

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

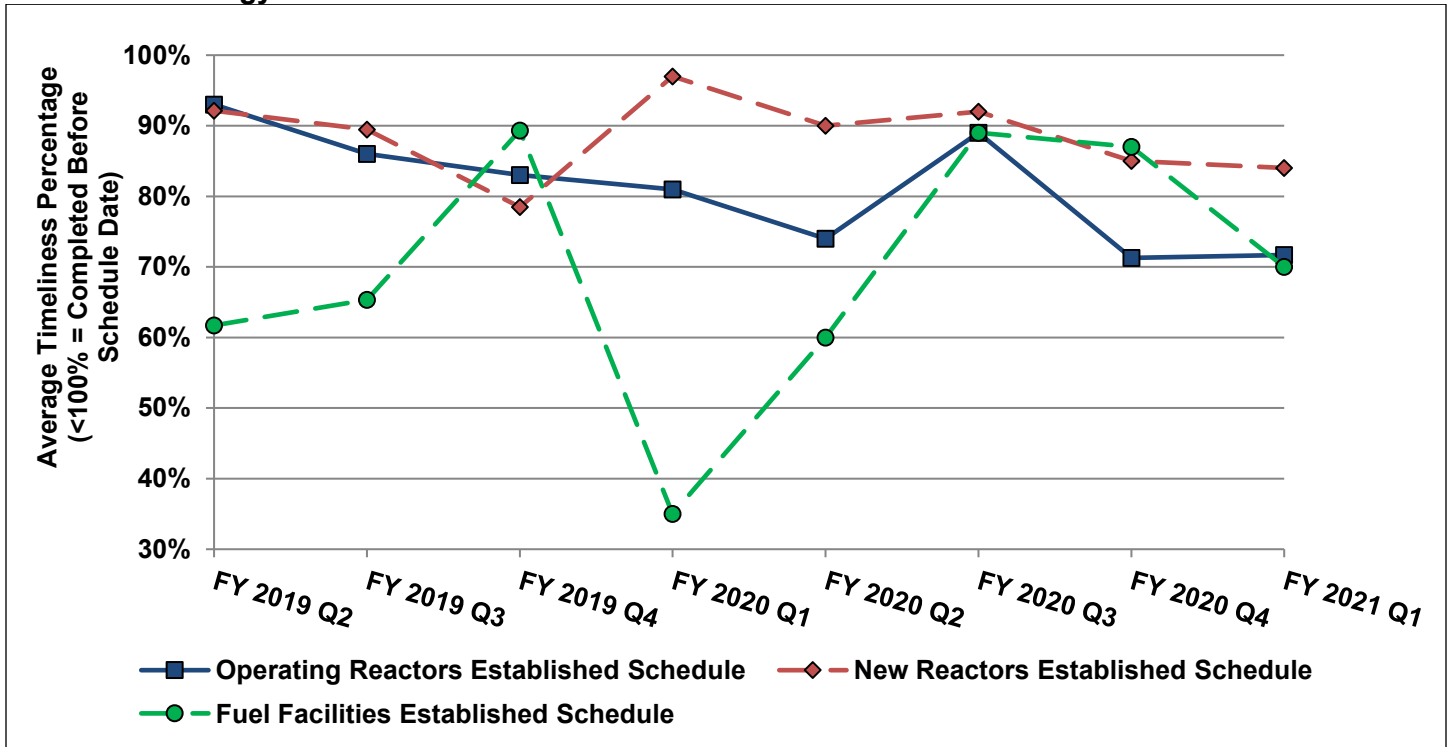
For the Reporting Period of October 1, 2020 through December 31, 2020

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Enclosure 1 – High Level Summary

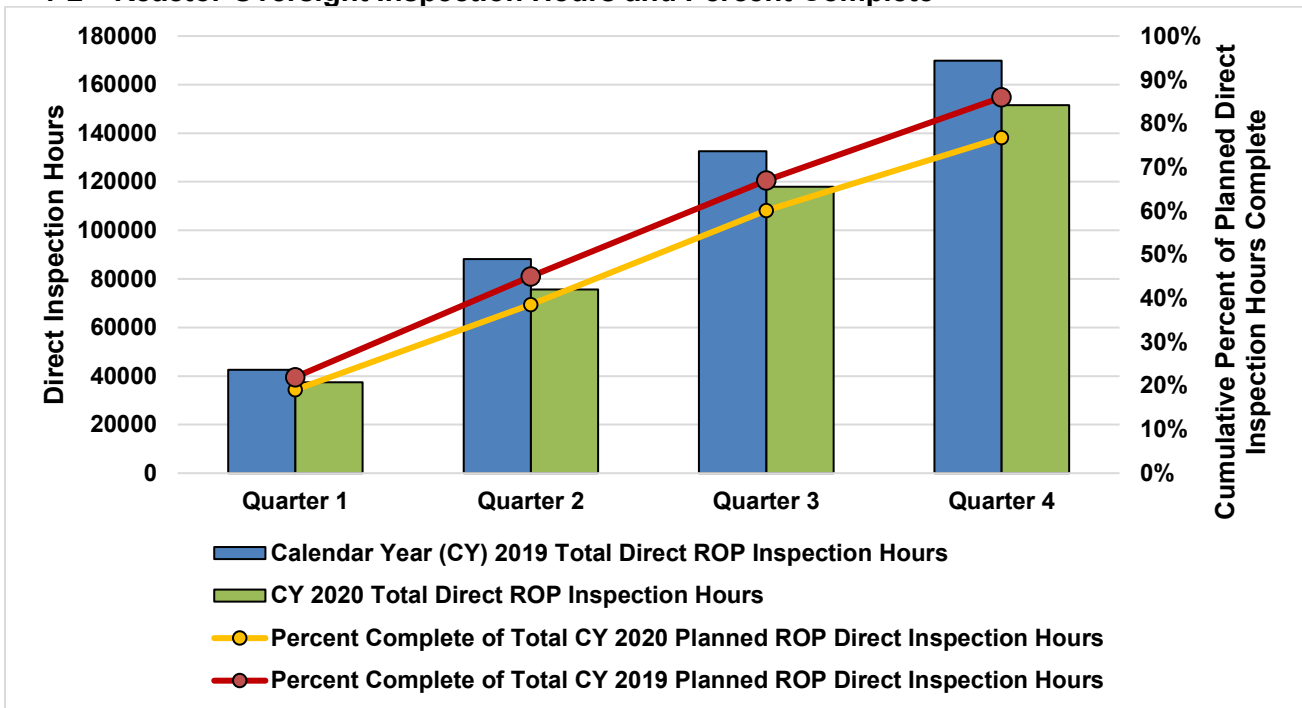
1-1 Average Timeliness Percentage for Licensing Actions Categorized Under the Nuclear Energy Innovation and Modernization Act



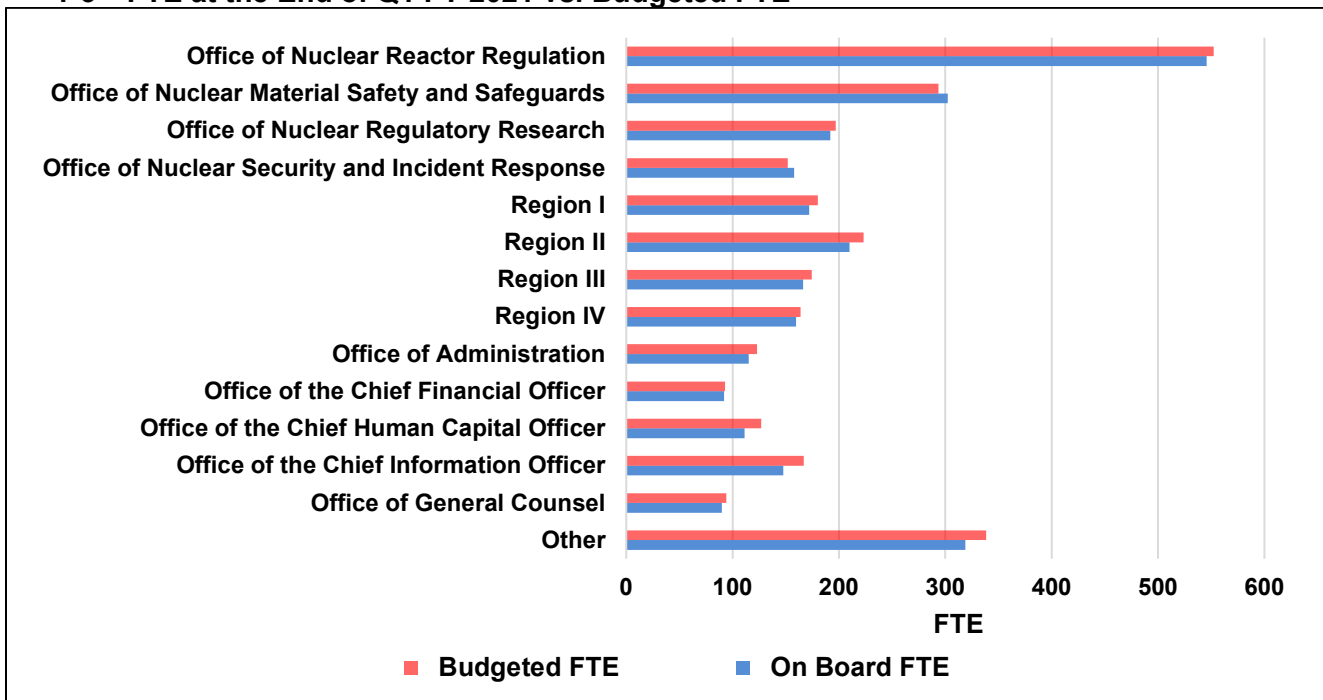
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¹ New reactor established schedule data for FYOMB 2020 Q3 and Q4 was updated to appropriately account for topical reports submitted by licensees or applicants that were initially submitted prior to an application. Additional information regarding the treatment of topical reports is available at <https://www.nrc.gov/about-nrc/generic-schedules.html>.

1-2 Reactor Oversight Inspection Hours and Percent Complete



1-3 FTE at the End of Q1 FY 2021 vs. Budgeted FTE



1-4 Budget Authority, FTE Utilization, and Fees

NRC FY 2021 Budget Authority December 31, 2020 (Dollars in Thousands)

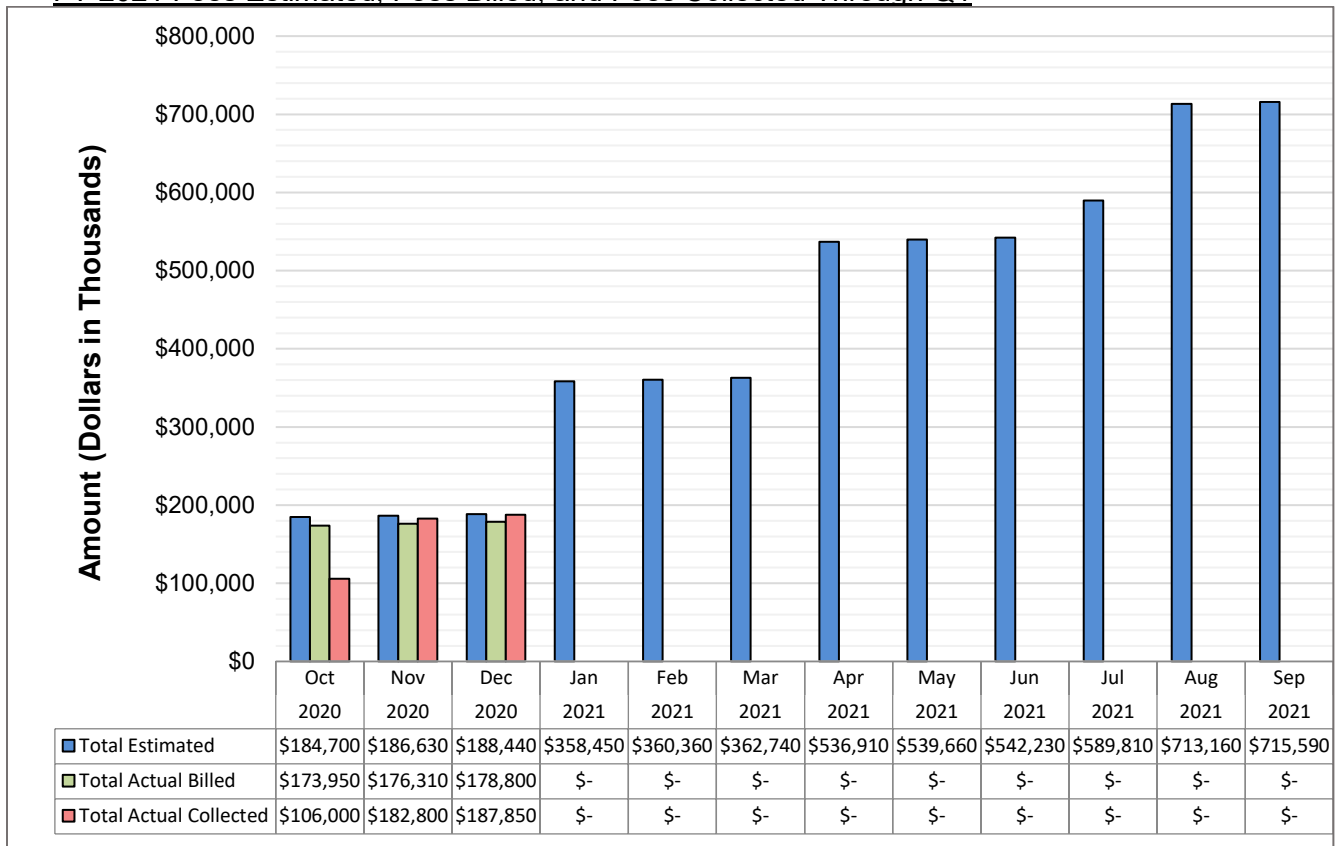
Fund Sources	FY 2021 Budget²	Percent Obligated	Percent Expended
Advanced Reactors	\$15,478	18%	14%
Commission Funds	\$11,836	15%	15%
Fee-Based Funds	\$785,430	17%	16%
General Funds	\$1,303	11%	11%
International Activities	\$14,500	17%	13%
Integrated University Program	\$32,352	12%	0%
Official Representation	\$25	0%	0%
Total	\$860,924	18%	16%
NRC Control Points	FY 2021 Budget	Percent Obligated	Percent Expended
Nuclear Reactor Safety	\$426,653	21%	19%
Nuclear Materials and Waste Safety	\$98,367	20%	18%
Decommissioning and Low-Level Waste	\$21,821	22%	19%
Corporate Support	\$281,731	15%	13%
Integrated University Program	\$32,352	12%	0%
Total	\$860,924	18%	16%

FTE Utilization, Hiring, and Attrition

Total Year to Date (YTD) FTE Utilization	Projected End of Year FTE Total Utilization	Quarter 1 Hiring	Quarter 1 Attrition	YTD Hiring	YTD Attrition
638.4	2772.3	23	26	23	26

² The agency was operating under the Continuing Appropriations Act of 2021 in December 2020; therefore, this table reflects the FY 2020 total annualized rate (i.e., the FY 2020 enacted levels). The next report will reflect the enactment of the Consolidated Appropriations Act, 2021.

FY 2021 Fees Estimated, Fees Billed, and Fees Collected Through Q1



Total 10 CFR Part 170 Fees Billed (Dollars in Millions)

FY 2019	FY 2020	FY 2021 Q1
\$245.3	\$205.7	\$51.4

Enclosure 2 – Status of Specific Items of Interest

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 reporting period, and projected activities under each item for the next two reporting periods.

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.

During the reporting period, the NRC held seminars for the staff on topics related to the agency transformation as part of the agency’s annual KNOWvember knowledge management awareness activities. One seminar featured Professor Malcolm Sparrow of Harvard University, who provided insights on the strategic and managerial aspects of risk-informed decisionmaking. Other sessions covered topics such as using Wiki platforms in government and industry, the status of the NRC’s Innovate NRC 2.0 program, and updates on the agency’s transformation efforts related to use of technology.

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

Transformation Activities	Projected Completion Date	Completion Date
Conduct series of “KNOWvember” seminars on transformation focus areas and knowledge management activities.	11/30/20	11/30/20
Conduct seminars for agency staff on strategic and managerial aspects of risk-informed decisionmaking.	12/31/20	11/06/20
Launch a platform for employees, known as Launch Employee Journey, to highlight opportunities for career progression in disciplines where future skill gaps are anticipated.	02/01/21	12/31/20

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Transformation Activities	Projected Completion Date
Communicate the launch of 2021 Objectives and Key Results (OKR) transformation performance management framework across the agency with the expectation to develop office-level OKRs that will support transformation.	01/04/21
Launch new training module for the agency’s Be riskSMART framework and include it in the agency’s training management system.	01/29/21

Projected Transformation Activities	Projected Completion Date
Communicate the progress of transformation activities at the 2021 Regulatory Information Conference.	03/11/21
Conduct a survey of NRC staff on organizational culture to assess progress made since the initial survey in March 2020.	04/30/21. ³
Brief the Commission on staff's transformation activities (public meeting).	06/30/21

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. The first step in this process is an Agency Environmental Scan that projects the amount and type of work anticipated in the next 5 years and identifies the workforce needs in order to perform it. By analyzing the current workforce and comparing it to future needs, skill gaps 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 (Q1 FY 2021)

Workforce Development and Management Activities	Projected Completion Date	Completion Date
Complete Agency Environmental Scan to support 2021 SWP activities.	12/04/20	12/10/20 ⁴
Make selections for 63 new 2021 Temporary Summer Student internships in alignment with short- and long-term identified skill needs.	12/31/20	12/31/20

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Workforce Development and Management Activities	Projected Completion Date
Complete SWP process steps for FY 2021.	06/30/21
Complete onboarding activities for Summer Students.	06/30/21

2-3 Accident Tolerant Fuel

The NRC continues to make 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 executing the ATF project plan (Agencywide Documents Access and Management System (ADAMS) Accession No. [ML19301B166](#)). The NRC staff is currently reviewing three ATF fuel vendor topical reports. One topical report is on a new type of doped fuel pellet called "Westinghouse Advanced Doped Pellet Technology (ADOPT™) Fuel" (ADAMS Accession No. [ML20132A014](#)) and another covers increased burnup limits for a fuel cladding material (ADAMS Accession No. [ML20003E125](#)). The staff is also reviewing a third vendor topical report that

³ This activity was delayed by one month while awaiting contract funding to administer the survey.

⁴ The Agency Environmental Scan to support FY 2021 SWP activities was completed on December 10, 2020, which coincided with a discussion among senior leaders on the scan. The Agency Environmental Scan will continue to be refined to account for new information throughout 2021.

discusses allowing the use of higher burnup lead test assemblies (ADAMS Accession No. [ML20350B834](#)). The NRC staff is preparing for several additional ATF submittals from fuel vendors in calendar year (CY) 2021.

During the reporting period, the NRC staff approved one ATF-related request and reviewed three reports on ATF-related topics. The request was for an amendment to the certificate of compliance for a transportation package for lead test assemblies with ATF rods to Monticello Nuclear Generating Plant (ADAMS Accession No. [ML20283A357](#)). The first report was prepared by Pacific Northwest National Laboratory (PNNL) for the NRC and concerned storage and transportation of spent nuclear fuel involving near-term ATF concepts, specifically chromium-coated (Cr-coated) zirconium alloy and iron-chromium-aluminum (FeCrAl) cladding (ADAMS Accession No. [ML20274A250](#)). The second report, also prepared by PNNL, addressed in-reactor degradation and failure modes of FeCrAl cladding concepts (ADAMS Accession No. [ML20272A218](#)). The third report, prepared by Energy Research, Inc., was a literature review examining the implications to severe accident progression and radiological releases for ATF concepts (ADAMS Accession No. [ML20287A477](#)). A draft of this third report was used by the expert panel in the Severe Accident Phenomena Identification and Ranking Table (PIRT) exercise that occurred in September 2020. All three reports discuss the current state-of-the-art knowledge on these ATF topics and the NRC staff will use them to guide future actions to reduce uncertainty and enhance efficiency in reviews of ATF-related submittals.

As noted in the last quarterly report, the first expert meeting of the Severe Accident PIRT was conducted in September 2020 and a meeting summary is now available at ADAMS Accession No. [ML20272A160](#). Additional meetings were held January 11-15, 2021 and January 25-29, 2021, and more are planned for March 15-19, 2021. The findings of the expert elicitation panels will be documented in a final PIRT report planned for Q3 of FY 2021.

The NRC staff is participating in the Collaborative Research on Advanced Fuel Technologies for Light Water Reactors organized by the Electric Power Research Institute. This effort is focused on addressing technical issues associated with the licensing of ATF concepts involving increased enrichment or higher burnup.

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

ATF Activities	Projected Completion Date	Completion Date
Issuance of literature review by Energy Research, Inc. on the implications to severe accident progression and radiological releases of accident tolerant fuel concepts (ADAMS Accession No. ML20287A477). ⁵	10/08/20	10/08/20
Issuance of Spent Fuel Storage and Transportation of ATF Concepts report by PNNL. This report provides an assessment of available information related to the storage and transportation of spent nuclear fuel involving near-term ATF concepts, specifically Cr-coated zirconium alloy and FeCrAl cladding (ADAMS Accession No. ML20274A250).	10/31/20	10/05/20

⁵ A draft of this literature review was used by Severe Accident PIRT panel in September 2020.

ATF Activities	Projected Completion Date	Completion Date
Issuance of FeCrAl cladding report by PNNL. This report identifies and discusses degradation and failure modes of FeCrAl cladding concepts, including fuel performance characteristics that may not be addressed within existing regulatory documents (ADAMS Accession No. ML20272A218).	10/31/20	09/28/20
Complete review of ATF-related request from Framatome to transport ATF lead test assemblies to Monticello Nuclear Generating Plant (ADAMS Accession No. ML20283A357).	01/08/21	10/09/20
Hold a pre-application meeting to discuss Framatome's planned request to amend their Certificate of Compliance to allow transport of ATF with enrichments above 5 weight percent U-235 (ADAMS Accession No. ML20322A452). ⁶	12/07/20	12/07/20

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected ATF Activities	Projected Completion Date
Issuance of a report on assessment of existing transportation packages for use with high-assay low-enriched uranium. This report will assess the potential to use currently licensed transportation packages for the transportation of increased enrichment unirradiated uranium fuel forms.	02/28/21
Issuance of a report on isotopic and fuel lattice parameter trends in increased enrichment and higher burnup pressurized water reactor fuel. This report will assess the isotopics at increased enrichments and higher burnups and quantify impact on fuel parameters.	02/28/21
Issuance of a report on ATF applied to pressurized and boiling water reactors including reactivity, isotopics, and decay heat. This report will assess the SCALE code updates necessary to evaluate these parameters for ATF.	02/28/21
Host an NRC Regulatory Information Conference session on ATF. The session will provide the public and other stakeholders with a status update for ATF activities and an opportunity to ask questions of the NRC staff and industry representatives.	03/09/21
Issue a decision on a proposed license amendment to Calvert Cliffs Nuclear Power Plant to allow the insertion of ATF lead test assemblies in non-limiting core locations.	03/31/21
Issuance of a severe accident PIRT report that covers the performance of the reactor during severe accidents for the current ATF concepts, higher burnup fuel, and fuel with enrichment above five weight percent. The report will also document findings from the expert elicitation panels held in Q1 and Q2 of FY 2021. The report will be used by the NRC to support changes to the regulatory infrastructure for ATF, higher burnup, and fuel with enrichment above five weight percent.	05/31/21

⁶ This emergent meeting was both requested and held in Q1 of FY 2021 and was not included in the last report.

2-4 Digital Instrumentation and Control

The NRC staff continues to complete digital instrumentation and control infrastructure improvements to address protection against common cause failure and commercial grade dedication of digital equipment.

Regarding protection against common cause failure, the NRC staff briefed the Advisory Committee on Reactor Safeguards (ACRS) full committee on November 4, 2020, on its update of Branch Technical Position (BTP) 7-19, “Guidance for Evaluation of Defense-In-Depth and Diversity to Address Common Cause Failure Due to Latent Design Defects in Digital Safety Systems.”⁷ The ACRS provided a letter recommending issuance of the BTP following incorporation of two recommendations. The NRC staff addressed the recommendations from the ACRS and provided the BTP to the Office of Management and Budget (OMB) on December 16, 2020, for a major/non-major rule determination under the Congressional Review Act (CRA). On December 21, 2020, OMB determined that the BTP was not a major rule under the CRA. The NRC staff published the final BTP on January 29, 2021 (ADAMS Accession No. ML20339A642).

Regarding commercial grade dedication of digital equipment, on November 3 - 6, 2020, the NRC staff observed an accreditation evaluation of Exida (a 3rd party certifying body) by the accrediting body American National Standards Institute National Accreditation Board (ANAB). This will facilitate the NRC staff’s review of the Nuclear Energy Institute’s (NEI) draft NEI 17-06, “Guidance on Using IEC 61508 SIL Certification to Support the Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Related Applications” (ADAMS Accession No. [ML19273A007](#)). NEI is updating NEI 17-06 to better reflect the ANAB’s accreditation process, add a checklist to the proposed methodology to be used by industry going forward, and to more thoroughly explain the quality assurance activities for the proposed NEI 17-06 methodology. The NRC staff anticipates receiving NEI 17-06 by the end of February 2021 (a change from NEI’s previous goal of submitting by December 31, 2020), for NRC review and potential endorsement.

The NRC staff continues to review and prepare for anticipated digital modernization license amendment requests (LARs). On August 26, 2020, the NRC staff accepted a LAR for review from Entergy for an upgrade to the core protection calculator at Unit 3 of the Waterford Steam Electric Station. The NRC staff anticipates issuing a licensing decision by the end of August 2021. On December 9, 2020, the NRC staff held a public pre-submittal meeting with NextEra Florida Power and Light Company to discuss plans to submit an extensive digital modification LAR at Turkey Point Units 3 and 4 in CY 2021. On December 11, 2020, Exelon Generation Corporation, LLC provided a letter-of-intent to submit a LAR in CY 2022 for an extensive digital modernization of multiple safety systems at the Limerick Generating Station.

⁷ Revision 7 of the BTP is titled, “Guidance for Evaluation of Diversity and Defense-In-Depth in Digital Computer Based Instrumentation and Control Systems.” The proposed update (Revision 8) is titled, “Guidance for Evaluation of Defense-In-Depth and Diversity to Address Common Cause Failure Due to Latent Design Defects in Digital Safety Systems” to better reflect the intent of the updated guidance.

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

Digital Instrumentation and Control Activities	Projected Completion Date	Completion Date
Update BTP 7-19, "Guidance for Evaluation of Defense-In-Depth and Diversity to Address Common Cause Failure due to Latent Design Defects in Digital Safety Systems."		
<ul style="list-style-type: none"> ACRS Full Committee Meeting 	11/30/20	11/04/20
<ul style="list-style-type: none"> Hold a public meeting to discuss resolution of comments.⁸ 	12/21/20	Cancelled
<ul style="list-style-type: none"> Submit request to the OMB for major/non-major rule determination for BTP 7-19 under CRA in preparation for final issuance. 	12/31/20	12/16/20
Review NEI 17-06, "Guidance on Using IEC 61508 SIL Certification to Support the Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Related Applications," and consider endorsement through issuance of a regulatory guide (RG).		
<ul style="list-style-type: none"> Observe audit of a third-party certifying body. 	11/30/20	11/06/20
Significant Digital Modernization LAR Milestones.		
<ul style="list-style-type: none"> Conduct a pre-application meeting for a major digital modernization project at Turkey Point Units 3 and 4.⁹ 	12/09/20	12/09/20

⁸ This activity was cancelled because the additional public comments received on the proposed revision 8 to BTP 7-19 were not substantial enough to warrant a dedicated public meeting.

⁹ This emergent meeting was both requested and conducted in Q1 FY 2021. Therefore, it was not included in the last report.

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Digital Instrumentation and Control Activities	Projected Completion Date
Update BTP 7-19, "Guidance for Evaluation of Defense-In-Depth and Diversity to Address Common Cause Failure due to Latent Design Defects in Digital Safety Systems."	
<ul style="list-style-type: none"> Issue Revision 8 to BTP 7-19. 	01/31/21
Review NEI 17-06, "Guidance on Using IEC 61508 SIL Certification to Support the acceptance of Commercial Grade Digital Equipment for Nuclear Safety Related Applications," and consider endorsement through issuance of an RG.	
<ul style="list-style-type: none"> NEI to submit NEI 17-06 for NRC review. 	02/19/21
Significant Digital Modernization LAR Milestones	
<ul style="list-style-type: none"> Conduct second pre-application meeting for Turkey Point digital modernization project (ADAMS Accession No. ML20351A205). 	01/13/21

2-5 Vogtle Electric Generating Plant Units 3 and 4

The NRC issued two combined licenses to Southern Nuclear Operating Company (SNC) and its financial partners on February 10, 2012, for two AP1000 units to be built and operated at the Vogtle site near Augusta, GA. SNC's public milestone for initial fuel loading of Vogtle Electric Generating Plant (Vogtle) Unit 3 remains April 30, 2021. The NRC staff adjusted the agency's activities and associated milestone dates to reflect the revised initial fuel loading date. In addition, the NRC staff continued licensing and inspection activities to support the NRC staff's evaluation that the acceptance criteria in the combined license are met.

During the COVID-19 public health emergency (PHE), due to the successful application of technology for telework and remote access to licensee information, construction inspections and licensing activities continue with only minor interruptions. The NRC continues to closely monitor COVID-19 cases and perform mission-critical inspections through a combination of remote inspections and targeted onsite inspections based on safety significance and the uniqueness or complexity of the construction activity.

The NRC completed the final two LARs related to the staff's ongoing work toward the 10 CFR 52.103(g) finding (i.e., the finding to confirm whether all inspections, tests, analyses, and acceptance criteria (ITAAC) have been successfully completed) and readiness to transition to operations for Vogtle Unit 3.

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

Vogtle Electric Generating Plant Units 3 and 4 Activities	Projected Completion Date	Completion Date
Issue amendments for LARs 20-004 and 20-005 (ADAMS Accession Nos. ML20247J464 and ML20314A016 , respectively).	12/30/20	12/07/20

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Vogtle Electric Generating Plant Units 3 and 4 Activities	Projected Completion Date
Conduct public meeting to discuss Vogtle Readiness Group activities.	03/31/21

Projected Vogtle Electric Generating Plant Units 3 and 4 Activities	Projected Completion Date
Issue safety evaluation for request for alternative, "Alternative Requirements for American Society of Mechanical Engineers (ASME) Section XI Examination Coverage of Weldolet Branch Connection Welds (VEGP 3&4-PSI/ISI-ALT-15)."	04/13/21
Once the NRC determines that all ITAAC have been met, issue the finding that all acceptance criteria contained in the Vogtle Unit 3 license have been met and that the licensee may operate the facility, in accordance with 10 CFR 52.103(g) (provided the requisite findings are made).	04/08/21
Provided the requisite findings are made, issue amendment regarding emergency plan changes.	06/30/21

NRC Inspections and ITAAC Reviews for the Reporting Period (Q1 FY 2021)

A combined license allows a licensee to construct a plant and to operate it once construction is complete if certain standards identified in the combined license are satisfied. These standards are called ITAAC. The majority of ITAAC are from the design certification for the particular reactor technology that a plant uses. Throughout the construction process, NRC inspectors will perform inspections based upon [Inspection Manual Chapter 2503](#), "Construction Inspection Program: Inspections of Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) Related Work," and the NRC's [Construction Inspection Program](#) at the plant site to confirm that the licensee has successfully completed the ITAAC.

Additional information on the ITAAC process as well as closure for Vogtle Units 3 and 4 is available at <https://www.nrc.gov/reactors/new-reactors/oversight/itaac.html>.

Unit	Number of ITAAC Remaining Requiring Inspection	Total Inspections Completed ¹⁰	ITAAC Inspected ¹¹	ITAAC Inspections Closed ¹²
Vogtle 3	105	51	32	8
Vogtle 4	131	8	4	0

ITAAC Reviews Completed for the Reporting Period (Q1 FY 2021)

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 notice and the date when the review was completed.

¹⁰ This column includes all inspections related to Vogtle Unit 3 and 4 completed during the reporting period; the column is not limited to ITAAC (e.g. quality assurance inspections).

¹¹ "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.

¹² "ITAAC Inspection Closed" refers to the number of ITAAC for which all associated inspections have been completed during the reporting period.

Unit	ITAAC No.	Received Date	Approval Date
Vogtle 3	2.1.02.12a.i	09/28/2020	10/05/2020
Vogtle 3	2.1.03.13	11/25/2020	12/02/2020
Vogtle 3	2.2.01.11a.i	11/24/2020	12/02/2020
Vogtle 3	2.2.02.05c	10/07/2020	10/08/2020
Vogtle 3	2.2.03.12a.iv	10/13/2020	10/20/2020
Vogtle 3	2.3.14.04	11/13/2020	11/18/2020
Vogtle 3	2.4.06.02	10/16/2020	10/20/2020
Vogtle 3	3.2.00.04	12/04/2020	12/08/2020
Vogtle 3	3.3.00.02a.i.a	10/13/2020	10/21/2020
Vogtle 3	3.3.00.02b	10/30/2020	11/05/2020
Vogtle 3	3.3.00.02f	11/06/2020	11/12/2020
Vogtle 3	3.3.00.02h	12/04/2020	12/10/2020
Vogtle 3	3.3.00.13	11/20/2020	12/07/2020
Vogtle 3	E.3.9.05.01.08	10/02/2020	10/06/2020
Vogtle 3	2.2.02.07a.iii	12/11/2020	12/14/2020
Vogtle 3	2.3.06.12a.i	12/10/2020	12/11/2020
Vogtle 3	2.1.02.01	12/18/2020	12/21/2020
Vogtle 3	2.3.02.11a.i	12/17/2020	12/22/2020
Vogtle 3	2.3.04.04.i	12/15/2020	12/16/2020
Vogtle 3	3.3.00.07e	12/14/2020	12/21/2020
Vogtle 4	2.3.03.03a	12/21/2020	12/23/2020

Vogtle Units 3 and 4 License Amendment Request Reviews Completed (Q1 FY 2021)

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
2	2

2-6 NuScale Small Modular Reactor Design Certification

On March 15, 2017, the NRC accepted the NuScale Power, LLC (NuScale) application for a small modular reactors (SMR) design certification review. The NRC staff completed its technical review on August 28, 2020.

In February 2020, the NRC was informed that NuScale had identified an issue with the emergency core cooling system (ECCS). As a result, NuScale implemented design changes affecting the ECCS actuation timing and addressed concerns related to containment water level accumulation and boron dilution in the downcomer. The proposed design changes required NuScale to revise parts of its Final Safety Analysis Report and associated technical and topical reports, which required further NRC review. NuScale submitted the proposed final design changes and supporting information to the NRC on May 20, 2020 (ADAMS Accession No. [ML20141L787](#)).

The NRC staff presented its findings related to the proposed design changes to the ACRS in July 2020. As a result, Phase 5 (ACRS Review of Advanced Safety Evaluation Report (SER) with No Open Items) was completed on July 31, 2020. The NRC staff completed the final SER on August 28, 2020, (ADAMS Accession No. [ML20023A318](#)) and issued a standard design approval to NuScale on September 11, 2020 (ADAMS Accession No. [ML20247J564](#)). The NRC staff is preparing the draft proposed rule that will propose certifying the design and anticipates publishing the proposed rule for public comment in April 2021..¹³

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

NuScale Small Modular Reactor Design Certification Activities	Projected Completion Date	Completion Date
None	N/A	N/A

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected NuScale Small Modular Reactor Design Certification Activities	Projected Completion Date
Publish proposed rule for NuScale SMR design certification.. ¹⁴	04/02/21

2-7 Advanced Nuclear Reactor Technologies

The NRC is making significant progress in preparation for reviewing non-light-water-reactor (non-LWR) designs, consistent with the NRC staff’s vision and strategy (ADAMS Accession No. [ML16356A670](#)). The NRC staff is currently executing the implementation action plans to achieve non-LWR safety review readiness.¹⁵ During this reporting period, the NRC staff completed a number of significant activities, including the issuance of: 1) a paper to the Commission discussing potential licensing and policy issues specific to micro-reactors; 2) Final Interim Staff Guidance, “Environmental Considerations Associated with Micro-reactors”; and 3) a memorandum to the Commission providing a schedule with milestones and resource requirements to achieve publication of the final 10 CFR Part 53 rule by October 2024. The NRC staff issued preliminary rule language on safety and risk criteria to facilitate discussion of the proposed Part 53 rulemaking during a public meeting held on November 18, 2020. The NRC staff issued additional Part 53 preliminary rule language in December 2020 to support discussion at a January 7, 2021, public meeting.

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/details.html#stakeholder>).

¹³ The original proposed rule publication date of February 8, 2021, has been extended to April 2, 2021.

¹⁴ Additional information regarding this rulemaking is available at: <https://www.nrc.gov/reading-rm/doc-collections/rulemaking-ruleforum/active/RuleDetails.html?id=40>.

¹⁵ The NRC’s public Web site lists the implementation action plans and is updated periodically to show the status of these activities (<https://www.nrc.gov/reactors/new-reactors/advanced/details.html#visStrat>).

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

Advanced Nuclear Reactor Technologies Activities	Projected Completion Date	Completion Date
Host NRC Standards Forum to facilitate the identification of needed consensus codes and standards and explore collaboration to accelerate their development with a focus on advanced non-LWR (ADAMS Accession No. ML20337A122).	10/13/20	10/13/20
Issue SECY-20-0093, "Policy and Licensing Considerations Related to Micro-Reactors" discussing potential licensing and policy issues specific to micro-reactors (ADAMS Accession No. ML20254A363).	10/30/20	10/06/20
Issuance of technical input reports by NUMARK Associates, Inc. of ASME Boiler and Pressure Vessel Code Section III, Division 5 (ADAMS Accession Nos. ML20349A001 and ML20358A145).	10/30/20	12/23/20
Issue a memorandum to the Commission providing a schedule with milestones and resource requirements to achieve publication of the final 10 CFR Part 53 rule by October 2024 (ADAMS Accession No. ML20288A251).	11/02/20	11/02/20
Issue Final Interim Staff Guidance (ISG), ISG-029 "Environmental Considerations Associated with Micro-reactors" (ADAMS Accession No. ML20252A075). ¹⁶	12/31/20	11/27/20

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Advanced Nuclear Reactor Technologies Activities	Projected Completion Date
Issue annual paper to the Commission on the status of advanced reactor readiness activities.	01/31/21
Issue draft white paper with NRC staff views on demonstrating the acceptability of probabilistic risk assessments used to support non-LWR plant licensing.	01/31/21
Issuance of six technical reports regarding operating experience and potential challenges for the transportation, storage, and disposal of advanced reactor fuel types.	01/31/21
Issuance of technical input report by Argonne National Laboratory for the NRC's review of ASME Boiler and Pressure Vessel Code Section III, Division 5. ¹⁷	02/28/21

¹⁶ The [Federal Register Notice](#) was published on October 28, 2020, and the guidance became effective on November 27, 2020.

¹⁷ Issuance delayed from the previous projected date of October 30, 2020, due to relocation of the principal investigator for the report contracted with Argonne National Laboratory.

Projected Advanced Nuclear Reactor Technologies Activities	Projected Completion Date
Issue final technology-inclusive, risk-informed, and performance-based design review guide for instrumentation and controls systems for advanced reactors. ¹⁸	03/31/21
Issuance of three technical reports on materials, chemistry, and component integrity addressing molten salt chemistry, salt compatibility with high temperature materials, high temperature corrosion, and graphite.	03/31/21
Issue Material Control and Accounting guidance for Category II facilities (NUREG-2159).	05/31/21
Issuance of reports on Siting and Licensing Computer Codes, and Computer Code Methodology for Nuclear Fuel Cycle Analysis.	05/31/21
Publish draft NUREG for public comment with proposed fuel qualification methodology to provide guidance for non-LWR developers on qualification of fuel under the Nuclear Energy Innovation and Modernization Act (NEIMA). ¹⁹	06/30/21
Issue preliminary rule language on 10 CFR Part 53 technical requirements. ²⁰	06/30/21
Publish draft Regulatory Guide for endorsement of the ASME Section III, Division 5 Standard for public comment.	06/30/21

2-8 Oklo Power LLC Combined 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, where it would then be used to generate electricity. On March 11, 2020, Oklo submitted a custom combined license (COL) application²¹ for the Aurora reactor to the NRC (ADAMS Accession No. [ML20075A000](#)). The NRC staff determined that the application is acceptable for docketing and is proceeding with the safety and environmental reviews. On June 5, 2020, the NRC informed Oklo (ADAMS Accession No. [ML20149K616](#)) that the NRC staff planned to complete the review in a two-step process. In Step 1, the NRC staff plans to engage Oklo in public meetings, conduct regulatory audits, and issue requests for additional information (RAIs) to efficiently align on four key safety and design aspects of the proposed licensing basis. After aligning on the key aspects in Step 1, the NRC staff will have defined the scope of the full detailed technical review and will develop a schedule to efficiently perform the review in Step 2. Successful completion of Step 2 will involve the NRC staff making its reasonable assurance findings regarding the custom COL application for the Aurora design, conducting its environmental review, and issuing the NRC staff's final SER after the ACRS completes its review.

¹⁸ The original projected date of January 31, 2021, has been extended to allow for additional refinement and review.

¹⁹ Rather than issue a final white paper, previously projected for completion on December 31, 2020, the NRC staff now plans to incorporate stakeholder feedback into a NUREG to provide more formal regulatory guidance.

²⁰ The NRC staff expects to issue preliminary rule language for some subparts of 10 CFR Part 53 periodically during FY2021 Q2 and Q3.

²¹ A custom COL application provides both the design information that would be provided by a certified design and the site-specific information provided with a COL application.

On November 17, 2020, the NRC staff issued a letter to Oklo (ADAMS Accession No. [ML20308A677](#)) extending the Step 1 review in the areas of maximum credible accident methodology, safety classification of structures, systems, and components, and scope of the quality assurance program. In the letter, the NRC stated that Oklo's RAI responses, audit documents, and audit discussions enhanced the staff's understanding of Oklo's novel approach to the Aurora safety case, but did not provide sufficient information to define the scope of the full Step 2 technical review. The NRC staff completed its review of one of the key aspects of the licensing basis, the applicability of regulations, and issued a separate letter documenting Step 1 closure on this topic on November 17, 2020 (ADAMS Accession No. [ML20300A593](#)). The NRC staff continue to work with Oklo on a plan to proceed with remaining review items. Previously reported projected activities have been deferred to dates to be determined, pending a plan from and engagement with the applicant on the path forward.

The NRC holds periodic public meetings to discuss the review of the COL application for the Oklo Aurora design. A list of the meetings can be found on the NRC's public Web site (<https://www.nrc.gov/reactors/new-reactors/col/aurora-oklo/public-meetings.html>).

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

Oklo Combined Operating License Review Activities	Projected Completion Date	Completion Date
Complete initial outreach to local stakeholders (e.g., Governor's office, Congressional staff, Tribes) regarding the environmental review.	10/31/20	10/29/20
Complete audit related to applicability of regulations (ADAMS Accession No. ML20332A178).	10/31/20	11/17/20
Issue letter to document the NRC's review and closure of the applicability of regulations to the Oklo Aurora (ADAMS Accession No. ML20300A593).	11/05/20	11/17/20
Issue letter documenting the status of all Step 1 issues. (ADAMS Accession No. ML20308A677).	11/05/20	11/17/20
Hold second public meeting to discuss the methodology used in the analysis and evaluation of the maximum credible accident.	10/31/20	Canceled ²²
Hold second public meeting to discuss the process to be used for classifying structures, systems, and components (SSCs) in the Aurora design and the treatment for each classification of SSCs.	10/31/20	Canceled ²³
Complete Step 1 and document the NRC staff's understanding of alignment with Oklo on Key technical issues.	11/05/20	The completion date has been deferred until more information is available to complete the staff's review

²² While this activity was projected for FY 2021 Q1 in the FY 2020 Q4 report, the NRC staff now plans to address this issue through the RAI process and audits.

²³ While this activity was projected for FY 2021 Q1 in the FY 2020 Q4 report, the NRC staff now plans to address this issue through the RAI process and audits.

Projected Activities for the Next Two Quarters (Q2 and Q3 FY 2021)

As described, previously projected activities have been deferred.

2-9 Reactor Oversight Process

The ROP is a risk-informed, performance-based oversight program that contains provisions for continuous self-assessment and improvement. The staff developed recommendations to make changes to the ROP in SECY-19-0067, "Recommendations for Enhancing the Reactor Oversight Process," (ADAMS Accession No. [ML19070A050](#)) which 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 (Q1 FY 2021)

Reactor Oversight Process Activities	Projected Completion Date	Completion Date
Issue revision to Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 Inputs" (ADAMS Accession No. ML19179A011).	10/31/20	10/21/20
Complete comprehensive review of problem identification and resolution program and issue report (ADAMS Accession No. ML20247J590).	11/27/20	11/12/20
Complete Annual Regional ROP Implementation Audit (Region IV) and issue audit report (ADAMS Accession No. ML20290A887).	11/30/20	11/24/20

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Reactor Oversight Process Activities	Projected Completion Date
Conduct effectiveness review of the Very Low Safety Significance Issue Resolution process and issue a report.	03/31/21
Conduct effectiveness review of Action Matrix Change for White Findings and issue a report.	03/31/21
Complete CY 2020 ROP Self-Assessment and issue paper to the Commission.	03/31/21

2-10 Backfit

The NRC's backfitting rules are codified in 10 CFR 50.109, 70.76, 72.62, and 76.76. The backfitting rules define backfitting "as the modification of or addition to systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility; any of which may result from a new or amended provision in the Commission's regulations or the imposition of a regulatory staff position interpreting the Commission's regulations that is either new or different from a previously applicable staff position...."²⁴ The rules require, in the absence of an applicable exception, an analysis showing that the backfit would result in a substantial increase

²⁴ 10 CFR 50.109(a)(1). Substantially similar definitions are provided in § 70.76, "Backfitting," § 72.62, "Backfitting," and § 76.76, "Backfitting" for non-reactor facilities.

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 approvals and certifications issued under 10 CFR Part 52. The Commission clarified its backfitting and issue finality policy as well as its policy on “forward fits,” which are requirements or staff interpretations of requirements imposed as a condition of agency approval of a licensee request that result in the modification of or addition to systems, structures, components or design of a facility, in NRC Management Directive 8.4, “Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests.” The NRC completed draft NUREG-1409, “Backfitting Guidelines,” Revision 1, in March 2020 and issued a notice of availability in the *Federal Register* for public comment (ADAMS Accession No. [ML18109A498](#)). This revision would provide additional guidance for the NRC staff on how to implement the Commission’s backfitting and forward fitting policy, including how to process violations that are contested based on unjustified backfitting.

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

Backfit Activities	Projected Completion Date	Completion Date
Evaluate public comments and prepare NUREG-1409, Revision 1 for internal agency concurrence.	11/30/20	12/14/20 ²⁵

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Backfit Activities	Projected Completion Date
Provide NUREG-1409, Revision 1 to the Commission.	03/31/21

2-11 Risk-Informed Activities

The NRC staff continues to make 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” initiative, which is part of the transformation efforts discussed in section 2-1, to the advanced reactor risk-informed activities listed in section 2-7, to individual undertakings in program and corporate offices.²⁶ The NRC staff is implementing the agencywide Be riskSMART risk-informed decisionmaking framework to inform a broad range of decisions spanning technical, legal, and corporate arenas. As part of the Be riskSMART initiative, the staff is tracking its use of risk-informed decisionmaking.

²⁵ The NRC staff completed this item 2 weeks after the projected date due to the complexity of comment resolution.

²⁶ 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>

Activities Planned and Completed for the Reporting Period (Q1 FY 2021)

Risk-Informed Activities	Projected Completion Date	Completion Date
Issue the technical evaluation report for Exubrion Therapeutics proposed procedure for the release of dogs following treatment with a tin-117m colloid (ADAMS Accession Number ML20269A274).	10/29/20	10/30/20
Finalize Risk-Informed Process for Evaluations (RIPE) initiative and associated NRC staff guidance. RIPE leverages current regulations and risk initiatives to allow reactor licensees to justify plant-specific licensing basis changes using a streamlined NRC review process (ADAMS Accession No. ML21006A324). ²⁷	10/30/20	01/07/21
Brief ACRS on proposed final 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 (ADAMS Accession No. ML20324A742).	11/05/20	11/05/20
Provide a seminar for NRC management and staff by Professor Malcolm Sparrow related to risk and regulatory strategies.	11/06/20	11/06/20
Conduct a table-top exercise with NEI on implementing an alternative and flexible licensing strategy for shielding analysis provided in spent fuel storage system applications.	11/06/20	11/06/20
Develop a risk tool to enhance the staff's safety focus during reviews of spent fuel storage system applications and conduct a workshop for external stakeholders to demonstrate how the tool will be applied.	12/17/20	12/17/20

²⁷ This initiative was originally titled "Risk-Informed Process for Exemptions." The title was updated to "Risk-Informed Process for Evaluations" to reflect the initiative's broader applicability to multiple types of licensing basis change requests (e.g., exemptions, license amendments).

Risk-Informed Activities	Projected Completion Date	Completion Date
Issue draft Revision 2 of RG 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," for public comment (available at 85 Fed. Reg. 73088 and ADAMS Accession No. ML20231A856).	12/18/20	11/16/20
Publish Integrated Human Error Analysis System for Event and Condition Analysis Human Reliability Analysis Method workshop report.	12/31/20	12/21/20
Implement revisions to the independent spent fuel storage installation inspection guidance.	12/31/20	12/31/20
Issue Revision 3 of RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk- Informed Activities" (ADAMS Accession No. ML20238B871).	03/31/21	12/29/20

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2021)

Projected Risk-Informed Activities	Projected Completion Date
Publish draft regulatory basis for rulemaking to align licensing processes and apply lessons learned from new reactor licensing for public comment (ADAMS Accession No. ML19161A169).	02/26/21 ²⁸
Issue implementation guidance associated with the RIPE initiative (ADAMS Accession Nos. ML20261H475 and ML21006A324). ²⁹	01/31/21
Conduct a public meeting to discuss rollout of the RIPE initiative and options to broaden the applicability of RIPE to additional NRC licensees.	01/31/21
Complete review of LAR to revise the emergency plans for SNC fleet to change emergency response organization staffing composition and extend staff augmentation times. These LARs are significant in that they result from the risk-informed aspects of the 2019 revision of NUREG-0654, the definitive emergency preparedness evaluation guidance.	03/23/21
Implement the near-term recommendations on building a smarter fuel cycle licensing program (ADAMS Accession No. ML20184A267). ³⁰	03/26/21
Publish Revision 1 to NUREG/CR-7002, "Criteria for Development of Evacuation Time Estimate Studies".	03/30/21

²⁸ The projected completion date has been extended from December 16, 2020, to February 26, 2021, to provide additional time for staff to finalize the document.

²⁹ The implementation guidance was issued earlier than projected (January 7, 2021), and will be reflected as a completed activity in the next report.

³⁰ The projected completion date has been extended from December 31, 2020, to March 26, 2021, to provide additional time for the staff to finalize the document.

Issue final safety evaluation report for the first topical report related to Holtec spent fuel storage systems related to a generic and risk-informed approach on heat load zone configurations. This approach, if approved and adopted for a given Holtec design, will reduce the number of future license amendments.	04/30/21
Brief ACRS on draft Revision 2 of RG 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," for public comment (ADAMS Accession No. ML20231A856).	06/30/21
Implement the recommendations on building a smarter fuel cycle inspection program (ADAMS Accession No. ML20183A242).	06/30/21 ³¹
Identify potential need for changes in guidance to the definition of term "gross-rupture" which could result in operational and licensing efficiencies for spent fuel storage systems through engagement with external stakeholders.	06/30/21

2-12 Coronavirus Disease 2019

On January 31, 2020, the U.S. Department of Health and Human Services declared a PHE for the United States to aid the nation's healthcare community in responding to COVID-19. On March 11, 2020, the COVID-19 outbreak was characterized as a pandemic by the World Health Organization. On that same day, the NRC COVID-19 Task Force began developing and implementing precautionary measures in response to the PHE to help protect the health and safety of our workforce consistent with guidance provided by the Federal Government, including the Centers for Disease Control and Prevention (CDC), as well as considerations of State and local conditions around NRC facilities. Throughout the PHE, the NRC continues to protect public health and safety and the environment. The NRC is monitoring the effects of the COVID-19 PHE on NRC-licensed activities as well as actions taken in response to State, local, and site-specific conditions. The NRC is poised to take additional appropriate steps as needed. On September 15, 2020, the NRC staff briefed the Commission on the NRC's response to the COVID-19 PHE, including licensing and oversight activities, the use of technology, public engagement, and strategies to overcome ongoing and emergent challenges (ADAMS Accession No. [ML20253A200](#)). This public meeting was part of the NRC's ongoing efforts to ensure transparency during the COVID-19 PHE.

NRC Re-Occupancy of Facilities

On June 15, 2020, the NRC moved to Phase 1 of the Re-Occupancy Plan at NRC headquarters, all four regions, and the Technical Training Center (TTC). On July 12, 2020, NRC headquarters, Region I, and Region III transitioned to Phase 2 while Region II, Region IV, and the TTC remained in Phase 1 due to consideration of State and local conditions. On November 19, 2020, NRC Region III transitioned from Phase 2 back to Phase 1 of the NRC Re-Occupancy Plan. On December 18, 2020, NRC Region I transitioned from Phase 2 back to Phase 1 of the NRC Re-Occupancy Plan. These shifts from low to moderate mitigation considered both worsening COVID-19 conditions in Illinois and Pennsylvania, respectively, and

³¹ This activity was originally projected to be completed by November 30, 2020, and most of the inspection procedures identified for revision were completed by December 31, 2020. However, seven procedures (not needed to complete inspection in Q1 of CY 2021) remain in the final stages of review. The staff also plans to implement two longer-term recommendations from the smarter fuel cycle inspection report in the third quarter of FY 2021: 1) performing an in-depth assessment of the scope of resident inspector guidance and 2) incorporating into the inspection program the results of the Operating Experience Program and the Fuel Cycle Inspection Assessment Program.

the re-imposition of increased State and local mitigation measures. Enhanced screening (i.e., temperature checks and access questions) applies to NRC facilities in Phase 1. The agency continues to closely monitor State and local conditions as well as guidance from the CDC, Occupational Safety and Health Administration, and OMB in consideration of re-occupancy decisions to help protect the health and safety of the workforce.

Licensing and Oversight Items of Interest

The NRC staff has taken steps to identify areas of our regulations that are challenging during the PHE, and the areas where temporary flexibilities, such as exemptions, would not compromise the ability of licensees to maintain the safe and secure operation of NRC-licensed facilities. The NRC staff continues to communicate the processes available to licensees for requesting these flexibilities in a transparent way through public communications, such as teleconferences, webcasts, and letters. In addition, these processes and the approved flexibilities are posted and updated on the NRC public Web site (<https://www.nrc.gov/about-nrc/covid-19/>).

During the reporting period, the agency noticed 181 public meetings in the Washington, D.C. area and in States with NRC-licensed or proposed facilities to address a range of NRC issues. Due to health and safety concerns related to COVID-19, these meetings were held virtually via webcast or by teleconference. The NRC has also developed portions of its Web site devoted to the regulatory activities taken in response to the COVID-19 PHE. Specific posts related to [nuclear power plant licensees](#), [nuclear materials licensees](#), and [security and emergency preparedness](#) have been developed to keep the public informed on how the NRC is adapting its regulatory approach during the pandemic. Between October 1, 2020, and December 31, 2020, the NRC issued 105 licensing actions granting temporary flexibilities to maintain the safe and secure operation of nuclear reactor and nuclear materials licensees. A complete list of licensing actions approved by the NRC in response to the COVID-19 PHE is available on the NRC public Web site at <https://www.nrc.gov/about-nrc/covid-19/>.

On November 10, 2020 (ADAMS Accession No. [ML20261H515](#)), the NRC issued a letter to provide guidance on the continued use of expedited processes beyond December 31, 2020, for COVID-19 related requests in seven topical areas. Enclosures to the letter addressed informational needs for each of the seven topical areas to facilitate the continued licensee's use of the NRC's expedited review process, such as providing justifications for the exemptions requested due to COVID-19 PHE challenges and information related to the potential cumulative effects of these exemptions.

Regulatory Activities Taken in Response to the COVID-19 PHE During the Reporting Period

Licensee Type	Number of COVID-19 Requests Approved During the Reporting Period	Average Number of Days to Review COVID-19 Requests ³²
Power Reactor	96	34
Non-Power Reactor	1	45
Other (e.g., topical reports)	0	N/A

³² This average is calculated based on the date the request is received and the review is completed; review time may be longer in cases where a supplement to a request is received after the initial submission date.

Decommissioning of Nuclear Facilities and Uranium Recovery	0	N/A
Storage and Transportation of Spent Nuclear Fuel	0	N/A
Fuel Cycle Facilities	2	18
Medical, Industrial and Academic Uses of Nuclear Materials and Agreement States	6	32

Enclosure 3 – Summary of Activities

3-1 Reactor Oversight Process Findings

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

Location	Number of Findings	CY 2017	CY 2018	CY 2019	CY 2020 (YTD)
Nationally	Total	560	478	440	254 ³³
Region I	Green	126	107	95	43
	White	2	1	0	0
	Yellow	0	0	0	0
	Red	0	0	0	0
	Greater Than Green Security	0	0	0	0
	Total	128	108	95	43
	No. of Units Operating During CY	25	25	24	21 ³⁴
Region II	Green	119	113	110	69
	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	111	71
	No. of Units Operating During CY	33	33	33	33
Region III	Green	133	110	96	37
	White	4	2	1	0
	Yellow	0	0	0	0
	Red	0	0	0	0
	Greater Than Green Security	0	0	0	1

³³ The inspection reports for the fourth quarter of CY 2020 will continue to be finalized through February 15, 2021. The report for the next reporting period will be updated to include any additional findings from the fourth quarter of CY 2020.

³⁴ The reduction of three units for CY 2020 reflects the permanent shutdown of Pilgrim Nuclear Station on May 31, 2019, Three Mile Island, Unit 1, on September 20, 2019, and Indian Point Nuclear Generating Unit 2 on April 30, 2020.

Location	Number of Findings	CY 2017	CY 2018	CY 2019	CY 2020 (YTD)
	Total	137	112	97	38
	No. of Units Operating During CY	23	23	23	22 ³⁵
Region IV	Green	167	145	137	102
	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	102
	No. of Units Operating During CY	18	18	18	18

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 LARs, 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 ³⁶	Percentage of Licensing Actions Completed Prior to the Established Schedule ³⁷
Q2 FY 2020	173	96	82	100%	94%
Q3 FY 2020	191	213	203	100%	93%
Q4 FY 2020	238	233	186	100%	98%
Q1 FY 2021	224	226	237	100%	92%

³⁵ The reduction of one unit for CY 2020 reflects the permanent shutdown of Duane Arnold on August 10, 2020.

³⁶ Consistent with previous reports, this excludes unusually complex and Fukushima-related licensing actions accepted or initiated prior to July 13, 2019.

³⁷ 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	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
Q2 FY 2020	3	0	1	100%	100%
Q3 FY 2020	8	5	0	N/A	N/A
Q4 FY 2020	3	1	6	100%	100%
Q1 FY 2021	2	1	2	100%	100%

Fuel Facilities

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
Q2 FY 2020	6	4	4	100%	100%
Q3 FY 2020	4	3	5	100%	100%
Q4 FY 2020	3	1	2	100%	100%
Q1 FY 2021	2	1	2	100%	0% ³⁸

3-3 Licensing Amendment Request Reviews

The tables below provide the status of 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).

³⁸ One licensing action was complex; the other was completed approximately 25 days after the established schedule. Both licensing actions were completed within the generic milestone schedule.

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 Schedule³⁹	Percentage of LAR Reviews Completed Prior to the Established Schedule⁴⁰
Q2 FY 2020	343	84	138	100%	92%
Q3 FY 2020	382	125	95	100%	96%
Q4 FY 2020	362	125	145	100%	91%
Q1 FY 2021	354	84	94	100%	92%

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
Q2 FY 2020	6	2	8	100%	100%
Q3 FY 2020	5	3	4	100%	100%
Q4 FY 2020	3	1	3	100%	100%
Q1 FY 2021	1	0	2	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
Q2 FY 2020	11	5	6	100%	100%
Q3 FY 2020	12	14	13	100%	93%
Q4 FY 2020	14	7	5	100%	80%
Q1 FY 2021	14	6	6	100%	100%

³⁹ Consistent with previous reports, this excludes unusually complex and Fukushima-related LARs accepted or initiated prior to July 13, 2019.

⁴⁰ The "established scheduled" is the schedule communicated to the licensee and made publicly available at the completion of the acceptance review.

Unusually Complex LARs⁴¹

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.

Unusually Complex LAR Description	Exclusive Justification	Age (Months)
Point Beach Units 1 and 2 – Exemption to support resolution of GL 2004-02, “Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors.”	Exemption requested relies on completion of the significant review of a unique, plant-specific methodology to resolve issues from GL 2004-02.	26 ⁴²

3-4 Research Activities⁴³

Summary of New Research Projects

During the reporting period, the Office of Nuclear Regulatory Research did not initiate research on or substantially revise any projects.

Summary of Completed Research Projects⁴⁴

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

Technical Support for Nuclear Reactor Regulation National Fire Protection Association (NFPA) 805 Transition Program and other Ongoing Fire Protection Activities	
Importance to the NRC Mission	The tasks and milestones for this research project provided support for the implementation of, and licensee transitions to, the risk-informed, performance-based protection NFPA 805 rule and other ongoing fire protection activities.
Research Results or Findings	The NRC staff made significant contributions supporting the licensing reviews including how to appropriately reflect uncertainties and advance realism in fire protection modeling. Research work led to the development or revision of multiple reference documents, including, but not limited to: <ul style="list-style-type: none"> <li>• NUREG-1824, <i>Verification and Validation of Selected Fire Models for Nuclear Plant Application</i>;

⁴¹ There were no unusually complex license amendment requests for new reactors or fuel facilities within the reporting period.

⁴² The Point Beach LAR was determined to be unusually complex during the technical review.

⁴³ This section provides information about projects that were started or completed during the reporting period that exceeded 300 staff hours or \$500K of program support for the total duration of the project.

⁴⁴ 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.

Technical Support for Nuclear Reactor Regulation National Fire Protection Association (NFPA) 805 Transition Program and other Ongoing Fire Protection Activities	
	<ul style="list-style-type: none"> • NUREG-1921, <i>EPRI/NRC-RES Fire Human Reliability Analysis Guidelines</i> and its supplements; • NUREG-1934, <i>Nuclear Power Plant Fire Modeling Analysis Guidelines</i>; • NUREG-2180, <i>Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities</i>; • NUREG/CR-7010, <i>Cable Heat Release, Ignition, and Spread in Tray Installations During Fire</i>; and • NUREG/CR-7100, <i>Direct Current Electrical Shorting in Response to Exposure Fire</i>.
Duration of the Project	12 years
Estimate of Total Research Resources	27 FTE and \$9M

3-5 Fees Billed

The tables below provide information on Part 170 fees billed for each fee class. For each fee class, the NRC staff compared the fees billed to the receipts estimated in the annual fee rule.⁴⁵

Fee Class	FY 2020 Part 170 Receipts Final – Annual Fee Rule (\$M)	Part 170 Billed in FY 2021 Q1 (\$M)	Total Part 170 – Billed in FY 2021 (\$M)
Fuel Facilities	\$6.8	\$1.9	\$1.9
Generic Decommissioning	\$3.6	\$0.9	\$0.9
Materials Users ⁴⁶	\$1.0	\$0.1	\$0.1
Operating Power Reactors	\$186.7	\$44.4	\$44.4
Research and Test Reactors	\$3.0	\$0.7	\$0.7
Spent Fuel Storage / Reactor Decommissioning	\$15.9	\$3.2	\$3.2
Transportation	\$2.8	\$0.2	\$0.2
Uranium Recovery	\$0.4	\$0.0	\$0.0

⁴⁵ The FY 2020 Final Fee Rule estimated collections are being used until the FY 2021 Proposed Fee Rule is in the final stages of publication.

⁴⁶ Materials Users—Billed as flat fee applications and included in the estimates and billed.

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, Oklo's Aurora COL application, and the SHINE Medical Technologies, LLC (SHINE) operating license application review.

Docket	Project Name	Projected Resources (\$M)⁴⁷	Fees Billed to Date (\$M)⁴⁸
NuScale Power Reactor 05200048	NuScale SMR Design Certification Application Review	\$66.0 ⁴⁹	\$57.8
NuScale Power Reactor 99902043	NuScale SMR Topical Report Reviews (Only those that directly support the design certification review)		\$8.3
North Anna Units 1 and 2 05000338/05000339	North Anna Units 1 and 2 Subsequent License Renewal Application — Safety Review	\$5.0 ⁵⁰	\$0.2
North Anna Units 1 and 2 05000338/05000339	North Anna Units 1 and 2 Subsequent License Renewal Application — Environmental Review	\$1.4	\$0.1
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	\$1.9 ⁵¹
	SHINE Medical Isotope Production Facility		\$3.2

⁴⁷ 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.

⁴⁸ The NRC bills its licensees/applicants in the first month of the quarter following the timeframe in which the work was performed. For example, NRC work performed in October, November, and December, would be invoiced to the licensee/applicant in January. Therefore, the total billed amounts listed in Table 3-5 reflects costs for NRC work performed through September 2020.

⁴⁹ 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 expected to bill through the end of the technical review in September 2020 (\$7.9M). The NRC staff completed its technical review of the NuScale DC and supporting topical reports by the scheduled due date and did so within the projected resources for the remainder of the review. Costs associated with pre-application activities are not included.

⁵⁰ When the formal acceptance letter for the North Anna subsequent license renewal application was sent to the licensee on October 13, 2020 (ADAMS Accession No. [ML20258A284](#)), the NRC estimated that it would take approximately \$6.4M to complete the application review.

⁵¹ When the Surry subsequent license renewal application was accepted for review on December 3, 2018 (ADAMS Accession No. [ML18320A236](#)), the NRC estimated it would take approximately \$6.3M to complete the application review.

Docket	Project Name	Projected Resources (\$M) ⁴⁷	Fees Billed to Date (\$M) ⁴⁸
SHINE Medical Technologies, LLC 05000608	Operating License Application Review — Safety and Environmental Reviews	\$6.2 ⁵²	
Oklo Aurora 05200049	Oklo Aurora COL Application – Safety Review	\$0.5 ⁵³	\$0.2
Oklo Aurora 05200049	Oklo Aurora COL Application – Environmental Review	\$0.2	\$0.1

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 ⁵⁴
Operating Reactors	359	112	158	64
Non-Power Production and Utilization Facilities ⁵⁵	519	69	48	0
Design Certifications for New Reactors ⁵⁶	N/A	N/A	N/A	N/A

⁵² The projected resource estimate was provided to SHINE by letter dated April 30, 2020 (ADAMS Accession No. [ML20114E315](#)).

⁵³ When the Oklo COL application was accepted, the NRC indicated that the staff plans to complete the review in a two-step process. This table contains the projected resources to complete the identified Step 1 safety and environmental aspects of the review (ADAMS Accession No. [ML20308A677](#)).

⁵⁴ 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 that no additional information is needed to resolve the issue.

⁵⁵ 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 operating license application.

⁵⁶ There are no design certification 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 ⁵⁴
Early Site Permits for New Reactors ⁵⁷	N/A	N/A	N/A	N/A
Combined Licenses for New Reactors	10	0	10	0
Fuel Facilities	183	61	97	26
Power Reactor Decommissioning	59	24	33	3
Research and Test Reactor Decommissioning	6	0	6	0
Spent Fuel	871	157	182	32
Materials	0	0	0	6
Pre-Application Activities for Advanced Reactors	27	0	0	0

3-7 Workforce Development and Management

FY 2021 Staffing by Office⁵⁸

	FY 2021 Budget	FTE Utilization 09/27/20 - 10/24/20	FTE Utilization 10/25/20 - 11/21/20	FTE Utilization 11/22/20 - 12/19/20	FTE Utilization as of 12/19/20	Delta (Q1 FTE Utilization – FY 2021 Budget)	End of Year (EOY) ⁵⁹ Projection w/ Personnel Actions	Delta (EOY Projection – FY 2021 Budget)
Totals	2879.1	212.9	212.6	212.8	638.4	-2240.7	2772.3	-106.8
COMM	45.0	2.7	2.7	2.7	8.2	-36.8	38.4	-6.6
OIG	63.0	4.2	4.4	4.3	12.9	-50.1	57.8	-5.2
Totals Other Offices	2771.1	205.9	205.5	205.7	617.3	-2153.8	2676.1	-95.0
OCFO	93.0	6.9	7.0	7.0	21.0	-72.0	91.0	-2.0
OGC	93.0	7.0	6.9	6.9	20.8	-73.2	90.5	-3.5
OCA	10.0	0.8	0.8	0.8	2.4	-7.6	10.9	0.9
OCAA	7.0	0.5	0.5	0.5	1.6	-5.4	6.7	-0.3
OPA	13.0	1.0	1.0	1.0	3.0	-10.0	12.3	-0.7

⁵⁷ 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.

⁵⁸ Some numbers might not add due to rounding.

⁵⁹ Based on FTE utilization as of December 19, 2020.

	FY 2021 Budget	FTE Utilization 09/27/20 - 10/24/20	FTE Utilization 10/25/20 - 11/21/20	FTE Utilization 11/22/20 - 12/19/20	FTE Utilization as of 12/19/20	Delta (Q1 FTE Utilization – FY 2021 Budget)	End of Year (EOY) ⁵⁹ Projection w/ Personnel Actions	Delta (EOY Projection – FY 2021 Budget)
SECY	17.0	1.4	1.4	1.4	4.2	-12.8	18.0	1.0
OIP	34.0	2.5	2.5	2.5	7.4	-26.6	33.1	-0.9
ASLBP	23.0	1.6	1.6	1.6	4.9	-18.1	20.6	-2.4
ACRS	24.0	2.0	2.0	2.0	5.9	-18.1	26.3	2.3
OEDO	23.0	1.6	1.8	1.8	5.2	-17.8	22.9	-0.1
NRR	552.4	41.0	41.3	41.5	123.8	-428.6	537.7	-14.7
NMSS	293.5	23.2	23.0	23.0	69.2	-224.3	296.5	3.0
RES	197.0	14.5	14.5	14.6	43.6	-153.4	191.7	-5.3
NSIR	152.0	12.0	11.9	11.9	35.8	-116.2	151.3	-0.7
R-I	180.2	12.8	12.9	13.1	38.8	-141.4	170.3	-9.9
R-II	223.3	16.3	16.3	16.2	48.8	-174.5	207.5	-15.8
R-III	174.4	12.7	12.6	12.6	37.9	-136.5	164.5	-9.9
R-IV	164.0	12.6	12.4	12.3	37.4	-126.6	158.4	-5.6
OE	30.3	2.3	2.3	2.2	6.8	-23.5	28.6	-1.7
OI	35.0	3.0	3.0	3.1	9.1	-25.9	38.9	3.9
OCIO	167.0	11.7	11.6	11.4	34.6	-132.4	151.4	-15.6
ADM	123.0	9.0	8.9	8.8	26.7	-96.3	116.7	-6.3
SBCR	13.0	0.9	0.8	0.8	2.6	-10.4	11.1	-1.9
OCHC O	127.0	8.4	8.4	8.5	25.3	-101.7	117.3	-9.7
CSU	1.0	0.2	0.2	0.2	0.5	-0.5	2.0	1.0

3-8 Inspection Activities

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

Average Reactor Oversight Process Direct Inspection Hours

Nationwide Per Plant	Column 1 of ROP Action Matrix	Column 2 of ROP Action Matrix	Column 3 of ROP Action Matrix	Column 4 of ROP Action Matrix
1579 Hours	1582 Hours	1548 Hours ⁶⁰	No Plants in Column 3	No Plants in Column 4

⁶⁰ Browns Ferry Nuclear Plant (three-unit boiling water reactor (BWR) site), Vogtle Electric Generating Plant (two-unit pressurized water reactor (PWR) site), Clinton Power Station (1-unit BWR), Grand Gulf Nuclear Station (1-unit BWR) and Surry Power Station Unit 2 (two-unit PWR reactor site) were in Column 2 of the ROP Action Matrix YTD in CY 2020.

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

Items	Description	CY 2019 (Hours)	CY 2020 (YTD) (Hours)
i.	Baseline Inspection	235,718	213,035
ii.	Plant-Specific Inspection	9,096	8,585
iii.	Generic Safety Issue Inspections	3,200	915
iv.	Performance Assessment	1,532	1,836
v.	Other Activities	98,614	87,797
vi.	Total Staff Effort	348,160	312,168
vii.	Total Staff Effort Per Operating Site	6,003 ⁶¹	5,477 ⁶²

3-9 Backfit

Facility-Specific Backfits

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.

⁶¹ 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 was included as an operating site.

⁶² 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.