Combined License Issuance," dated July 2013. In response to recommendations in these assessments, in December 2014 the staff issued updated acceptance review guidelines for new reactor applications and in January 2015 the staff submitted to the Commission SECY-15-0002, "Proposed Updates of Licensing Policies, Rules, and Guidance for Future New Reactor Applications."

In addition, the staff is putting into place the recommendations contained in the report titled "Assessment of the Staff's Readiness To Transition Regulatory Oversight and Licensing as New Reactors Proceed from Construction to Operation," dated September 2014.

Revision to the June 2007 Version of Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR [light-water reactor] Edition)"

NRC staff has started a broad-scope revision of Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants." The revision expands the scope of the guidance for all licensing processes under 10 CFR Part 52, including (for example) design certifications and ESPs. The revision will provide a significant update to the contents, capturing lessons learned from recent licensing actions, as well as new and revised regulations. The revision is a long-term project being carried out in phases and includes interactions with stakeholders and the public. For example, public meetings were held in September 2014 and March 2015 to acquire stakeholder feedback on revised sections.

NUREG-0800 Standard Review Plan (SRP) Updates

NRC staff continues its systematic update of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," to support reviews of COL, DC, ESP, limited work authorization applications, and license amendment requests. The staff published several notices in the *Federal Register* requesting public comment on proposed revisions, or finalizing previously issued proposed guidance, during the reporting period. These include sections on seismic and structural analysis, and severe accident and probabilistic risk assessment evaluation. The staff is currently working towards finalizing several other proposed revisions issued in 2014. Additionally, the staff is revising guidance on site characteristics and parameters, balance of plant systems, and inspections testing analysis acceptance criteria (ITAAC), as well as revising Part One of the Introduction to NUREG-0800. The staff plans to issue publish these proposed revisions in the *Federal Register* during 2015.

Construction Oversight

Construction under 10 CFR Part 50

Many of the required NRC construction inspections for WB2 were completed or partially completed before suspension of construction in the mid-1980s. When construction resumed, NRC staff reassessed the inspection program for WB2 and identified over 500 items that required inspection and closure. Over the past year, construction inspections have continued and 467 of the 553 inspection items have been closed. The inspections were conducted by four construction resident inspectors and inspectors from the NRC regional office in Atlanta, GA. As TVA has completed construction on individual safety-related systems, NRC inspections of preoperational testing have been performed. The remaining preoperational testing inspections, along with startup testing inspections, are anticipated to take place in 2015. TVA estimates that the unit will be complete and ready for operation between September and December of 2015, pending the NRC's decision on the issuance of an operating license.

Construction under 10 CFR Part 52

The NRC issued COLs to Southern Nuclear Operating Co. and several co-owners on February 10, 2012, for two AP1000 units at the Vogtle site near Augusta, GA, and to South Carolina Electric & Gas Co. on March 30, 2012, for two AP1000 units at the V.C. Summer site near Columbia, SC. As construction progresses, the NRC has increased the pace of construction inspections to verify compliance with the agency's regulations and to ensure that the new plants are constructed in accordance with their combined licenses. The inspections are conducted by four permanently assigned construction resident inspectors at each site and by inspectors from the NRC regional office in Atlanta, GA, with assistance from headquarters staff, as needed.

Safety-related construction activities at Vogtle, Units 3 and 4, and V.C. Summer, Units 2 and 3, have focused on the construction of the nuclear island walls, fabrication of steel containments, and the fabrication and placement of structural modules for containment and the auxiliary building. In addition, both licensees have a wide variety of other construction activity ongoing. Recent NRC inspections have focused on activities such as concrete placement, welding, module fabrication, and civil/structural engineering. NRC inspection activity will continue to increase as licensees broaden the scope of construction.

NRC staff and industry continue to refine the processes and guidance developed for closure verification of ITAAC based on current experience of completing ITAAC and reviewing submitted ITAAC closure notifications (ICNs). The staff has facilitated several public workshops to solicit input, exchange views, and reach consensus on several issues, including industry's development of the fifth revision to the Nuclear Energy Institute (NEI) guidance document on the ITAAC closure process. The latest revision to the NEI guide was submitted to the NRC in June 2014. NRC staff reviewed the document and issued a letter in July 2014 stating that the document was acceptable for use by licensees during the formal NRC endorsement process, which included a 60-day public comment period that ended early March 2015. The final regulatory guide endorsing the NEI document is expected to be published by June 2015.

As of March 1, 2015, a total of 38 ICNs have been submitted for Vogtle, Units 3 and 4, and V.C. Summer, Units 2 and 3. The staff reviews all ICNs to determine whether they contain sufficient information to demonstrate that the ITAAC have been successfully completed by the licensee, as required by 10 CFR 52.99(c)(1). The staff has completed its review of 37 of the

submitted ICNs and, as required by 10 CFR 52.99(e)(1), has published notices in the *Federal Register* to document NRC staff's verification that the associated ITAAC have been completed. The remaining submitted ICN is under review by NRC staff.

The NRC has established the Construction Reactor Oversight Process (cROP) at the four new reactor units. Using practices similar to those of the ROP, the NRC will continue to meet periodically with interested stakeholders to collect feedback on the effectiveness of the process, which is then considered in making future refinements to the cROP. The agency's most recent performance assessments show that reactor construction is being conducted safely because all four units are in the licensee response band of the construction action matrix. Plant assessments and the latest cROP-related information are publicly available on the NRC Web site.

Vendor Inspections

NRC staff continued to carry out the Vendor Inspection Program for vendors supporting both new and existing reactor licensees. Inspection activities for new reactors include continued testing of the design and qualification of key AP1000 valves, the development and verification of the AP1000 digital instrumentation and control (I&C) system, monitoring resolution of reactor coolant pump testing and design, and continued inspection of modular construction at vendor facilities. Inspections related to existing reactors identified issues such as inadequate dedication of safety-related crane components, improperly calculated radiation doses used to age equipment for environmental qualification, and improper control of the manufacturing process for safety-related wire and cables. As part of efforts to share lessons learned from its Vendor Inspection Program, NRC staff continues to participate in many other quality-assurance and inspection-outreach activities, including meetings related to the Nuclear Procurement Issues Committee, the EPRI Joint Utility Task Group, and Section III of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, as well as meetings with NEI. NRC staff leverage the work of international regulators through the Multinational Design Evaluation Program Vendor Inspection Cooperation Working Group and completion of a safety evaluation on an NEI report allowing the use of accredited international laboratories for testing and calibration.

NRC staff continues its rulemaking efforts to clarify 10 CFR Part 21, "Reporting of Defects and Noncompliance," in ways consistent with its proposal in Commission paper SECY-11-0135, "Staff Plans to Develop the Regulatory Basis for Clarifying the Requirements in 10 CFR Part 21." Revision 0 of the draft regulatory basis was made public in December 2012 to solicit early stakeholder feedback and the staff subsequently hosted a series of public meetings. This feedback was incorporated in Revision 1 of the draft regulatory basis, which was made public in March.

Advanced Reactors

"Advanced reactors" refer to those designs of commercial reactors that employ either light-water or non-light-water technology and that incorporate the Commission's expectations set forth in the *Federal Register* as the Policy Statement on the Regulation of Advanced Reactors (73 FR 60612; October 14, 2008). Although vendors and advocates have approached the NRC for a variety of reactor technologies, NRC staff has focused its attention on light-water small modular reactors (SMRs) because of expected near-term application submittals. NRC staff has undertaken activities to prepare for applications for SMRs that may arrive as early as 2015.

Below is a status update of the pre application activities that the NRC has engaged in with SMR vendors and other advanced reactor designers.

Light-Water Small Modular Reactors

NuScale

By letter dated March 10, 2014, NuScale announced a DC application submittal date of the second half of CY 2016. The U.S. Department of Energy has awarded NuScale up to $217 million to support its DC application, and on May 28, 2014, NuScale and the department completed their SMR cooperative agreement.

The staff is preparing a design-specific review standard that would function like the standard review plan and addresses safety and risk categorization for the systems, structures, and components of the NuScale design.

Personnel from the NRC and NuScale continue to meet to discuss various aspects of the design, such as steam and power conversion systems, electrical systems, control room and plant staffing, source term, auxiliary systems, I&C, severe accident analysis, emergency planning zones, and containment design.

Generation mPower LLC and B&W

Since mid-2009, NRC staff has been engaged in pre-application interactions with the Babcock & Wilcox Co. (B&W), and subsequently Generation mPower LLC (GmP), in preparation for receiving an application for certification of the mPower SMR design. On April 14, 2014, B&W announced plans to restructure its mPower Small Modular Reactor Program with a substantial decrease in annual spending. B&W has not stated when it intends to submit a design certification application for the mPower design.

The NRC has had very limited pre-application interactions with B&W and GmP since the spring of 2014. However, one technical topic has remained under review during this time. In anticipation of an application related to the mPower design, NRC staff developed the first design-specific review standard (DSRS). Issuance of the final version of the DSRS is on hold until it is clear that the mPower design application will be tendered and that the tendered design will be sufficiently similar to the assumptions used to develop the DSRS to ensure the adequacy of the new guidance.

TVA Clinch River Early Site Permit Application

TVA has stated that it plans to apply for a 10 CFR Part 52 ESP for the Clinch River site near Oak Ridge, TN, in late 2015. This application will be based on a plant parameter envelope characterizing several light-water small modular reactor designs. NRC staff will be conducting meetings with TVA to discuss site safety and environmental issues in preparation for this application. TVA has also stated that it anticipates submitting a 10 CFR Part 52 combined license application about six months after a vendor submits an application requesting certification of the design proposed to be deployed at Clinch River.

Westinghouse and Ameren

Westinghouse is developing a 225-MWe power output SMR (WSMR) design and has stated that the smaller-scale features of the WSMR are analogous to those of the AP1000 design certified under 10 CFR Part 52. NRC staff held pre-application activities with Westinghouse at NRC headquarters on several occasions in past years and discussed topics such as reactor design, security, and seismic issues; soil and structures; piping; and safety analysis. In addition, NRC staff is finalizing a topical report regarding Westinghouse's identification and ranking of small-break loss-of-coolant accident phenomena. Westinghouse responded to RIS 2013-18, "Licensing Submittal Information and Design Development Activities for Small Modular Reactor Designs," and stated that it intends to submit a design certification for the WSMR at some point in the future but did not specify a date. Ameren Missouri had previously stated that it intended to submit a COL application for multiple WSMR units at the existing Callaway site but is now evaluating other SMR options.

Holtec International ("Holtec")

Holtec is developing the Holtec SMR 160 design, which features a 160-MWe power output. On January 30, 2014, Holtec provided a response to RIS 2013-18. In the response, Holtec noted that current SMR 160 design project work is focused on those engineering and analysis activities necessary to complete the plant design specification and underpinning engineering records before preparing a design certification application. Holtec had communicated plans to submit a design certification application in the fourth quarter of CY 2016 in their RIS 2012-12 response; however, they are now reevaluating this date.

Other Reactor Technologies

Several private industry reactor designers and vendors have held discussions with the NRC regarding different non-LWR designs. NRC staff maintains awareness of DOE's research programs for non-LWR technologies and the development of non-LWRs within the international community.

The NRC and Department of Energy (DOE) are working on an initiative to develop advanced reactor design criteria that could be used for the licensing of non-LWR designs. DOE completed a draft set of design criteria for advanced reactors and submitted it to the NRC in December 2014. The NRC will now begin its guidance development process and use the DOE report as input, with the intended outcome of this initiative being NRC-issued regulatory guidance for use by NRC staff and future non-LWR applicants.