

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

**For the Reporting Period of January 1 through March 31, 2020**

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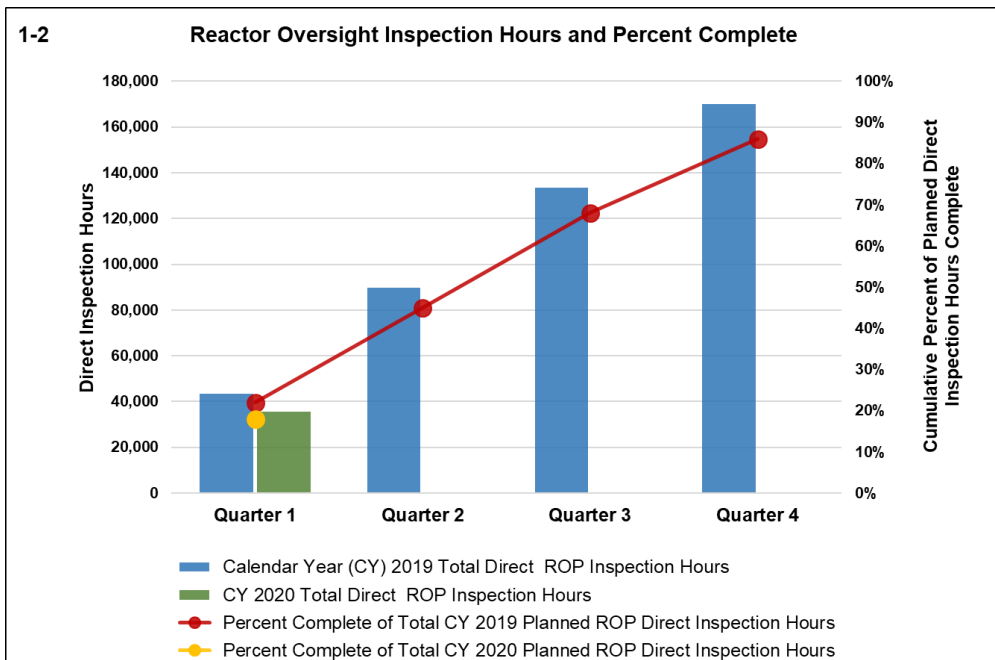
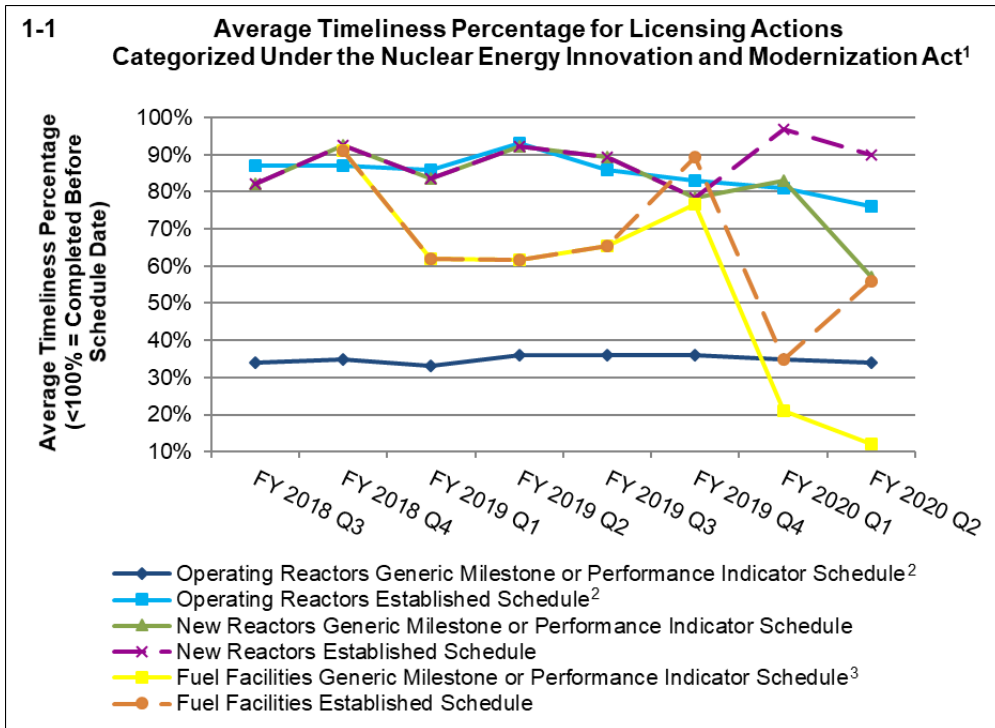
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## Enclosure 1 - High Level Summary

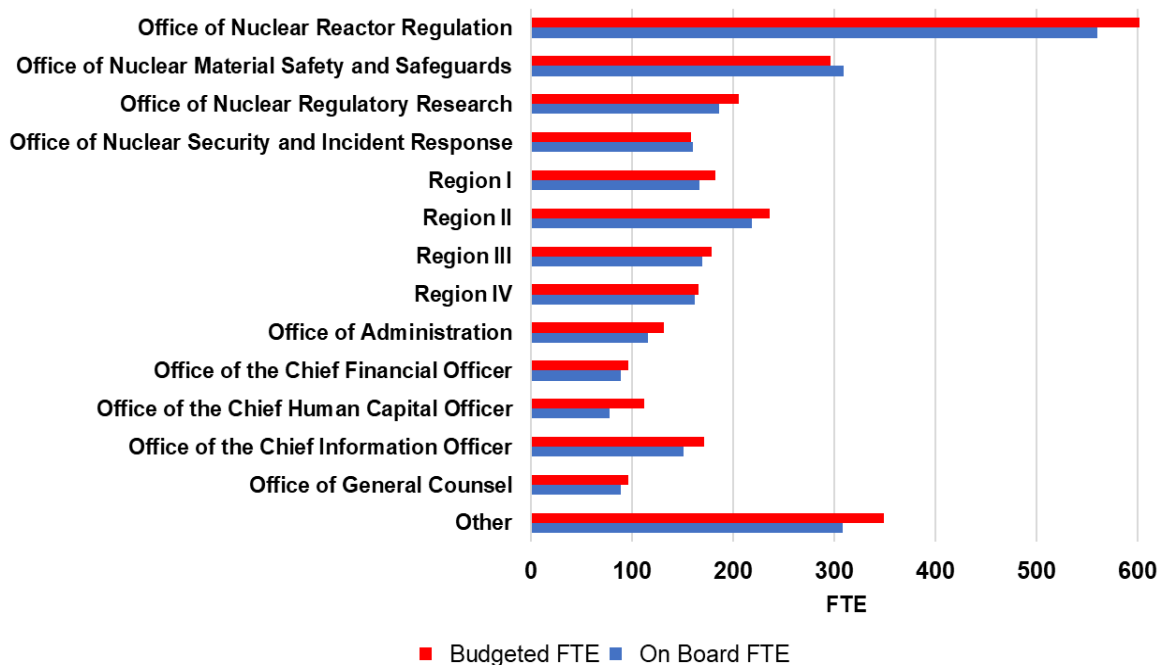


<sup>1</sup> Timeliness data are not available for Fuel Facilities in Fiscal Year (FY) 2018 Quarter (Q)3.

<sup>2</sup> Prior results were corrected to remove actions inadvertently included that are not "requested activities of the Commission" consistent with the Nuclear Energy Innovation and Modernization Act (NEIMA) Section 102(c).

<sup>3</sup> The FY 2020 Q1 data for Fuel Facilities has been updated to include two additional data points not previously recorded. A majority of the licensing actions for Fuel Facilities were completed well ahead of the generic milestone schedule during the reporting period.

### 1-3 Full-Time Equivalents (FTE) at the End of FY 2020 Q2 vs. Budgeted FTE

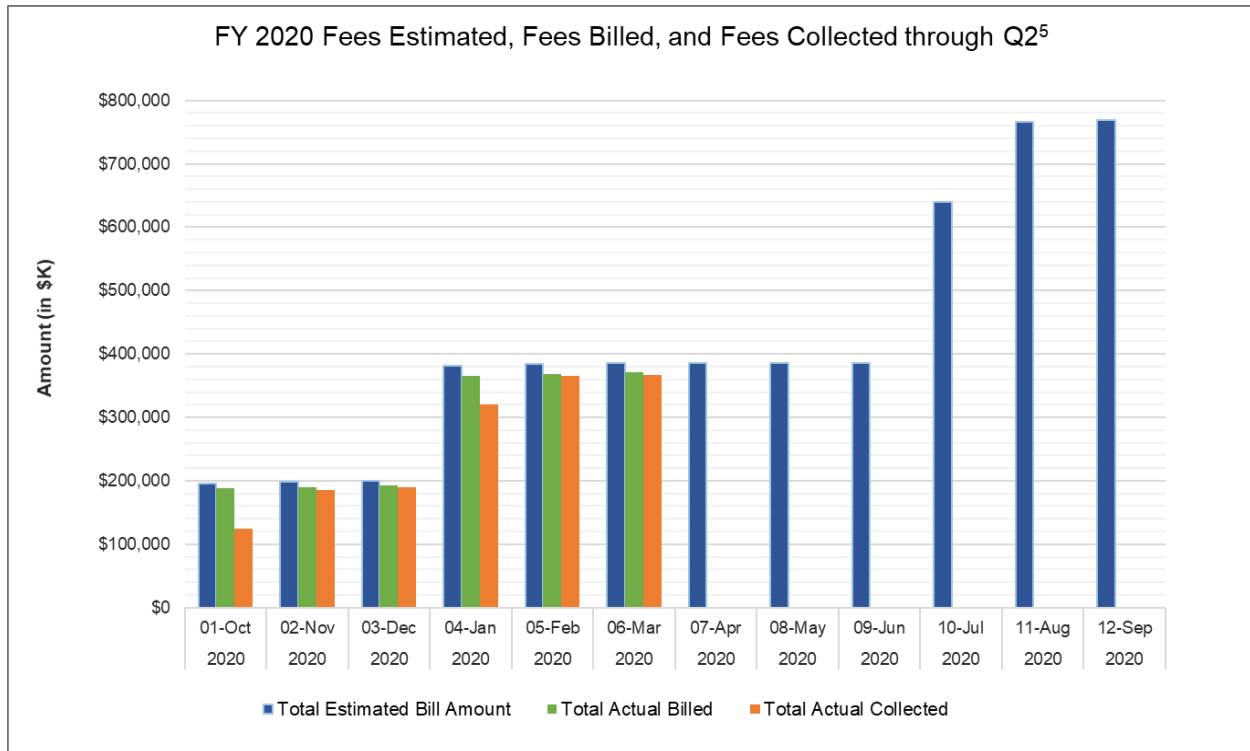


### 1-4 NRC FY 2020 Budget Authority - Mar. 31, 2020 (Dollars in Thousands)

Fund Sources	FY 2020 Budget <sup>4</sup>	Percent Obligated	Percent Expended
Advanced Reactor	\$15,844	38%	28%
Commission Funds	\$11,953	24%	24%
Fee-Based Funds	\$825,430	45%	35%
General Funds	\$1,303	10%	10%
International Activities	\$14,500	47%	32%
Integrated University Program	\$16,000	0%	0%
Official Representation	\$25	49%	19%
<b>Total</b>	<b>\$885,055</b>	<b>44%</b>	<b>34%</b>
NRC Control Points	FY 2020 Budget <sup>4</sup>	Percent Obligated	Percent Expended
Nuclear Reactor Safety	\$447,940	47%	40%
Nuclear Materials and Waste Safety	\$103,191	44%	37%
Decommissioning and Low-Level Waste	\$22,891	47%	40%
Corporate Support	\$295,033	42%	24%
Integrated University Program	\$16,000	0%	0%
<b>Total</b>	<b>\$885,055</b>	<b>44%</b>	<b>34%</b>

<sup>4</sup> FY 2020 budget includes the enacted and carryover budget.

Total Year to Date (YTD) FTE Utilization	Projected End of Year FTE Total Utilization	Quarter 2 Hiring	Quarter 2 Attrition	YTD Hiring	YTD Attrition
1397.4	2809.8	19	85	41	119



Total 10 CFR Part 170 Fees Billed (Dollars in Millions)		
FY 2018	FY 2019	FY 2020 (Q1 - Q2)
\$266.0	\$245.3	\$109.6

On January 31, 2020, the U.S. Department of Health and Human Services declared a public health emergency (PHE) for the United States to aid the nation's healthcare community in responding to the Coronavirus Disease 2019 (COVID-19). On March 11, 2020, the COVID-19 outbreak was characterized as a pandemic by the World Health Organization. Shortly before the completion date for this reporting period, NRC began taking precautionary measures in response to COVID-19 PHE to ensure the health and safety of our workforce in accordance with guidance provided by the Federal Government, including the Centers for Disease Control and Prevention, as well as State and local authorities. Impacts to NRC activities during this reporting period were minimal and, where appropriate, are noted in this report. Future reports will also include additional impacts resulting from NRC's response to COVID-19 PHE.

<sup>5</sup> In order to temporarily mitigate the financial impacts and economic disruptions caused by the COVID-19 PHE for licensees, the NRC has deferred all invoices scheduled to be issued in April, May, and June 2020 until July 22, 2020.

## Enclosure 2

Enclosure 2 provides the status of specific items of interest including a summary of the item, the activities planned and accomplished under each item within the quarter, and projected activities under each item for the next two quarters.

### 2-1 Transformation

The U.S. Nuclear Regulatory Commission's (NRC) transformation initiative currently encompasses a broad set of activities intended to advance the agency towards the vision of being a more modern, risk-informed regulator. There are four focus areas: (1) recruiting, developing, and retaining a strong workforce; (2) improving decisionmaking through the acceptance of an appropriate level of risk without compromising the NRC's mission; (3) establishing a culture that embraces innovation; and (4) adopting new and existing information technology resources. The NRC staff has launched seven initiatives that support these four focus areas:

- 1) Be riskSMART:<sup>6</sup> Developing a common understanding of risk and implementing a framework that supports consistent processes and guidance that give staff confidence in considering risk information as part of decisionmaking without compromising the NRC's safety mission.
- 2) Agency Desired Culture: Building into our culture a mindset that welcomes change while reinforcing appropriate behaviors and outcomes.
- 3) Career Enhancement: Clearly communicating opportunities to ensure that all staff understand the potential paths that will enable them to grow throughout their careers.
- 4) Innovation: Finalizing and implementing the new Innovate NRC 2.0 process and technology platform agencywide to create and sustain a culture of innovation.
- 5) Process Simplification: Simplifying and reinforcing our processes to achieve greater efficiency.
- 6) Signposts and Markers: Identifying key signposts and markers pertinent to anticipating future agency workload and adapting our decisionmaking processes to incorporate these indicators to ensure the agency is better prepared to adapt to a changing external landscape.
- 7) Technology Adoption: Enabling all staff to easily and efficiently complete their work with available technology and increasing the use of new and existing technology across the agency.

#### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

Transformation Activities	Projected Completion Date	Completion Date
Complete the first session in a series of interactive staff learning sessions on the use of Microsoft Office 365	01/06/20	01/06/20

<sup>6</sup> This activity will produce a framework that gives the staff confidence in incorporating risk considerations in decisionmaking without compromising the NRC's safety and security mission. The framework will inform technical and corporate decisions ranging from reactor safety to fee revenue activities. The purpose is to enhance safety and operational effectiveness by appropriately focusing resources on high-value mission priorities.

Transformation Activities	Projected Completion Date	Completion Date
productivity tools that the agency recently acquired. A total of 31 sessions have been conducted through the end of March. This effort was key in the success of the mandatory full-time telework during the agency pandemic response.		
Launch “Be riskSMART” as an agencywide framework for the consideration of risk information in decisionmaking across technical, corporate support, and legal portfolios without compromising NRC’s safety mission.	01/17/20	01/17/20
Synthesize information about staff training and human capital initiatives into a single user-friendly infographic to highlight opportunities for enhanced professional development.	04/15/20	03/31/20

#### Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

Projected Transformation Activities	Projected Completion Date
Conduct a staff survey to identify elements of the agency culture that should be addressed to enhance the acceptance of transformation.	04/03/20 <sup>7</sup>
Brief the Commission on staff’s transformation activities (public meeting).	05/18/20 <sup>8</sup>
Implement a new process to recognize staff who contribute innovative ideas for improving the work of the agency.	05/31/20
Launch the Innovate NRC 2.0 technology platform and begin agencywide training to facilitate innovation, such as anticipated crowdsourcing.	06/20/20 <sup>9</sup>
Complete training of senior leaders to better understand behavior and how to effect cultural change as a part of the transformation initiative.	07/31/20
Conduct seminar for all agency staff on strategic and managerial aspects of risk-informed decisionmaking.	09/01/20
Develop the first iteration of the initial nuclear energy sector indicators to pilot in decisionmaking processes, such as workforce planning and the agency environmental scan development.	09/30/20
Complete pilot of a streamlined process for preparing Commission papers.	09/30/20

## **2-2 Workforce Development and Management**

The NRC implemented a Strategic Workforce Planning (SWP) process to improve workforce development to meet its near- and long-term work demands. This process projects the amount and type of work anticipated in the next 5 years and identifies the workforce needed to perform

<sup>7</sup> Completion of the survey was previously scheduled for March 31, 2020. The survey completion date was extended to April 3, 2020, to accommodate work schedule disruptions associated with the COVID-19 PHE.

<sup>8</sup> The Commission briefing on the staff’s transformation activities has been postponed due to circumstances surrounding the COVID-19 PHE. A revised date will be provided once the meeting can be rescheduled.

<sup>9</sup> Launch of the Innovate NRC 2.0 technology platform was previously scheduled for March 31, 2020. The launch date is delayed to conduct additional pilot testing and to accommodate work schedule disruptions associated with the COVID-19 PHE.

that work. By analyzing the current workforce and comparing it to future needs, skill gaps or surpluses can be identified. In the final step of the process, both short- and long-term strategies are developed to enable the agency to recruit, retain, and develop a skilled and diverse workforce with the competencies and agility to address both current and emerging needs and workload fluctuations.

Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

<b>Workforce Development and Management Activities</b>	<b>Projected Completion Date</b>	<b>Completion Date</b>
Continue SWP agencywide implementation by developing a workforce demand and conducting a supply analysis of the current workforce. The information collected during these steps will support development of strategies to ensure the agency has the workforce it needs to achieve its mission now and in the future.	03/16/20	03/16/20

Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

<b>Projected Workforce Development and Management Activities</b>	<b>Projected Completion Date</b>
Onboard entry-level hires for NRC's new training program, the Nuclear Regulator Apprenticeship Network, and begin 14 weeks of initial training in areas such as regulatory and technical fundamentals.	06/22/20
Continue SWP agencywide implementation by developing a workforce supply analysis and a prioritized list of workforce gaps and surpluses.	06/27/20

## **2-3 Accident-Tolerant Fuel**

The NRC is making significant progress in its preparation for licensing reviews of Accident-Tolerant Fuel (ATF) designs for use in U.S. commercial power reactors. The NRC staff is currently executing the ATF project plan (Agencywide Documents Access and Management System (ADAMS) Accession No. [ML19301B166](#)), and is preparing for imminent ATF submittals from fuel vendors in fall 2020. The NRC staff remains prepared to begin reviews of coated cladding and doped fuel technologies upon submission to the NRC. On the front-end of the fuel cycle, the NRC is currently reviewing ATF-related requests to allow: an enrichment facility to enrich fuel above 5 percent; a fuel fabrication facility to manufacture fuel above 5 percent enrichment; and the transportation of fuel rods with different cladding and fuel enriched to up to 7 percent. Additionally, the NRC is updating its computational analysis tools for ATF using data from public literature and nuclear fuel vendors. The NRC staff continues to participate in international research programs to obtain data for code validation and to enhance its understanding of ATF and high burnup behavior under normal and accident conditions.



#### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

ATF Activities	Projected Completion Date	Completion Date
Publish notice of availability of the final Interim Staff Guidance on chromium-coated cladding in the <a href="#">Federal Register</a> .	01/17/20	01/09/20
Conduct ATF Commission Meeting (ADAMS Accession No. <a href="#">ML20058F069</a> ).	02/25/20	02/25/20

#### Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

Projected ATF Activities	Projected Completion Date
Complete a revision to a certificate of compliance (CoC) from GE Hitachi Nuclear Energy to allow transport of irradiated BWR ATF fuel including FeCrAl cladding. <sup>10</sup>	04/30/20
Complete safety evaluation regarding URENCO Louisiana Energy Services' license amendment request to allow enrichment up to 5.5 percent.	05/21/20
Conduct a pre-application meeting for a new UF <sub>6</sub> transportation package with up to 10 percent enrichment (ADAMS Accession No. <a href="#">ML20118C770</a> ).	06/10/20
Update of ATF website on NRC.gov.	07/31/20
Conduct high burnup public workshop to clarify the path forward for high burnup submittals.	08/31/20

## **2-4 Digital Instrumentation and Control**

The NRC Integrated Action Plan (IAP) for digital instrumentation and control (I&C) (ADAMS Accession No. [ML16126A137](#)) defined key improvement activities and the actions for completing modernization efforts. The IAP includes four modernization plans (MPs): (1) Protection Against Common Cause Failure (MP1); (2) Considering Digital I&C in Accordance with 10 CFR 50.59, "Changes, Tests, and Experiments" (MP2); (3) Commercial Grade Dedication of Digital Equipment (MP3); and (4) Assessment for Modernization of the I&C Regulatory Infrastructure (MP4). The NRC staff is now preparing for anticipated license amendment requests, including pre-application activities with potential applicants. Specifically, five pre-application meetings were held with Entergy between August 29, 2019, and March 19, 2020, in anticipation of an application being submitted in July 2020 for Waterford Steam Electric Station, Unit 3, and the staff anticipates having a pre-application meeting with the licensee in June 2020. The staff also has monthly meetings with the U.S. Department of Energy, which is providing support for an additional application. The NRC will manage the remaining infrastructure activities described below through routine internal processes, as described in SECY-19-0112, "Annual Update on the Integrated Strategy to Modernize the U.S. Nuclear Regulatory Commission's Digital Instrumentation and Control Regulatory Infrastructure" (ADAMS Accession No. [ML19261B629](#)). The NRC staff has not scheduled further updates to the IAP.

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<sup>10</sup> The revision to a certificate of compliance (CoC) from GE Hitachi Nuclear Energy to allow transport of irradiated BWR ATF fuel including FeCrAl cladding was completed on April 23, 2020 (ADAMS Accession No. [ML20108F573](#)), and will be reflected in next quarter's report.

## Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

Digital Instrumentation and Control Activities	Projected Completion Date	Completion Date
MP1D: Updated Branch Technical Position (BTP) 7-19, "Guidance for Evaluation of Diversity and Defense-In-Depth in Digital Computer Based Instrumentation and Control Systems."		
<ul style="list-style-type: none"> <li>Publish BTP 7-19 for public comment (ADAMS Accession Nos. <a href="#">ML19256B502</a>).</li> </ul>	12/31/19	01/14/20 <sup>11</sup>
<ul style="list-style-type: none"> <li>Hold a public meeting (ADAMS Accession No. <a href="#">ML20037A165</a>).</li> </ul>	02/11/20	02/11/20

## Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

Projected Digital Instrumentation and Control Activities	Projected Completion Date
MP2A: Endorsement of NEI 96-07, Appendix D, "Supplemental Guidance for Application of 10 CFR 50.59 to Digital Modifications," through an update to Regulatory Guide (RG) 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments." <sup>12</sup>	
<ul style="list-style-type: none"> <li>Hold a public meeting (ADAMS Accession No. <a href="#">ML20105A363</a>).</li> </ul>	04/27/20
<ul style="list-style-type: none"> <li>The Advisory Committee on Reactor Safeguards (ACRS) review of RG 1.187.</li> </ul>	06/30/20
<ul style="list-style-type: none"> <li>Final publication of RG 1.187.</li> </ul>	07/31/20
MP3: Endorsement of NEI 17-06, "Guidance on Using IEC 61508 SIL Certification to Support the Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Related Applications," through issuance of an RG <sup>13</sup> .	
<ul style="list-style-type: none"> <li>Hold a public meeting to discuss NRC comments on pre-endorsement draft NEI 17-06 Revision B.</li> </ul>	04/01/20

## 2-5 Vogtle Electric Generating Plant Units 3 and 4

The NRC issued two combined licenses to Southern Nuclear Operating Company and its financial partners on February 10, 2012, for two AP1000 units to be built and operated at the Vogtle site near Augusta, GA. The NRC's Vogtle Readiness Group (VRG) provides assessments, coordination, oversight, and management direction of NRC activities associated with the licensing, inspection, testing, and operational readiness of Vogtle Units 3 and 4. The

<sup>11</sup> While the draft BTP 7-19 was publicly available in ADAMS for stakeholders review. The staff delayed the start of the formal public comment period to January 14, 2020, to coincide with the publication of the associated *Federal Register* notification.

<sup>12</sup> MP2A - Completion of the revision to RG 1.187, which endorses Appendix D, was delayed due to follow-on discussions with stakeholders regarding the revised digital I&C upgrade examples in Appendix D that highlight compliance with the 10 CFR 50.59 rule.

<sup>13</sup> NEI provided pre-endorsement draft NEI 17-06 Revision B on September 30, 2020 for NRC comment. Staff provided comments to NEI on December 19, 2019, and provided supplemental comments on the certification process as a result of the April 1, 2020, public meeting. NEI is currently addressing staff comments and developing a checklist to support industry observation of a third-party certifier. NEI has stated there is no set date for providing a revised version of the document for NRC endorsement review. Staff generally anticipates receiving a revised version in fall 2020. Upon receipt of the revised version, NRC will begin the formal endorsement review of NEI 17-06.

VRG tracks the NRC staff's progress using an integrated project plan that considers the licensee's construction and planned start-up schedule.

Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

<b>Vogtle Electric Generating Plant Units 3 and 4 Activities</b>	<b>Projected Completion Date</b>	<b>Completion Date</b>
Conduct a public meeting on the NRC plans for inspecting the AP1000 units under the Reactor Oversight Process (ROP) (ADAMS Accession No. <a href="#">ML19364A000</a> ).	01/14/20	01/14/20
Conduct a public meeting to discuss ROP topics, which include the inspection of the AP1000 design (ADAMS Accession No. <a href="#">ML20015A446</a> ).	01/22/20	01/22/20
Issue amendments for license amendment requests (LARs) 19-003, 19-009, 19-012, 19-015, 19-016, 19-017, and 19-018.	03/31/20	03/19/20

Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

<b>Projected Vogtle Electric Generating Plant Units 3 and 4 Activities</b>	<b>Projected Completion Date</b>
Issue amendments for LARs 19-010, 19-014, 19-019, and 19-020 (provided the requisite findings are made).	06/30/20
Issue amendments for LARs 20-001 and 20-002 (provided the requisite findings are made).	09/30/20
Issue memorandum to inform the Commission of the status of inspections, tests, analyses, and acceptance criteria (ITAAC) completion, inspection activities (including construction and operational programs), licensing activities, and any current challenges.	09/30/20
Public meeting to discuss VRG activities.	09/30/20

NRC Inspections and ITAAC<sup>14</sup> Reviews

<b>Reporting Period</b>	<b>Inspections Completed<sup>15</sup></b>	<b>ITAAC Inspected<sup>16</sup></b>	<b>Number of ITAAC Remaining Requiring Inspection</b>
Q2 - FY 2020	81	41	267

ITAAC Reviews Completed (Q2 FY 2020)

The table below provides ITAAC closure notification reviews completed during the reporting period for Vogtle Units 3 and 4, including the date when the NRC received the ITAAC closure

<sup>14</sup> The ITAAC descriptions are available in the Vogtle Units 3 and 4 ITACC Status Report at <https://www.nrc.gov/reactors/new-reactors/oversight/itaac.html>.

<sup>15</sup> This column indicates only the inspections that were completed for the reporting period. The forecast of when inspections are planned for a specific month can vary due to the fluidity of the construction schedule and what may be available for inspection as a result.

<sup>16</sup> "ITAAC inspected" refers to the number of ITAAC that were inspected as part of ongoing inspections and does not indicate that all inspections were completed for those ITAAC.

notice and the date when the review was completed.

Reporting Period	Unit	ITAAC ID No.	Received Date	Approval Date
Q2 - FY 2020	Vogtle 3	E.3.9.05.01.07	12/19/2019	01/13/2020
	Vogtle 3	2.2.03.08c.xii	12/19/2019	01/13/2020
	Vogtle 4	2.5.02.10	12/26/2019	01/09/2020
	Vogtle 3	2.5.02.10	12/26/2019	01/09/2020
	Vogtle 3	2.5.02.08b.i	12/20/2019	01/08/2020
	Vogtle 3	3.3.00.04b	12/27/2019	01/08/2020
	Vogtle 4	3.3.00.04b	12/27/2019	01/08/2020
	Vogtle 3	2.2.03.09a.ii	12/19/2019	01/06/2020
	Vogtle 3	2.1.02.08d.ii	01/31/2020	02/07/2020
	Vogtle 3	2.5.02.11	01/31/2020	02/07/2020
	Vogtle 3	2.5.02.12	12/19/2019	02/03/2020
	Vogtle 4	2.5.02.12	12/19/2019	02/03/2020
	Vogtle 4	2.2.05.07e	03/16/2020	03/20/2020
	Vogtle 4	2.5.02.11	03/06/2020	03/16/2020
	Vogtle 3	3.3.00.02a.ii.f	02/21/2020	03/03/2020

#### Vogtle Units 3 and 4 License Amendment Request Reviews Completed (Q2 FY 2020)

Reporting Period	Number of License Amendment Request Reviews Forecast to be Completed in the Reporting Period	Number of License Amendment Request Reviews that were Completed in the Reporting Period
Q2 - FY 2020	8	8

## 2-6 NuScale Small Modular Reactor Design Certification

On March 15, 2017, the NRC accepted the NuScale Power, LLC application for a small modular reactor (SMR) design certification review. The NRC staff's technical review is proceeding in six phases under an established public schedule of milestones. The review is currently in Phase 5 (ACRS Review of Advanced Safety Evaluation Report (SER) with No Open Items) and proceeding concurrently with Phase 6 (Final SER with No Open Items). In February 2020, NuScale informed the NRC that NuScale had identified an issue with the emergency core cooling system (ECCS) actuating later than expected and resulting in higher containment water level accumulation than previously determined. Consequently, NuScale is implementing design changes affecting the ECCS actuation timing, and addressing concerns related to containment water level accumulation and boron dilution in the downcomer. The proposed design changes will require NuScale to revise parts of its Final Safety Analysis Report (FSAR) and associated technical and topical reports, which will require further NRC review. NuScale has stated that all

of the final design changes and supporting information will be submitted to the NRC by May 20, 2020. On May 1, 2020, the NRC issued a letter to NuScale (ADAMS Accession No. [ML20112F455](#)) updating the status and schedule for the NuScale review. Under the updated schedule, following the submittal of the final design information to the NRC, the staff will complete its analyses and engage with the ACRS in June and July 2020, respectively. As a result, Phase 5 is anticipated to be completed by July 31, 2020, rather than by June 23, 2020. The staff will assess future schedule impacts of any NuScale design changes once the changes are submitted for NRC review. As of March 31, 2020, the staff had issued a total of 1,333 requests for additional information (RAIs), and the applicant has responded to all of them. During this reporting period, the NRC staff has completed Phase 5 engagement with ACRS for several of the chapters and initiated an audit to begin the review of the design changes in anticipation of the May 20, 2020, submittal.

#### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

<b>NuScale Small Modular Reactor Design Certification Activities</b>	<b>Projected Completion Date</b>	<b>Completion Date</b>
ACRS Subcommittee (SC) Meeting on NuScale's Steam Generator Design, Turbine Missiles, Inadvertent Actuation Block (IAB) Valve Design, and Electrical System (ADAMS Accession No. <a href="#">ML20008D564</a> ).	02/04/20	02/04/20
ACRS Full Committee (FC) Meeting on NuScale Chapters 12, 15, and 19 (ADAMS Accession No. <a href="#">ML20008D577</a> ).	02/07/20	02/07/20
ACRS SC Meeting on NuScale's Rod Ejection, Loss of Coolant Accident (LOCA), and non-LOCA Methodologies Topical Reports (ADAMS Accession No. <a href="#">ML20028E934</a> ).	02/19/20	02/19/20
ACRS SC Meeting on NuScale's Chapters 9, 15, 19, and 20 in the areas of Auxiliary Systems and Hydrogen and Oxygen Monitoring, Emergency Core Cooling System (ECCS), Probabilistic Risk Assessment (PRA), and Mitigation of Beyond-Design-Basis Events (ADAMS Accession No. <a href="#">ML20049A069</a> ).	03/04/20	03/04/20
ACRS FC Meeting on NuScale's Steam Generator Design, Hydrogen and Oxygen Monitoring, Containment Evacuation; and LOCA, Non-LOCA, and Rod Ejection Topical Reports (ADAMS Accession No. <a href="#">ML20054B674</a> ).	03/05/20	03/05/20

#### Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

<b>Projected NuScale Small Modular Reactor Design Certification Activities</b>	<b>Projected Completion Date</b>
ACRS FC Meeting on NuScale's Boron Dilution, Return to Criticality, PRA, and Hydrogen and Oxygen Monitoring	04/08/20
ACRS FC Meeting on NuScale's Boron Dilution and Technical Specifications (presentation by NuScale)	06/04/20

<b>Projected NuScale Small Modular Reactor Design Certification Activities</b>	<b>Projected Completion Date</b>
ACRS FC Meeting on NuScale's Boron Dilution and Technical Specifications (presentation by NRC staff)	07/08/20
Complete Phase 5 of the safety review (ACRS Review of Advanced SER with No Open Items).	07/31/20 <sup>17</sup>
Complete Phase 6 of the safety review (Final SER with No Open Items).	TBD <sup>18</sup>

## 2-7 Advanced Nuclear Reactor Technologies

The NRC is actively preparing for the review of non-light-water-reactor (non-LWR) designs, consistent with the staff's vision and strategy. The vision and strategy has three objectives: (1) enhancing technical readiness, (2) optimizing regulatory readiness, and (3) optimizing communication. The NRC staff has identified specific activities that it plans to conduct in the near-term (0-5 years), mid-term (5-10 years), and long-term (beyond 10 years) timeframes to achieve non-LWR safety review readiness.

The NRC's public Web site lists the open and resolved technical and policy issues related to SMRs and non-LWRs and is updated periodically to show the status of the issues (<https://www.nrc.gov/reactors/new-reactors/smr.html#techPolicyIssues>). The NRC holds periodic stakeholder meetings to discuss non-LWR topics of interest. A list of the meetings that the NRC has conducted to date can be found on the NRC's public Web site (<https://www.nrc.gov/reactors/new-reactors/advanced.html#stakeholder>).

### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

<b>Advanced Nuclear Reactor Technologies Activities</b>	<b>Projected Completion Date</b>	<b>Completion Date</b>
Issue Annual Advanced Reactor Program SECY-20-0010, "Advanced Reactor Program Status" (ADAMS Accession No. <a href="#">ML19331A034</a> ).	02/15/20	01/30/20
Issue final reports on the NRC's non-LWR analytical code strategy (ADAMS Accession No. <a href="#">ML20030A171</a> ).	03/27/20	01/30/20
Complete scoping evaluation of non-LWR source term and release mitigation (See Sandia National Laboratory (SNL) report "Simplified Approach for Scoping Assessment of Non-LWR Source Terms," (ADAMS Accession No. <a href="#">ML20052D133</a> ).	01/30/20	01/30/20
Host a public meeting on Generic Environmental Impact Statement (GEIS) workshop for advanced reactors (ADAMS Accession No. <a href="#">ML19347A733</a> ).	01/31/20	01/31/20

<sup>17</sup> The original projected date of June 23, 2020, has been updated to reflect staff review of NuScale's design changes.

<sup>18</sup> The projected date will be reassessed to determine whether the Phase 6 milestone can be maintained after receiving NuScale's design changes.



Advanced Nuclear Reactor Technologies Activities	Projected Completion Date	Completion Date
Complete evaluation of technical and regulatory issues associated with micro-reactor licensing (see Brookhaven National Laboratory report "Regulatory Review of Micro-Reactors – Initial Considerations," (ADAMS Accession No. <a href="#">ML20044E249</a> ))	02/05/20	02/05/20
Hold a public meeting on non-LWR topics (ADAMS Accession No. <a href="#">ML20050E155</a> ).	02/28/20	02/20/20
Complete exploratory process regarding and begin preparation of advanced reactor GEIS (SECY-20-0020, "Results of Exploratory Process for Developing a Generic Environmental Impact Statement for the Construction and Operation of Advanced Nuclear Reactors," (ADAMS Accession No. <a href="#">ML20052D175</a> )).	02/28/20	02/28/20
Participate in a meeting of the Advanced Reactor Technologies and SMR Subcommittee under the NRC-Canadian Nuclear Safety Commission memorandum of cooperation.	03/31/20	03/12/20
Complete assessment of material control and accounting program features and measures for a pebble bed reactor (See Oakridge National Laboratory (ORNL) report "Model Materials Controls and Accounting Plan for Pebble Bed Reactors," (ADAMS Accession No. <a href="#">ML20112F355</a> )).	03/31/20	03/31/20

Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

Projected Advanced Nuclear Reactor Technologies Activities	Projected Completion Date
Complete draft safety evaluation (SE) for Tristructural Isotropic (TRISO) topical report to support ACRS meeting.	04/30/20
Issue draft technology-inclusive, risk-informed, and performance-based design review guide for I&C for advanced reactors.	04/30/20
Issue rulemaking plan for technology-inclusive regulatory framework for optional use by applicants for new commercial advanced reactor licenses.	04/30/20
Publish emergency preparedness (EP) for SMRs and other new technologies proposed rule.	05/30/20 <sup>19</sup>
Develop proposed policy on population-related siting considerations for advanced reactors and issue SECY paper for Commission consideration.	05/30/20
Issue SECY paper on micro-reactors. The SECY paper will discuss potential licensing and policy issues specific to micro-reactors.	07/30/20
Develop report on technical and licensing considerations for micro-reactors by SNL.	08/31/20
Issue report on non-LWR source terms guidance in "Risk-Informed, Performance-Based, Technology-Inclusive Regulatory Infrastructure:	09/30/20

<sup>19</sup> Publication of the EP rule has been delayed from the original projected date of March 31, 2020, to allow sequencing of the Office of Management and Budget clearance review for rulemakings impacting 10 CFR Part 50.

Projected Advanced Nuclear Reactor Technologies Activities	Projected Completion Date
Technology-Inclusive Determination of Mechanistic Source Terms for Offsite Dose-Related Assessments for Advanced Nuclear Reactor Facilities" prepared by Idaho National Laboratory (INL).	
Develop guidance for the assessment of tritium and strategies for its detection and control in molten salt reactors (MSRs) and fluoride salt-cooled high temperature reactors (FHRs) prepared by Argonne National Laboratory (ANL).	09/30/20
Develop guidance on fuel qualification criteria for MSRs by ORNL.	09/30/20
Issue four technical input reports for NRC's review of ASME Section III Division 5 by Pacific Northwest National Laboratory (PNNL), ORNL, ANL, and NUMARK.	09/30/20
Develop report on remote and autonomous operations of advanced reactors by SNL.	09/30/20
Issue Final RG 1.233, "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology To Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light- Water Reactors."	09/30/20

## 2-8 Oklo Power LLC (Oklo) Combined Operating License Application for the Aurora Compact Fast Reactor

The NRC began pre-application discussions with Oklo in November 2016 on an advanced reactor design that uses liquid metal for heat transport. The proposed Aurora design would use heat pipes to transport heat from the reactor core to a power conversion system, which then would be used to generate electricity. On March 11, 2020, Oklo submitted a combined license (COL) application for the Aurora reactor to the NRC (ADAMS Accession No. [ML20075A000](#)). The NRC staff is currently performing a review to determine the acceptability for docketing the application and proceeding with the safety and environmental reviews. As part of the acceptance review, the staff is conducting a virtual audit (ADAMS Accession No. [ML20079L202](#)). The NRC staff will audit the supporting information for the application to ensure sufficient information is presented to support the custom COL application and that the information provides the level of detail necessary for the staff to conduct an efficient and risk-informed review. If the Aurora application is accepted for docketing, the staff will establish a detailed review schedule, including interim milestones and a proposed level of resources needed to complete the reviews. Once accepted, the staff will initiate a detailed technical review of safety and environmental aspects. The detailed review would include at least one public meeting and possibly additional audits within the next two quarters.

### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

Oklo Combined Operating License Review Activities	Projected Completion Date	Completion Date
There were no activities planned during the reporting period.	N/A	N/A



### Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

<b>Oklo Combined Operating License Review Activities</b>	<b>Projected Completion Date</b>
Complete audit of application supporting information. <sup>20</sup>	05/22/20
Determination on acceptability for docketing of the Oklo combined license application for the Aurora reactor.	06/05/20

## **2-9 Reactor Oversight Process**

The NRC developed the ROP as a risk-informed, performance-based oversight program. The staff developed recommendations to enhance the ROP in 2019. Those recommendations are provided in SECY-19-0067, "Recommendations for Enhancing the Reactor Oversight Process," (ADAMS Accession No. [ML19070A050](#)) and are being considered by the Commission. The staff continues to assess and improve the ROP as part of its normal work practices through the NRC's Transformation activities, stakeholder correspondence, feedback from ROP public meetings, and the annual ROP self-assessment program.

### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

<b>Reactor Oversight Process Activities</b>	<b>Projected Completion Date</b>	<b>Completion Date</b>
Issue revised Inspection Procedure (IP) 71111.12 to provide additional guidance for oversight of risk-informed initiatives (ADAMS Accession No. <a href="#">ML19353C418</a> ).	01/31/20	01/07/20
Issue revisions to IP 71124, "Radiation Safety – Public and Occupational" (ADAMS Accession No. <a href="#">ML17286A597</a> ).	04/30/20	03/04/20
Issue revisions <sup>21</sup> to Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" and IMC 0609, Appendix H, "Containment Integrity Significance Determination Process" (ADAMS Accession Nos. <a href="#">ML20013D868</a> and <a href="#">ML20078L336</a> ).	04/30/20	03/23/20
Issue revised IMC 2515, Appendix E - "ROP Oversight during Pandemics, Epidemics, or Other Widespread Illnesses or Diseases" (ADAMS Accession No. <a href="#">ML20079E700</a> ).	03/27/20	03/27/20

<sup>20</sup> As part of the acceptance review, the staff is conducting a virtual audit (ADAMS Accession No. [ML20079L202](#)). The NRC staff will audit the supporting information for the application to ensure sufficient information is presented to support the custom COL application and that the information provides the level of detail necessary for the staff to conduct an efficient and risk-informed review.

<sup>21</sup> These revised documents incorporate new guidance for inspecting the AP1000 reactor design.

### Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

Projected Reactor Oversight Process Activities	Projected Completion Date
Define the problem statement and revise the charter for a comprehensive review of problem identification and resolution inspection program.	04/30/20 <sup>22</sup>
Complete effectiveness review of the cross-cutting issues process and issue report.	06/30/20 <sup>23</sup>
Complete comprehensive review of problem identification and resolution program.	09/30/20

## **2-10 Backfit**

The NRC's backfitting rules are codified in 10 CFR 50.109, 70.76, 72.62, and 76.76. The backfitting provisions require, in the absence of an applicable exception, an analysis showing that the backfit would result in a substantial increase in the overall protection of the public health and safety or the common defense and security and that the increased protection warrants the direct and indirect costs of implementation. There are similar requirements, referred to as "issue finality," that apply when there are new or amended requirements for licenses, permits, and design certifications issued under 10 CFR Part 52. The Commission recently clarified its backfitting and issue finality policy as well as its policy on "forward fits," requirements imposed as a condition of agency approval of a licensee request, in NRC Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests."

### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

Backfit Activities	Projected Completion Date	Completion Date
Conform NUREG/BR-0058, Revision 5, "Regulatory Analysis Guidelines of the U.S. NRC," to MD 8.4 and provide to the Commission for review and approval.	01/28/20	01/28/20
Provide draft NUREG-1409, Revision 1 to the Commission for information prior to issuing it for public comment (ADAMS Accession No. <a href="#">ML18109A498</a> ).	02/28/20 <sup>24</sup>	03/03/20
Publish notice of availability of draft NUREG-1409, Revision 1 in the <a href="#">Federal Register</a> for public comment.	03/31/20	03/23/20 <sup>25</sup>

<sup>22</sup> The projected completion date was previously scheduled for March 31, 2020. The activity has been delayed due to more pressing Office of Nuclear Reactor Regulation (NRR) priorities, including addressing a range of emerging issues during the COVID-19 PHE.

<sup>23</sup> Completion of the effectiveness review was previously scheduled for October 31, 2019, to be followed by the issuance of the report on December 31, 2019. These completion dates were delayed to provide the opportunity for questions and feedback on the preliminary conclusions from the effectiveness review and potential recommended program adjustments during a public meeting on January 10, 2020.

<sup>24</sup> This activity, previously scheduled for completion on December 31, 2019, was delayed to incorporate lessons learned into draft NUREG-1409.

<sup>25</sup> In recognition of the impacts of the COVID-19 PHE, the NRC is issuing another notice extending the due date for public comments from May 22, 2020 to July 22, 2020.

### Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

<b>Projected Backfit Activities</b>	<b>Projected Completion Date</b>
Hold a public meeting or teleconference to discuss the contents of draft NUREG-1409, Revision 1 with stakeholders.	05/29/20 <sup>26</sup>

## **2-11 Risk-Informed Activities**

The NRC staff has made substantial progress to advance the use of risk insights more broadly to inform decisionmaking. There are numerous activities ranging in scope from agencywide initiatives, such as the “Be riskSMART” transformation initiative mentioned in section 2-1, to the advanced reactor risk-informed activities listed in section 2-7 of this enclosure, to individual undertakings in program and corporate offices.<sup>27</sup> Specifically, the staff developed the agencywide Be riskSMART risk-informed decisionmaking framework and illustrated its applicability throughout the agency in the technical, legal, and corporate arenas. As part of the Be riskSMART initiative, the staff is tracking its use of risk-informed decisionmaking.

### Activities Planned and Completed for the Reporting Period (Q2 FY 2020)

<b>Risk-Informed Activities</b>	<b>Projected Completion Date</b>	<b>Completion Date</b>
Brief ACRS Subcommittee on Reliability and Probabilistic Risk Assessment on the draft revision to RG 1.200, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities.”	02/05/20	02/05/20
Issue a major revision to IMC 2800, “Materials Inspection Program” on March 3, 2020 (ADAMS Accession No. <a href="#">ML20062A002</a> ). The changes to IMC 2800 enhance the efficiency and effectiveness of the materials inspection program and further risk-inform this program.	03/31/20	03/03/20
Issue the recommendations on building a smarter fuel cycle inspection program (ADAMS Accession Nos. <a href="#">ML20073G659</a> and <a href="#">ML20077L247</a> ).	03/31/20	03/18/20
Decision on the recommendations made by the Independent Spent Fuel Storage Installations Inspection Program working group to implement a more reliable, risk-informed, comprehensive, and consistent approach to inspections that focuses on the most risk-significant activities (ADAMS Accession No. <a href="#">ML20079E064</a> ).	03/31/20	03/19/20

<sup>26</sup> The meeting was held on April 28, 2020, which will be reflected in next quarter’s report.

<sup>27</sup> The NRC maintains a listing of risk-informed activities that is updated annually at <https://www.nrc.gov/about-nrc/regulatory/risk-informed/rpp.html>.

### Projected Activities for the Next Two Quarters (Q3 and Q4 FY 2020)

Projected Risk-Informed Activities	Projected Completion Date
Issue the recommendations on building smarter fuel cycle licensing programs.	04/30/20
Conduct stakeholder meeting on proposed new Risk-Informed Process for Exemptions (RIPE) initiative. RIPE leverages current regulations and risk initiatives to allow reactor licensees to justify plant-specific exemptions using a streamlined NRC review process. This process can be used to address compliance issues that have minimal safety impact and are of low safety significance.	05/31/20
Complete initial outreach to each major program office on the Be riskSMART risk-informed decisionmaking framework using examples specific to each major functional area (technical, legal, corporate) including subsequent license renewal, security, fee billing, and inspection.	06/30/20
Publish Draft Revision 3 to RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" for public comment.	06/30/20
Issue revised NRR Instruction LIC-206, "Integrated Risk-Informed Decision-Making for Licensing Reviews."	06/30/20
Implement the recommendations on building smarter fuel cycle licensing programs.	09/30/20
Document the Be riskSMART risk-informed decisionmaking framework in agency guidance.	09/30/20
Modify risk-informed decisionmaking curriculum to incorporate the Be riskSMART framework.	09/30/20

## Enclosure 3

### 3-1 Reactor Oversight Process Findings

The table below provides the calendar year (CY) ROP findings for the year-to-date and 3-year rolling metrics.

Location	Number of Findings	CY 2017	CY 2018	CY 2019	CY 2020 (YTD)
<b>Nationally</b>	Total	560	478	440	11 <sup>28</sup>
<b>RI</b>	Green	126	107	95	3
	White	2	1	0	0
	Yellow	0	0	0	0
	Red	0	0	0	0
	Greater than green Security	0	0	0	0

<sup>28</sup> The inspection reports for the first quarter of CY 2020 will continue to be finalized through May 15, 2020. The report for the next reporting period will be updated to include any additional findings from the first quarter of CY 2020.

Location	Number of Findings	CY 2017	CY 2018	CY 2019	CY 2020 (YTD)
	Total	128	108	95	3
	No. of units operating during the CY	25	25	24 <sup>29</sup>	22 <sup>30</sup>
RII	Green	119	113	109	1
	White	3	0	1	1
	Yellow	0	0	0	0
	Red	0	0	0	0
	Greater than green Security	2	0	0	1
	Total	124	113	110	3
	No. of units operating during the CY	33	33	33	33
RIII	Green	133	110	97	3
	White	4	2	1	0
	Yellow	0	0	0	0
	Red	0	0	0	0
	Greater than green Security	0	0	0	0
	Total	137	112	98	3
	No. of units operating during the CY	23	23	23	23
RIV	Green	167	145	137	2
	White	2	0	0	0
	Yellow	0	0	0	0
	Red	0	0	0	0
	Greater than green Security	2	0	0	0
	Total	171	145	137	2
	No. of units operating during the CY	18	18	18	18

<sup>29</sup> The reduction of one unit from CY 2019 reflects the permanent shutdown of Oyster Creek on September 17, 2018.

<sup>30</sup> The reduction of two units for CY 2020 reflects the permanent shutdown of Pilgrim Nuclear Station on May 31, 2019, and Three Mile Island, Unit 1, on September 20, 2019.

### 3-2 Licensing Actions

The tables below provide the status of licensing actions organized by licensing program. Consistent with Section 102(c) of NEIMA, the licensing actions referenced in this section include “requested activities of the Commission” for which the NRC staff issues a final safety evaluation. These totals do not include license amendment requests, as they are addressed separately in section 3-3. The total inventory of licensing actions is the number open at the end of the quarter.

#### Operating Reactors

Reporting Period	Total Inventory	Licensing Actions Initiated During the Reporting Period	Licensing Actions Completed During the Reporting Period	Percentage of Licensing Actions Completed Prior to the Generic Milestone Schedule <sup>31</sup>	Percentage of Licensing Actions Completed Prior to the Established Schedule <sup>32</sup>
Q3 FY 2019	204	67	83	100%	95%
Q4 FY 2019	160	72	120	100%	96%
Q1 FY 2020	170	40	37	100%	89%
Q2 FY 2020	173	96	82	100%	94%

#### New Reactors

Reporting Period	Total Inventory	Licensing Actions Initiated During the Reporting Period	Licensing Actions Completed During the Reporting Period	Percentage of Licensing Actions Completed Prior to the Generic Milestone Schedule	Percentage of Licensing Actions Completed Prior to the Established Schedule
Q3 FY 2019	9	0	4	100%	100%
Q4 FY 2019	7	0	2	100%	100%
Q1 FY 2020	5	2	0	N/A	N/A
Q2 FY 2020	3	0	1	100%	100%

<sup>31</sup> Excludes unusually complex and Fukushima-related licensing actions accepted or initiated prior to July 13, 2019 (consistent with previous monthly reports).

<sup>32</sup> The established scheduled is the schedule communicated to the licensee and made publicly available at the completion of the acceptance review.

## Fuel Facilities

Reporting period	Total Inventory	Licensing Actions Initiated in the Reporting Period	Licensing Actions Completed in the Reporting Period	Percentage of Licensing actions Completed Prior to the Generic Milestone Schedule	Percentage of Licensing Actions Completed Prior to the Established Schedule
Q3 FY 2019	1	1	3	100%	100%
Q4 FY 2019	4	3	0	N/A	N/A
Q1 FY 2020	6	4	2	100%	100%
Q2 FY 2020	5	3	4	100%	100%

### 3-3 License Amendment Request Reviews

The tables below provide the status of license amendment requests (LARs) organized by licensing program. Consistent with Section 102(c) of NEIMA, the LARs referenced in this section include “requested activities of the Commission” for which the NRC staff issue a final safety evaluation. The total inventory is the number of open LARs at the end of the quarter. LARs are included in the total inventory after they have been accepted by the NRC (the acceptance review period is generally 30 days after the application is submitted).

## Operating Reactors

Reporting Period	Total Inventory	LARs Submitted During the Reporting Period	LAR Reviews Completed During the Reporting Period	Percentage of LAR Reviews Completed Prior to the Generic Milestone Schedule <sup>33</sup>	Percentage of LAR Reviews Completed Prior to the Established Schedule <sup>34</sup>
Q3 FY 2019	394	140	89	100%	71%
Q4 FY 2019	400	129	123	100%	86%
Q1 FY 2020	400	97	122	100%	92%
Q2 FY2020	367	84	115	100%	91%

<sup>33</sup> Excludes unusually complex and Fukushima-related license amendment requests accepted or initiated prior to July 13, 2019 (consistent with previous monthly reports).

<sup>34</sup> The established scheduled is the schedule communicated to the licensee and made publicly available at the completion of the acceptance review.

### New Reactors

Reporting Period	Total Inventory	LARs Submitted During the Reporting Period	LAR Reviews Completed During the Reporting Period	Percentage of LAR Reviews Completed Prior to the Generic Milestone Schedule	Percentage of LAR Reviews Completed Prior to the Established Schedule
Q3 FY 2019	8	5	6	100%	100%
Q4 FY 2019	14	8	2	100%	100%
Q1 FY 2020	12	4	6	100%	100%
Q2 FY 2020	6	2	8	100%	100%

### Fuel Facilities

Reporting period	Total Inventory	LARs Submitted During the Reporting Period	LAR Reviews Completed During the Reporting Period	Percentage of LAR Reviews Completed Prior to the Generic Milestone Schedule	Percentage of LAR Reviews Completed Prior to the Established Schedule
Q3 FY 2019	8	3	3	100%	100%
Q4 FY 2019	6	1	3	100%	100%
Q1 FY 2020 <sup>35</sup>	12	10	4	100%	100%
Q2 FY 2020	11	4	5	100%	100%

### Unusually Complex License Amendment Requests

The staff has identified certain LARs (accepted for review prior to July 13, 2019), as unusually complex. Consistent with the previous reports, these unusually complex submittals are not included in the internal performance measures as they do not lend themselves to realistic schedule forecasting. Rather, they are given escalated management attention to ensure progress is made toward resolving outstanding issues and completing the reviews in a timely manner.

### Operating Reactors

Unusually Complex LAR Description	Exclusion Justification	Age (Months)
Hatch—National Fire Protection Association (NFPA) 805 Review.	NFPA-805 reviews are unusually complex due to the nature of the subject matter.	21

<sup>35</sup> Corrected numbers reflect cases that were received during the reporting period but entered in the tracking system after the previous report was issued.



Unusually Complex LAR Description	Exclusion Justification	Age (Months)
Hatch—Adopt 10 CFR 50.69, Risk-Informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors.	This review is tied to the review of the Hatch NFPA 805 application.	20
North Anna Units 1 and 2—Revision of the Small Break Loss of Coolant Accident (SBLOCA) Analytical Methodologies.	Involves multiple plant specific SBLOCA methodologies.	19
Surry Units 1 and 2—Revision of Analytical Methodologies for SBLOCA.	Involves multiple plant specific SBLOCA methodologies.	19
Watts Bar Nuclear Plant, Units 1 and 2, Request to Adopt the Requirements of 10 CFR 50.69.	Involves a risk-informed review of the licensee's seismic probabilistic risk assessment.	14 <sup>36</sup>

#### New Reactors

None

#### Fuel Facilities

None

### **3-4 Research Activities<sup>37</sup>**

#### Summary of New Research Projects

During the reporting period, the Office of Nuclear Regulatory Research initiated research on or substantially revised the following projects:

Name of New or Revised Project	Requesting Business Line	Estimated Completion	Estimate of Research Resources	Description
Evaluating the Reliability of Nondestructive Examinations of Vessels and Piping	Operating Reactors	5 years	2.5 FTE and \$1.5M	This research is used by the NRC's regulatory offices to support regulatory decisions associated with nondestructive examinations of new and replacement safety systems and components. It also provides the technical basis used for

<sup>36</sup> The Watts Bar Nuclear Plant LAR was determined to be unusually complex during the technical review.

<sup>37</sup> Provides information about projects that were reviewed and approved during the reporting period and exceeded 300 staff hours or \$500K of program support for the duration of the project (consistent with previous reports).

Name of New or Revised Project	Requesting Business Line	Estimated Completion	Estimate of Research Resources	Description
				rulemaking related to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.
Environmental Materials Degradation of Reactor Coolant Pressure Boundary Components (Codes and Standards Support; Flaw Evaluation Tools Development; Crack Initiation Testing)	Operating Reactors	3 years	2.5 FTE and \$500K	This research supports development and maintenance of computational tools for flaw evaluation modeling of safety-related piping for use in confirmatory assessments in licensing actions; it also supports the Joint Industry Program on Fatigue and Service Life Prediction of Welded Structures.
Reactor Pressure Vessel Integrity Issues	Operating Reactors	3 years	2 FTE and \$750K	This research supports the evaluation the integrity of the reactor pressure vessel, including confirmatory assessments to ensure adherence with regulatory requirements for pressurized thermal shock, for current and long-term operations.
Safety Culture Research Technical Support	Operating Reactors	5 years	2.5 FTE	This research supports safety culture oversight activities in the inspection program to ensure consistency with state-of-knowledge and state-of-practice in safety culture assessment.

#### Summary of Completed Research Projects<sup>38</sup>

During the reporting period, Office of Nuclear Regulatory Research completed the following activities:

<sup>38</sup> The research project resources are estimates of staff hours and program support costs based on inspection of project records, including staffing plans and contract spending plans.

Name and Purpose of Completed Project	Duration of the Project	Estimate of Research Resources	Project Research Results or Findings
No items in this reporting period.	N/A	N/A	N/A

### 3-5 Fees Billed

The tables below provide information on Part 170 fees billed for each fee class. For each fee class, the staff compared the fees billed to the receipts estimated in the annual fee rule.<sup>39</sup>

Fee Class	FY 2019 Part 170 Receipts Estimated—Annual Fee Rule (\$M) <sup>40</sup>	Part 170—Billed in FY 2020 Q2 (\$M)	Total Part 170—Billed in FY 2020 (\$M)
Fuel Facilities	\$6.8	\$1.6	\$3.5
Generic Decommissioning	\$3.6	\$0.8	\$1.9
Materials Users <sup>41</sup>	\$1.1	\$0.3	\$0.6
Operating Power Reactors	\$194.8	\$41.1	\$95.2
Research and Test Reactors	\$3.4	\$0.9	\$1.3
Spent Fuel Storage/Reactor Decommissioning	\$17.8	\$2.3	\$5.5
Transportation	\$2.7	\$0.5	\$1.3
Uranium Recovery	\$0.5	\$0.1	\$0.2

### Significant Ongoing Licensing Actions

The following table includes a comparison of the fees billed to projected resources for the NuScale SMR design certification review, subsequent license renewal application reviews and the SHINE Medical Technologies, LLC operating license application review. The subsequent renewed licenses for Turkey Point Units 3 and 4 and Peach Bottom Units 2 and 3 were issued on December 4, 2019, and March 5, 2020, respectively.

<sup>39</sup> In order to temporarily mitigate the financial impacts and economic disruptions to licensees caused by the COVID-19 PHE, the NRC has deferred all invoices scheduled to be issued in April, May, and June 2020 until July 22, 2020.

<sup>40</sup> The FY 2020 Final Fee Rule estimated collections is being used until the FY 2020 Final Fee Rule is published.

<sup>41</sup> Materials Users—Billed as flat fee applications and included in the estimates and billed.

Docket	Project Name	Projected Resources (\$M) <sup>42</sup>	Fees Billed to Date (\$M)
NuScale Power Reactor 05200048	NuScale SMR Design Certification Application Review	\$66.0 <sup>43</sup>	\$55.0
NuScale Power Reactor 99902043	NuScale SMR Topical Report Reviews (Only those that directly support the design certification review).		\$7.9
Turkey Point Units 3 and 4 05000250/05000251	Turkey Point Units 3 and 4 Subsequent License Renewal Application—Safety Review	\$5.2	\$5.1
Turkey Point Units 3 and 4 05000250/05000251	Turkey Point Units 3 and 4 Subsequent License Renewal Application—Environmental Review	\$3.6	\$3.5
Peach Bottom Units 2 and 3 05000277/05000278	Peach Bottom Units 2 and 3 Subsequent License Renewal Application—Safety Review	\$4.3	\$4.1
Peach Bottom Units 2 and 3 05000277/05000278	Peach Bottom Units 2 and 3 Subsequent License Renewal Application—Environmental Review	\$1.5	\$1.5
Surry Units 1 and 2 05000280/05000281	Surry Units 1 and 2 Subsequent License Renewal Application—Safety Review	\$4.9	\$4.6
Surry Units 1 and 2 05000280/05000281	Surry Units 1 and 2 Subsequent License Renewal Application—Environmental Review	\$1.4	\$1.6 <sup>44</sup>
SHINE Medical Technologies, LLC 05000608	SHINE Medical Isotope Production Facility Operating License Application Review—Safety and Environmental Reviews	\$6.2 <sup>45</sup>	\$1.7

<sup>42</sup> Projected resources are calculated based on the FTE estimates provided to applicants in the acceptance letters. Dollar amounts are obtained by multiplying the hours estimate by \$275/hour.

<sup>43</sup> When the NuScale design certification application was submitted, the NRC staff did not provide projected resources to applicants. This number was calculated for this report using fees billed to date (for the NuScale design certification application and supporting topical reports - \$58.1M) plus a projection of the fees that the NRC staff expects to bill through the end of the technical review in September 2020 (\$7.9M). This estimate is based on critical assumptions such as high quality and timely submittals by NuScale for the remainder of the review. Costs associated with pre-application activities are not included.

<sup>44</sup> When the Surry subsequent license renewal application was accepted for review on December 3, 2018, the NRC estimate was \$6.3M. At that time, the NRC had not yet completed the review of the first subsequent license renewal application to provide a basis for comparison. The staff provided a revised estimated cost of \$7.6M.

<sup>45</sup> The projected resource estimate was provided to SHINE by letter dated April 30, 2020 (ADAMS Accession No. [ML20114E315](#)).

### 3-6 Requests for Additional Information

The table below provides information on RAIs associated with licensing actions that are considered “requested activities of the Commission” for which the NRC staff issues a final safety evaluation, consistent with Section 102(c) of NEIMA. While Section 102(c) of NEIMA only applies to licensing actions accepted after July 13, 2019, the RAI data also include licensing actions accepted prior to July 13, 2019, to provide a complete inventory.

Type of Facility or Activity Type	Total Inventory of Open RAIs (as of the end of reporting period)	Total Number of RAIs Issued in Reporting Period	Total Number of RAIs Responded to in Reporting Period	Total Number of RAIs Closed in Reporting Period <sup>46</sup>
Operating Reactors	327 <sup>47</sup>	204	132	262 <sup>48</sup>
Non-Power Production and Utilization Facilities <sup>49</sup>	382 <sup>50</sup>	38	35	3
Design Certifications for New Reactors	4	0	0	31 <sup>51</sup>
Early Site Permits for New Reactors <sup>52</sup>	N/A	N/A	N/A	N/A
Combined Licenses for New Reactors	N/A	N/A	N/A	N/A
Fuel Facilities	14	9	10	9
Power Reactor Decommissioning	14	6	0	5

<sup>46</sup> RAIs are considered closed once the final safety evaluation, environmental assessment, or environmental impact statement is finalized except for RAIs associated with new reactor application reviews. Due to the phased approach taken over several years for new reactor application reviews, RAIs are closed throughout the review process once the staff has determined no additional information is needed to resolve the issue.

<sup>47</sup> A total of 64 duplicate RAIs included in the prior quarter’s open inventory were subtracted from the total and are not counted as closed in this quarter. The RAIs were a duplicate entry in the staff’s licensing project management system.

<sup>48</sup> The open inventory for the prior reporting period only included RAIs for actions accepted after October 2016. An additional 33 RAIs are included in the closed inventory for licensing actions accepted prior to 2016.

<sup>49</sup> For the purposes of RAI reporting, non-power production and utilization facilities include all operating research and test reactors and medical radioisotope facilities licensed under 10 CFR Part 50, including the ongoing review of the SHINE Medical Technologies, LLC operating license application.

<sup>50</sup> The open inventory for the prior reporting period only included RAIs for licensing actions accepted after July 2019. The increase from the prior reporting period for the number of open RAIs reflects inclusion of open RAIs from license renewal amendments from as early as 2012.

<sup>51</sup> By letter dated March 3, 2020, Mitsubishi Heavy Industries LLC, requested to have the US-APWR design certification application review suspended. A total of 114 RAIs that were associated with the US-APWR application review have been removed from tracking in this table.

<sup>52</sup> There are no early site permit applications currently under review by the NRC; therefore, there will be no RAI data to report until an application is submitted and accepted by the NRC for review.

Type of Facility or Activity Type	Total Inventory of Open RAIs (as of the end of reporting period)	Total Number of RAIs Issued in Reporting Period	Total Number of RAIs Responded to in Reporting Period	Total Number of RAIs Closed in Reporting Period <sup>46</sup>
Research and Test Reactor Decommissioning	10	6	0	0
Spent Fuel	576	76	213	28
Materials <sup>53</sup>	6	6	0	0
Pre-Application Activities for Advanced Reactors	41	14	41	0

### 3-7 Workforce Development and Management

The table below provides information on staffing by office for the reporting period. The budgeted amount for each office is the budget for the fiscal year.

FY 2020 Staffing by Office <sup>54</sup>								
	FY 2020 Budget	FTE Utilization 12/22/19 - 02/01/20	FTE Utilization 02/02/20 - 02/29/20	FTE Utilization 03/01/20 - 03/28/20	FTE Utilization as of 03/28/20	Delta (Q2 FTE Utilization – FY 2020 Budget)	End of Year (EOY) <sup>55,56</sup> Projection w/ Personnel Actions	Delta (EOY Projection – FY 2020 Budget)
<b>Totals<sup>57</sup></b>	2979.0	321.3	212.5	212.1	1397.4	-1581.6	2809.8	-169.2
COMM	45.0	3.2	2.2	2.2	14.1	-30.9	31.5	-13.5
OIG	63.0	6.5	4.1	3.9	27.7	-35.3	54.2	-8.8
<b>Totals Other Offices</b>	2871.0	311.5	206.3	206.0	1355.6	-1515.4	2724.2	-146.8
OCFO	96.0	10.3	7.0	6.9	45.3	-50.7	92.4	-3.6
OGC	96.0	10.5	6.8	6.9	46.2	-49.8	90.7	-5.3
OCA	11.0	1.2	0.8	0.8	5.2	-5.8	10.7	-0.3
OCAA	8.0	0.7	0.4	0.4	3.1	-4.9	6.0	-2.0

<sup>53</sup> This section covers complex materials sites. It does not include nuclear material user licensing actions because those actions (e.g., portable gauges, industrial radiography, medical use licensees, etc.) do not result in issuance of a safety evaluation and thus are not within the scope of section 102(c) of NEIMA.

<sup>54</sup> Some numbers might not add due to rounding.

<sup>55</sup> The method used to determine FTE projections has been enhanced to allow for planned actions and expected losses based on historical trends. The new method is intended to provide a more realistic and stable set of FTE projections.

<sup>56</sup> Based on FTE utilization as of March 28, 2020.

<sup>57</sup> Totals include Office of the Inspector General.

FY 2020 Staffing by Office <sup>54</sup>								
	FY 2020 Budget	FTE Utilization 12/22/19 - 02/01/20	FTE Utilization 02/02/20 - 02/29/20	FTE Utilization 03/01/20 - 03/28/20	FTE Utilization as of 03/28/20	Delta (Q2 FTE Utilization – FY 2020 Budget)	End of Year (EOY) <sup>55,56</sup> Projection w/ Personnel Actions	Delta (EOY Projection – FY 2020 Budget)
OPA	15.0	1.6	1.1	1.1	7.0	-8.0	13.0	-2.0
SECY	18.0	1.8	1.2	1.2	7.7	-10.3	16.3	-1.7
OIP	35.0	3.8	2.5	2.6	16.5	-18.5	34.4	-0.6
ASLBP	24.0	2.5	1.7	1.7	11.1	-12.9	22.3	-1.7
ACRS	24.0	3.0	2.3	2.2	13.6	-10.4	27.6	3.6
OEDO	23.0	2.5	1.6	1.6	10.4	-12.6	21.3	-1.7
NRR	601.3	66.0	43.0	42.7	285.9	-315.4	566.2	-35.1
NMSS	296.2	35.5	23.7	23.8	153.7	-142.5	307.4	11.2
RES	205.4	21.4	14.2	14.2	93.3	-112.1	188.3	-17.1
NSIR	158.5	18.4	12.3	12.2	79.7	-78.9	159.9	1.4
R-I	182.3	19.6	13.0	12.8	85.2	-97.1	170.4	-11.9
R-II	235.7	25.3	16.7	16.7	109.8	-125.9	220.6	-15.1
R-III	178.9	20.1	13.0	13.0	86.4	-92.5	172.0	-6.9
R-IV	166.1	18.4	12.4	12.3	79.8	-86.3	161.4	-4.7
OE	30.6	3.4	2.3	2.3	15.1	-15.5	30.0	-0.6
OI	38.0	4.6	3.1	3.1	20.2	-17.8	39.1	1.1
OCIO	171.0	17.3	11.4	11.6	76.0	-95.0	155.1	-15.9
ADM	131.0	13.0	8.6	8.8	57.0	-74.0	116.4	-14.6
SBCR	13.0	1.2	0.8	0.8	5.2	-7.8	11.7	-1.3
OCHCO	112.0	9.2	6.1	6.0	41.0	-71.0	88.2	-23.8
CSU	1.0	0.2	0.2	0.2	1.2	0.2	2.7	1.7

### 3-8 Inspection Activities

The table below shows the average number of hours of direct inspection per plant in FY 2020.

#### Average Reactor Oversight Process Direct Inspection Hours

Nationwide per plant (unit)	Column 1 of ROP Action Matrix	Column 2 of ROP Action Matrix	Column 3 of ROP Action Matrix	Column 4 of ROP Action Matrix
370 Hours	375 Hours	281 Hours <sup>58</sup>	No Plants in Column 3	No Plants in Column 4

The table below shows the staff hours expended for inspection-related effort at operating power reactor sites by calendar year.

<sup>58</sup> Browns Ferry Nuclear Plant (three-unit boiling water reactor site) and Vogtle Electric Generating Plant (two-unit pressurized water reactor site) were in Column 2 of the ROP Action Matrix for the first quarter of CY 2020 as of March 31, 2020.

Items	Description	CY 2019 (Hours)	CY 2020 (YTD) (Hours)
i.	Baseline Inspection	235,718	49,275
ii.	Plant-specific inspections	9,096	2,298
iii.	Generic safety issue inspections	3,200	411
iv.	Performance Assessment	1,532	383
v.	Other Activities	98,614	22,428
vi.	Total staff effort	348,160	74,795
vii.	Total staff effort per operating site	6,003 <sup>59</sup>	1,312 <sup>60</sup>

### 3-9 Backfit

#### Facility-Specific Backfits<sup>61</sup>

There were no facility-specific backfits issued during the reporting period.

#### Generic Backfits

There were no generic backfits issued during the reporting period.

#### Backfit Appeals Filed by Licensees and Applicants

There were no backfit appeals submitted to the NRC during the reporting period.

<sup>59</sup> Total staff effort is divided by 58 sites for CY 2019, due to Pilgrim Nuclear Station permanently ceasing operations on May 31, 2019. Because Three Mile Island, Unit 1, operated for the majority of CY 2019, it is included as an operating site. This is a correction from the previous report.

<sup>60</sup> Total staff effort is divided by 57 sites for CY 2020, due to Three Mile Island, Unit 1, permanently ceasing operations on September 20, 2019.

<sup>61</sup> By letter dated October 16, 2019, the licensee for the R.E. Ginna Nuclear Power Plant, Exelon Generation, contested a violation on the basis that it constituted unjustified backfitting. By letter dated November 27, 2019, the licensee requested that the NRC disposition its claim that it meets its licensing basis under the NRC's enforcement process for contested violations rather than through the backfit appeal process. By letter dated April 16, 2020 (ADAMS Accession No. [ML20107F834](#)), the NRC withdrew the violation. The NRC is incorporating lessons learned from this action into its inspection and backfitting guidance.