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

For the Reporting Period of October 1, 2022 through December 31, 2022

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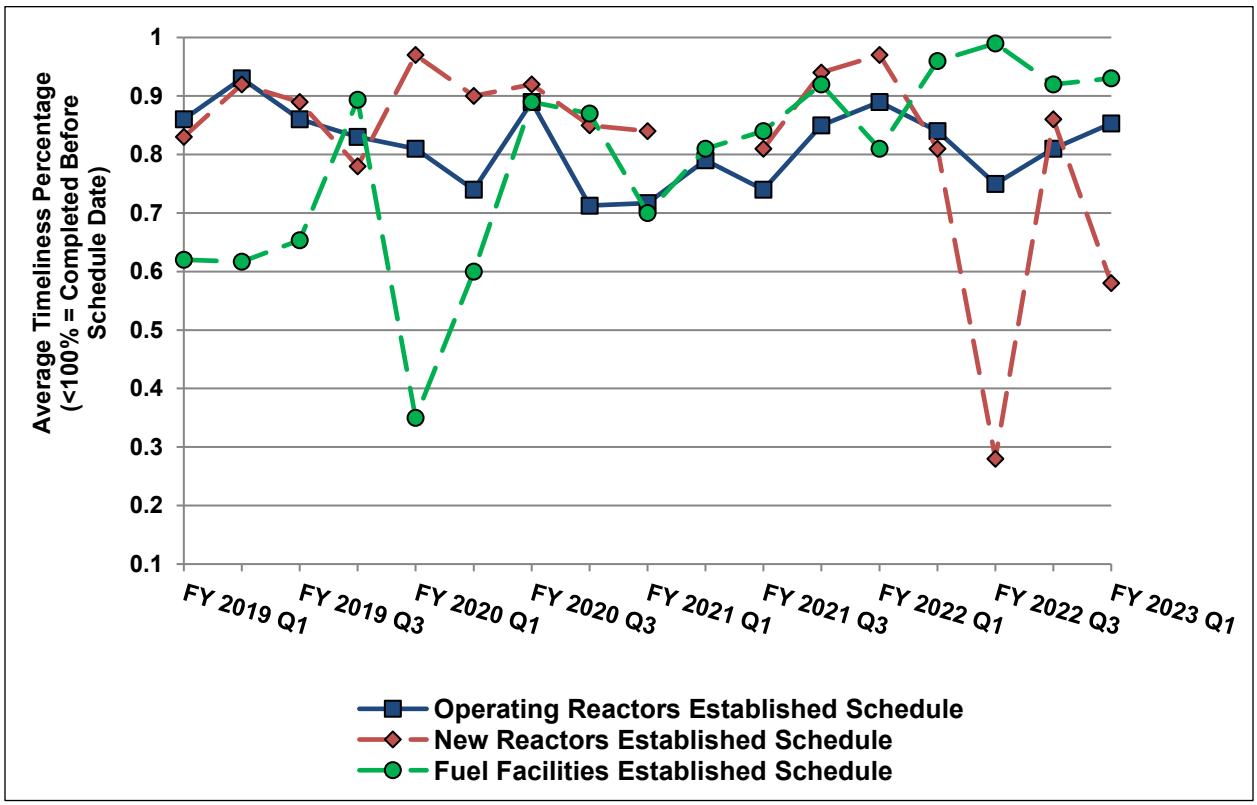
Enclosure 1 – High Level Summary

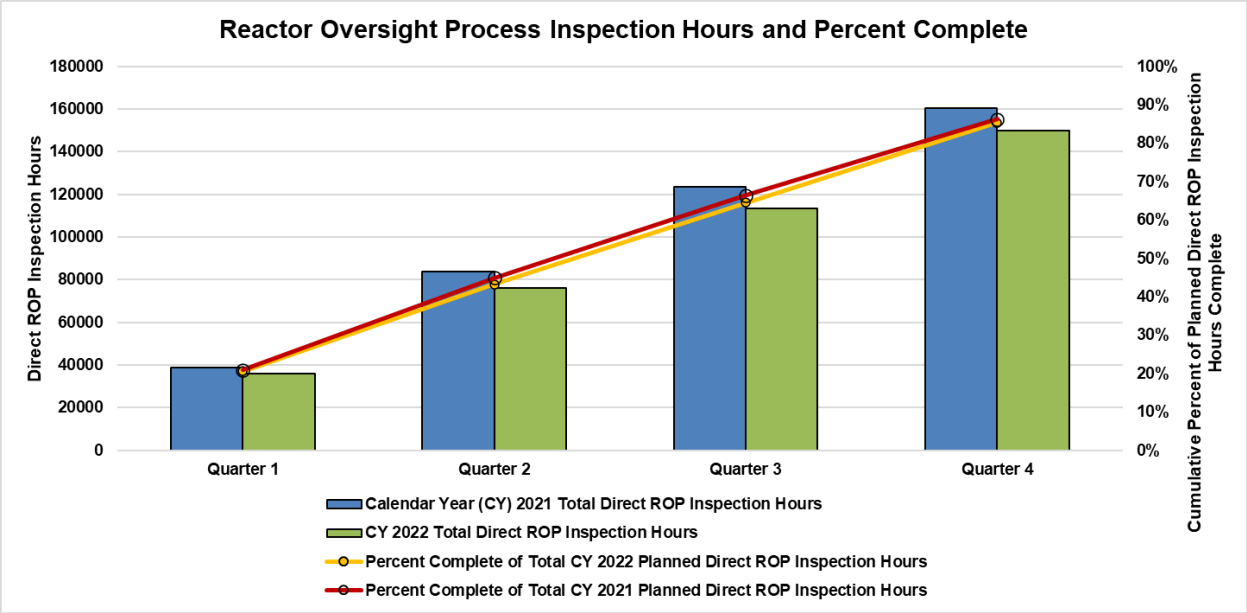
1-1 Average Timeliness Percentage for Licensing Actions Categorized Under the Nuclear Energy Innovation and Modernization Act



[1], [2]

[1] No licensing actions categorized under the Nuclear Energy Innovation and Modernization Act were completed in Quarter (Q) 2 fiscal year (FY) 2021 for the new reactor business line.
[2] There was one activity completed in Q3 FY 2022 for the new reactor business line, and it was completed significantly ahead of the established schedule. Because the one activity was completed in 28 percent of the established schedule, this resulted in the Q3 FY 2022 average timeliness percentage for the new reactor business line being 28 percent.

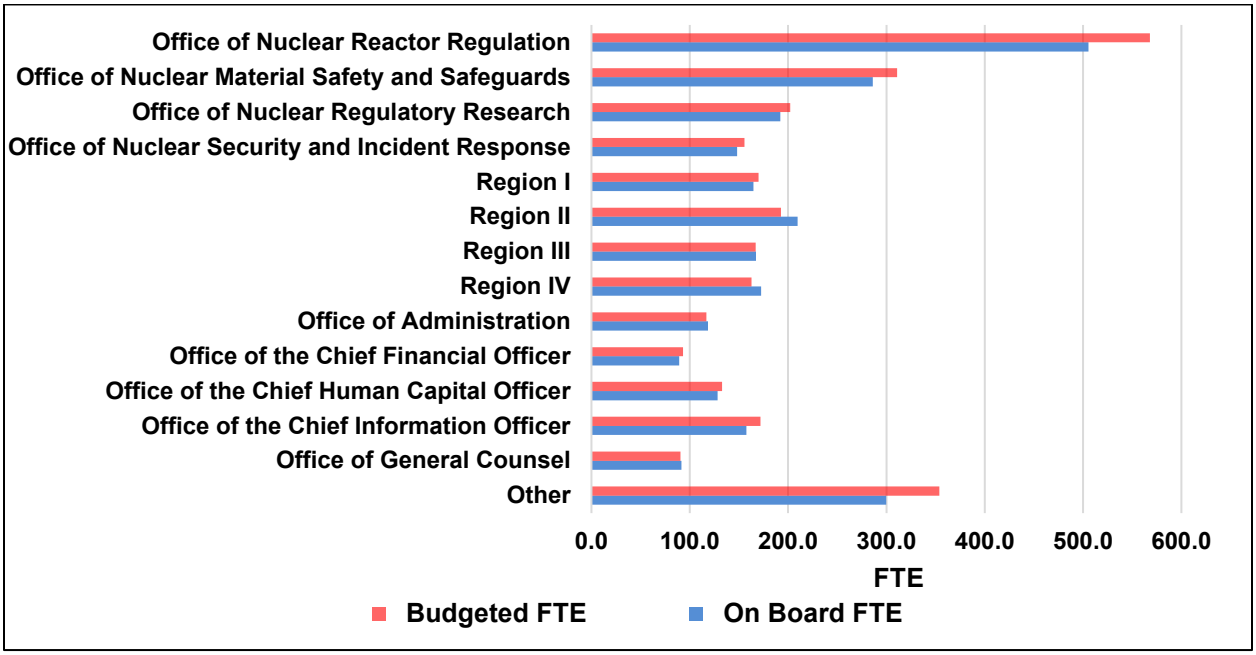
1-2 Reactor Oversight Process (ROP) Inspection Hours and Percent Complete



3

[3] "Planned direct ROP inspection hours" refers to the number of hours associated with completion of the U.S. Nuclear Regulatory Commission's (NRC's) "nominal" number of inspection samples established for the baseline inspection program, which is a conservative target. This contrasts with the "minimum" number of hours that would be necessary to complete the set of inspection activities that constitutes completion of the ROP baseline inspection program for the CY.

1-3 Full-time Equivalent (FTE) at the End of Q1 FY 2023 vs. Budgeted FTE



1-4 Budget Authority, FTE Utilization, and Fees

NRC FY 2023 Budget Authority December 31, 2022 (Dollars in Thousands)

Fund Sources	FY 2023 Budget[4]	Percent Obligated	Percent Expended
Advanced Reactors	$23,000	14%	13%
Commission Funds	$12,252	16%	16%
Fee-Based Funds	$825,670	18%	16%
General Funds[5]	$995	13%	13%
International Activities	$17,174	21%	21%
University Nuclear Leadership Program	$6,900	87%	0%
Official Representation	$25	4%	4%
Total	$886,016	18%	16%
NRC Control Points	FY 2023 Budget	Percent Obligated	Percent Expended
Nuclear Reactor Safety	$477,538	18%	17%
Nuclear Materials and Waste Safety	$107,912	18%	17%
Decommissioning and Low-Level Waste	$23,420	22%	22%
Corporate Support	$270,245	16%	13%

[4] The agency was operating under the Continuing Appropriations and Ukraine Supplemental Appropriations Act, 2023 (as amended) during the reporting period; therefore, this table reflects the FY 2022 total annualized rate (i.e., the FY 2022 enacted levels). This table also includes the carryover allocated during Q1 FY 2023. The next report will reflect the enactment of the Consolidated Appropriations Act, 2023.

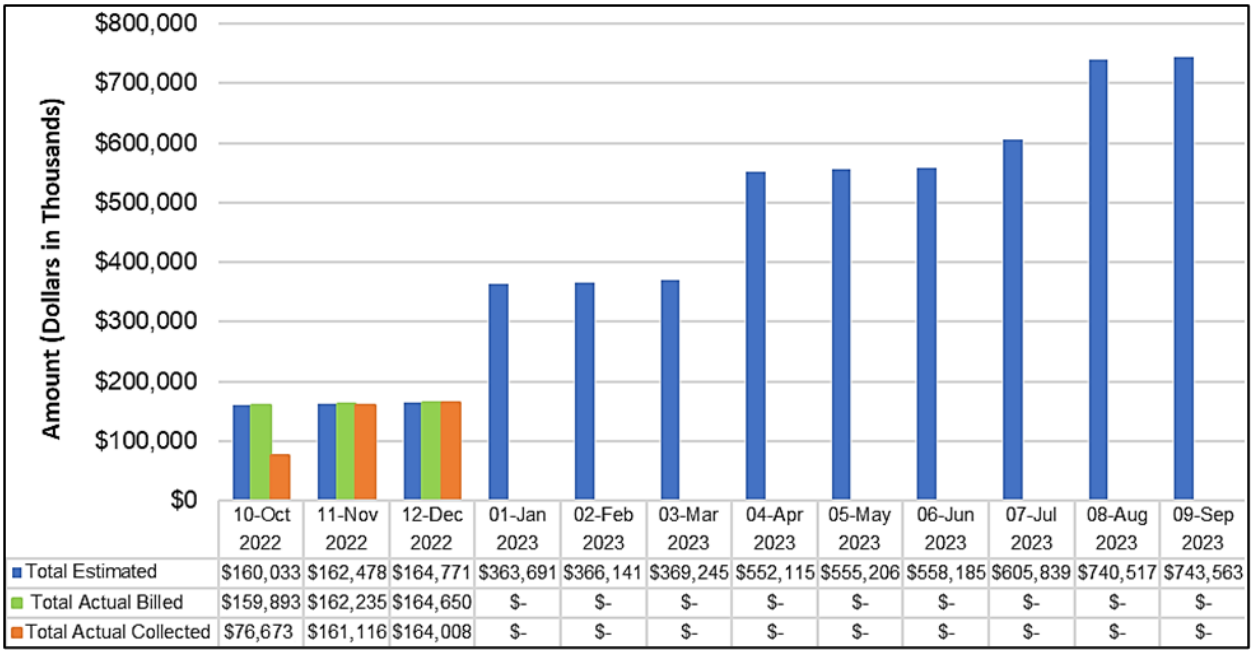
[5] Consistent with previous reports, this row represents waste incidental to reprocessing activities excluded from the fee-recovery requirement.

NRC Control Points	FY 2023 Budget	Percent Obligated	Percent Expended
University Nuclear Leadership Program[6]	$6,900	87%	0%
Total[7]	$886,016	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
729.2	2787.2	58	29	58	29

FY 2023 Fees Estimated, Fees Billed, and Fees Collected Through Q1



	10-Oct 2022	11-Nov 2022	12-Dec 2022	01-Jan 2023	02-Feb 2023	03-Mar 2023	04-Apr 2023	05-May 2023	06-Jun 2023	07-Jul 2023	08-Aug 2023	09-Sep 2023
Total Estimated	$160,033	$162,478	$164,771	$363,691	$366,141	$369,245	$552,115	$555,206	$558,185	$605,839	$740,517	$743,563
Total Actual Billed	$159,893	$162,235	$164,650	$-	$-	$-	$-	$-	$-	$-	$-	$-
Total Actual Collected	$76,673	$161,116	$164,008	$-	$-	$-	$-	$-	$-	$-	$-	$-

Total for Title 10 of the *Code of Federal Regulations* (10 CFR) Part 170, "Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services Under the Atomic Energy Act of 1954, As Amended," Fees Billed (Dollars in Millions)

FY 2021	FY 2022	FY 2023 Q1
$183.9	$190.7	$27.0

[6] The FY 2022 Explanatory Statement identified this control point as the "Integrated University Program." Division Z of the Consolidated Appropriations Act, 2021 replaced the Integrated University Program with the University Nuclear Leadership Program.
[7] Numbers might not add due to rounding.

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 (NRC) is becoming a more modern, risk-informed regulator, open to new technologies and ways of implementing our safety and security mission. The NRC continues to make progress in four focus areas: (1) recruiting, developing, and retaining a strong workforce; (2) improving decision-making 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 agency has completed all but one of our initial agencywide initiatives associated with the four focus areas.

The focus areas (i.e., Our People, Be riskSMART, Using Technology, and Innovation) are interwoven into the agency's strategic goals and objectives. To sustain progress and meet the agency's transformation goals, the NRC uses a variety of tools, including "objectives and key results." The NRC continues to leverage available technologies, increase opportunities for staff to gain new skills, attract talented new staff, and foster a culture of safety and innovation that accounts for differing viewpoints and risk insights in our decision-making. Planned future activities will focus on incorporating positive transformational changes into the agency's culture and processes.

Activities Planned and Completed for the Reporting Period (Quarter (Q) 1 fiscal year (FY) 2023)

Transformation Activities	Projected Completion Date	Completion Date
Updated transformation webpages on the NRC's public website to include information regarding sustaining transformational progress.	12/31/22	12/28/22

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Transformation Activities	Projected Completion Date
Launch a follow-on survey of external stakeholder views on NRC transformation activities.	01/31/23
Conduct first-line supervisor and senior leader sessions on "Organizational Health: Sustaining Transformational Progress in a Hybrid Environment."	03/31/23
Conduct a full reassessment of the agency's cultural norms and behaviors to ensure the agency is sustaining transformational progress.	03/31/23

2-2 Workforce Development and Management

Each fiscal year, the NRC engages in a five-step 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 five years and identifies the workforce needs in order to perform that work. 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.

To cover anticipated attrition and address skill gaps needed to conduct mission-critical work, the agency continued implementing strategies to recruit and onboard a significant number of new employees during this reporting period, and the agency plans to continue this recruitment effort. Senior leaders are collaborating to develop agencywide priorities to concentrate hiring on those positions with the greatest mission impact. This recruitment effort is positioning the agency to fulfill its important safety and security mission well into the future.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

Workforce Development and Management Activities	Projected Completion Date	Completion Date
Completed SWP Step 1, Agency Environmental Scan.	12/31/22	12/30/22
Conducted recruitment activities and made selections for the Summer 2023 Internship Program.	12/31/22	12/30/22

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Workforce Development and Management Activities	Projected Completion Date
Conduct an evaluation of the SWP process for effectiveness and efficiency improvements as identified in the NRC's Annual Evaluation Plan for FY 2023.[8]	03/31/23
Finalize security clearance reviews and prepare for Summer 2023 Student Intern onboarding.	03/31/23
Onboard Summer 2023 Student Interns.	06/30/23
Incorporate approved recommendations from the evaluation of the SWP process in guidance documents and training materials.	06/30/23

2-3 Accident Tolerant Fuel

While the NRC is ready to review and license Accident Tolerant Fuel (ATF), higher burnup, and increased enrichment submittals under the current regulatory framework, the NRC continues to take steps to make agency processes more efficient and effective. The NRC staff is executing

[8] The previous report included language related to the initiation of the FY 2023 SWP cycle. This language has been removed as the cycle initiation date is subject to change following the results of this evaluation.

the ATF project plan (Agencywide Documents Access and Management System Accession No. ML21243A298), which was revised to include an increased focus on higher burnup and increased enrichment fuels.

During this reporting period, the NRC received one additional ATF fuel vendor topical report, which is currently undergoing an acceptance review. The report discusses implementation of updated nuclear methods to support increased enrichment fuels (ML22304A666). The NRC staff also completed its review of one topical report to support use of higher burn up fuel (ML22316A014). The NRC staff is on track to complete review of nine ATF fuel vendor topical reports currently under review by the end of FY 2025, in time to support expected licensee submittals to use ATF.[9] In addition, during the reporting period, the NRC staff accepted for review a license amendment request (LAR) for the use of lead test assemblies containing coated cladding and higher burnup fuel at a licensed nuclear power plant (ML22243A093).

The NRC staff continues to review an application for a transportation package that, if approved, would be used to transport uranium hexafluoride with an enrichment up to 20 weight-percent uranium-235; the NRC staff's review of this application (ML21181A001) is now expected to be completed by the end of March 2023. The NRC expects to receive additional certificate of compliance amendment applications and LARs in CY 2023 from transportation package vendors and fuel facilities respectively. The NRC expects that these submittals will request approval for enrichment levels up to 8 weight-percent uranium-235.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

ATF Activities	Projected Completion Date	Completion Date
N/A	N/A	N/A

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected ATF Activities	Projected Completion Date
Hold a Commission meeting to provide an update on the status and issues associated with the path to licensing ATF concepts.	01/24/23[10]
Participate in the 2023 NRC Regulatory Information Conference (RIC) to provide stakeholders an opportunity to learn about the progress of ATF licensing activities and technologies to date and the activities that support efficient licensing of ATF concepts. At the RIC, the NRC staff will communicate about ATF readiness activities, planned stakeholder engagements, the NRC's projected licensing timelines, and any challenges to ATF deployment timelines.	03/14/23

[9] The nine ATF fuel vendor topical reports include the report submitted during this reporting period that is currently undergoing an acceptance review as well as a report submitted prior to the reporting period that is now understood to have the potential to be relied upon in future ATF submittals.
[10] The projected completion date for the Commission meeting was finalized during this reporting period and was modified from March 31, 2023, to January 24, 2023.

Projected ATF Activities	Projected Completion Date
Complete review of the DN30-X transportation package that, if approved, would be used to transport uranium hexafluoride with an enrichment up to 20 weight-percent uranium-235 (ML21181A001).	03/31/23[11]
Hold a fourth Higher Burnup workshop to discuss the state of development of higher burnup and increased enrichment technical and regulatory issues. It will also provide a public forum for discussions between the NRC, industry, and other stakeholders.	06/30/23
Issue a Regulatory Issue Summary (RIS) entitled "Scheduling Information for the Licensing of Accident Tolerant, Increased Enrichment, and Higher Burnup Fuels." This RIS would request that industry provide timelines for the submission of licensing actions to support ATF deployment, to help determine future planning and resource allocation.	06/30/23

2-4 Digital Instrumentation and Control

The NRC staff has transitioned to using its improved infrastructure to support the review of licensees' digital instrumentation and control (I&C) modernization LARs and continues to complete digital I&C infrastructure improvements to address protection against common cause failure (CCF) and consider endorsement of updated consensus standards. These activities support the NRC's vision to establish a more modern, risk-informed regulatory structure with reduced uncertainty that will enable the expanded safe use of digital technologies.

Two licensees have submitted LARs to support planned digital upgrades:

- On July 30, 2022 (ML22213A045), Florida Power & Light Company (FPL) submitted LARs for Turkey Point Nuclear Plant, Units 3 and 4 (Turkey Point). The LARs, if approved, would permit the use of digital I&C for the reactor protection system, engineered safety features actuation system, and nuclear instrumentation system at Turkey Point. On October 13, 2022, the NRC staff completed its acceptance review of the Turkey Point LARs and informed FPL that the staff expects to complete its review of the LARs by June 30, 2024 (ML22280A108).

- On September 26, 2022 (ML22269A569), Constellation Energy Generation, LLC submitted LARs for Limerick Generating Station, Units 1 and 2 (Limerick) to revise the licensing and design basis to incorporate proposed digital modifications. The LARs also request other changes to plant functions and the reactivity control system. On December 9, 2022, the NRC staff completed its acceptance review of the Limerick LARs and informed Constellation that the staff expects to complete its review of the LARs by March 11, 2024 (ML22339A064).

The NRC staff provided SECY-22-0076 (ML22164B003 to the Commission for its consideration on August 10, 2022, recommending expansion of the current policy on digital I&C CCF, which is contained in the Staff Requirements Memorandum (SRM) to SECY-93-087 (ML003708056). The staff's recommendation, if approved, would allow the use of risk-informed approaches to

[11] The projected completion date was extended from December 30, 2022, to March 31, 2023, to accommodate additional time for staff to review changes provided in the licensee's response to the staff's request for additional information.

demonstrate the appropriate level of defense-in-depth. The staff briefed the Advisory Committee on Reactor Safeguards (ACRS) on SECY-22-0076 on November 1, 2022.

The NRC staff also continued the development of Draft Regulatory Guide DG-1374 to consider endorsement of Institute of Electrical and Electronics Engineers Standard 7-4.3.2-2016, "Criteria for Programmable Digital Devices in Safety Systems of Nuclear Power Generating Stations." The staff briefed the ACRS on DG-1374 on November 29, 2022 (ML22342B268). DG-1374, if finalized, will be issued as Revision 4 to Regulatory Guide (RG) 1.152, "Criteria for Use of Computers in Safety Systems of Nuclear Power Plants." This revision to RG 1.152 will support the modernization and improvement of the digital I&C regulatory infrastructure.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

Digital I&C Activities	Projected Completion Date	Completion Date
Consideration of Current CCF Policy in SRM to SECY-93-087		
• Briefed the ACRS on SECY-22-0076.	N/A[12]	11/01/22
DG-1374 (Revision 4 to RG 1.152, "Criteria for Use of Computers in Safety Systems of Nuclear Power Plants")		
• Briefed the ACRS on DG-1374.	N/A[13]	11/29/22
Digital Modernization LAR Using the Improved Digital Regulatory Infrastructure[14]		
• Issued a staff decision on acceptability for review of the Constellation LAR for digital modernization project at Limerick Units 1 and 2.	11/30/22	12/09/22[15]

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Digital I&C Activities	Projected Completion Date
DG-1374 (Revision 4 to RG 1.152, "Criteria for Use of Computers in Safety Systems of Nuclear Power Plants")	
• Publish DG-1374 for public comment.	03/31/23

2-5 Vogtle Electric Generating Plant Units 3 and 4

The NRC issued two combined licenses (COLs) 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 projects the start of commercial

[12,13] These activities were not identified as projected activities in the previous report because the ACRS had not yet decided whether a full committee meeting on SECY-22-0076 or the draft RG was necessary.
[14] Activities reported in this section are related to planned or submitted digital changes for which the licensee is using some portion of the modernized digital regulatory infrastructure.
[15] The activity was completed on December 9, 2022, rather than the projected completion date of November 30, 2022, because the NRC staff determined that supplemental information was necessary as documented in a letter issued to the licensee on November 21, 2022 (ML22320A113).

operations for Vogtle Unit 3 in Q2 CY 2023.[16] and projects Vogtle Unit 4 to begin commercial operations in Q4 CY 2023.[17]

Vogtle Unit 3 transitioned from the Construction Reactor Oversight Process (cROP) to the Reactor Oversight Process (ROP). This change from construction to operations came with the NRC's issuance of the finding under Title 10 of the *Code of Federal Regulations* (10 CFR) 52.103(g), "Operation under a combined license," for Vogtle Unit 3 (ML20290A282) on August 3, 2022. This finding provided authorization for SNC to load fuel and operate Vogtle Unit 3 in accordance with the terms and conditions of the COL. Vogtle Unit 4 remains under the cROP. The NRC continues to perform ITAAC inspections and review ITAAC closure notifications for Vogtle Unit 4.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

Vogtle Electric Generating Plant Units 3 and 4 Activities	Projected Completion Date	Completion Date
Conducted a second public meeting on lessons learned from construction and oversight of Vogtle and V.C. Summer (ML22322A167).	N/A[18]	11/15/22
Granted a license amendment and exemption request for Vogtle Unit 4 to eliminate and consolidate electrical ITAAC based on lessons learned from Vogtle Unit 3 (ML22284A125).	01/07/23	11/22/22
Conducted a pre-submittal meeting on a draft LAR and exemption request to remove Appendix C from the COL and provide an exemption from Tier 1 and Tier 2* requirements for Vogtle Unit 3 (ML22336A052).	N/A[19]	12/08/22

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Vogtle Electric Generating Plant Units 3 and 4 Activities	Projected Completion Date
N/A	N/A

A COL allows a licensee to construct a plant and to operate it once construction is complete if certain standards identified in the COL 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

[16] On January 11, 2023, Georgia Power Co. announced that Vogtle Unit 3 is projected to begin commercial operations in April 2023.
[17] The previous reports erroneously listed these dates in fiscal years. The correct projections are in calendar years.
[18] This meeting was not identified as a projected activity in the previous report. The staff scheduled this meeting after the previous report's issuance based on public feedback from a prior meeting.
[19] This meeting was not identified as a projected activity in the previous report because the meeting request was submitted after the previous report's issuance.

based on 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[20]	ITAAC Inspected[21]	ITAAC Inspections Closed[22]
Vogtle 4	107	26	10	8

ITAAC Reviews Completed for the Reporting Period (Q1 FY 2023)[23]

The table below provides ITAAC closure notification reviews completed during the reporting period for Vogtle Unit 4, including the date when the NRC received the ITAAC closure notice and the date when the review was completed.

Unit	ITAAC No.	Received Date	Approval Date
Vogtle 4	2.5.01.03b	09/26/2022	10/04/2022
Vogtle 4	2.3.02.08a.iii	10/18/2022	10/24/2022
Vogtle 4	2.1.02.08e	10/19/2022	10/24/2022
Vogtle 4	3.3.00.10.ii	10/26/2022	10/27/2022
Vogtle 4	2.2.03.08c.i.01	10/14/2022	11/02/2022
Vogtle 4	2.2.05.01	10/20/2022	11/02/2022
Vogtle 4	2.6.01.02.i	11/02/2022	11/03/2022
Vogtle 4	2.1.02.12a.i	11/03/2022	11/07/2022
Vogtle 4	C.2.5.04.04a	11/08/2022	11/14/2022
Vogtle 4	2.3.03.02	11/10/2022	11/15/2022
Vogtle 4	2.3.14.04	11/17/2022	11/18/2022
Vogtle 4	2.3.06.05a.i	11/18/2022	11/22/2022
Vogtle 4	2.3.08.02.iii	11/22/2022	11/28/2022
Vogtle 4	3.2.00.04	11/18/2022	11/29/2022
Vogtle 4	3.3.00.01	11/23/2022	11/29/2022
Vogtle 4	3.3.00.13	11/29/2022	11/30/2022

[20] This column includes all inspections related to Vogtle Unit 4 completed during the reporting period; the column is not limited to ITAAC (e.g., quality assurance inspections).
[21] "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. Only "targeted ITAAC" – ITAAC selected for inspection by the NRC staff – are included in this count.
[22] "ITAAC Inspection Closed" refers to the number of ITAAC for which all associated inspections have been completed during the reporting period.
[23] This table accounts for the total number of ITAAC that SNC provided closure notifications for and that the NRC verified. This includes both ITAAC that were selected for inspection by the NRC staff (targeted ITAAC) and ITAAC that were not selected for inspection by the NRC staff (non-targeted ITAAC). This differs from the previous table, where the "ITAAC Inspected" column is the number of targeted ITAAC that were inspected during the designated reporting period.

Vogtle 4	2.7.01.02a	12/07/2022	12/13/2022
Vogtle 4	2.3.02.11a.i	12/13/2022	12/14/2022
Vogtle 4	2.2.03.12a.i	12/15/2022	12/16/2022
Vogtle 4	2.3.02.05.i	12/16/2022	12/19/2022
Vogtle 4	2.3.06.03b.iii	12/15/2022	12/20/2022

Vogtle Units 3 and 4 LAR Reviews Completed (Q1 FY 2023)

Number of LAR Reviews Forecast to be Completed in the Reporting Period	Number of LAR Reviews that Were Completed in the Reporting Period
1	1

2-6 NuScale Small Modular Reactor (SMR) Design Certification

On March 15, 2017, the NRC accepted the NuScale Power, LLC (NuScale) application for a SMR design certification review. The NRC staff completed the final Safety Evaluation Report on August 28, 2020 (ML20023A318), and issued a standard design approval to NuScale on September 11, 2020 (ML20247J564). The draft final rule was provided to the Commission on July 1, 2022, for its consideration ML22004A002). On July 29, 2022, the Commission directed the staff to issue a final rule that certifies NuScale's SMR design for use in the United States (ML22210A158). The staff published the final rule in the *Federal Register* (FR) on January 19, 2023. The design certification's effective date is February 21, 2023.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

NuScale SMR Design Certification Activities	Projected Completion Date	Completion Date
Published final rule in the FR (88 FR 3287)	11/25/22	01/19/23[24]

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected NuScale SMR Design Certification Activities	Projected Completion Date
N/A	N/A

2-7 Advanced Nuclear Reactor Technologies

The NRC continues to make significant progress in preparation for reviewing non-light-water-reactor (non-LWR) designs, consistent with the NRC staff's vision and strategy (ML16356A670) and implementation action plans to achieve non-LWR safety review readiness.[25] During this reporting period, the NRC staff continued its extensive stakeholder engagement, including holding several public meetings and workshops regarding various advanced reactor topics, development of Framework A (the probabilistic risk assessment (PRA)-led licensing approach)

[24] The final rule was published on January 19, 2023, rather than the projected completion date of November 25, 2022, due to time needed to complete actions required by the Paperwork Reduction Act.
[25] The NRC's public website 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).

and Framework B (the licensing approach where risk insights are used in a supporting role) of 10 CFR Part 53, "Risk Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors," preliminary proposed rule, and development of guidance for the content of advanced reactor licensing applications.

The NRC staff is scheduled to provide the Commission the Part 53 draft proposed rule package in February 2023 for its consideration. As part of the Part 53 draft proposed rule package, the staff intends to provide the Commission with perspectives on any remaining areas of substantial stakeholder feedback and to propose specific questions in the FR notice to solicit formal feedback during the public comment period. Once the Commission votes, the resulting proposed rule will be revised, as necessary, to reflect Commission direction and then issued for public comment. After the staff addresses the public comments, the draft final rule package, including key guidance, will be submitted to the Commission for consideration by December 2024. The NRC staff's goal is to issue the final rule by July 2025. Further details about the Part 53 rulemaking schedule can be found on the NRC's public website (https://www.nrc.gov/reactors/new-reactors/advanced/rulemaking-and-guidance/part-53.html).

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 website (https://www.nrc.gov/reactors/new-reactors/advanced/stakeholder-engagement). The NRC also holds frequent public meetings regarding the Advanced Reactor Content of Application Project (ARCAP). A list of these meetings and related preliminary draft guidance documents to support the meetings can be found on the NRC's public website (https://www.nrc.gov/reactors/new-reactors/advanced/rulemaking-and-guidance/advanced-reactor-content-of-application-project.html).

On November 8, 2022, the Commission held a briefing with the NRC staff and an external panel on the development of regulatory approaches for fusion energy devices and industry progress in commercializing fusion energy devices. The meeting agenda, presentations, and transcript can be found on the NRC's public website (https://www.nrc.gov/reading-rm/doc-collections/commission/tr/2022/index.html).

The NRC staff provided options for the Commission's consideration for licensing and regulating fusion energy systems on January 3, 2023 (ML22273A178). Consistent with the Nuclear Energy Innovation and Modernization Act, the NRC staff presented these options to support the development of a regulatory framework for fusion energy systems by 2027. These options include a utilization facility approach, a byproduct material approach, and a hybrid approach that would introduce decision criteria based on potential hazards to determine whether a specific concept should be licensed and regulated under a byproduct material or utilization facility regulatory framework.

To support development of the options for a regulatory framework for fusion energy systems, the NRC staff released white papers describing options under consideration for a regulatory approach, with the most recent white paper issued on September 14, 2022 (ML22252A192). The staff also conducted several public meetings in 2021 and 2022 to engage stakeholders on fusion energy technology and views on developing a regulatory framework. The meeting agendas, presentations, and summaries for these interactions can be found on the NRC's public website (https://www.nrc.gov/reactors/new-reactors/advanced/policy-development/fusion-energy.html). The NRC staff plans to continue to engage stakeholders on fusion energy systems.

The NRC staff engaged the ACRS on options for a regulatory framework for fusion energy systems in May 2021, as well as on September 23, 2022, and October 5, 2022. The NRC staff received a letter (ML22290A177) from the ACRS on October 21, 2022, providing the ACRS's conclusion and recommendations on the staff's September 2022 preliminary white paper. The NRC staff responded to this letter on November 7, 2022 (ML22306A260).

Additionally, the NRC staff is preparing, through early interactions with reactor designers, to review specific advanced reactor designs. These pre-application interactions provide predictability in the licensing process through early identification and resolution of technical and policy issues that could affect licensing. Information on the reactor designers that have formally notified the NRC of their intent to engage in regulatory interactions can be found on the NRC's public website (https://www.nrc.gov/reactors/new-reactors/advanced/ongoing-licensing-activities/pre-application-activities.html).

On November 18, 2022, following numerous pre-application engagements, the NRC staff accepted and docketed the Abilene Christian University (ACU) application for a construction permit for a molten salt research reactor (MSRR) (less than 1 megawatt thermal power) to be located on the ACU campus in Abilene, TX (ML22313A097). Since the ACU application has now been accepted for review and docketed, the status of application review activities will be discussed in section 2-8 of this report.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

Advanced Nuclear Reactor Technologies Activities	Projected Completion Date	Completion Date
Released a pre-decisional draft RG on technology-inclusive, risk-informed, and performance-based methodology for seismic design of advanced reactors and seismically isolated nuclear power plants to support stakeholder engagement at a public meeting.[26]	10/31/22	10/03/22
Completed acceptance review for ACU MSRR construction permit application.	11/30/22	11/18/22
Published the final RG (RG 1.246) endorsing, with conditions, the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI, Division 2, Reliability and Integrity Management standard (ML22061A244).	11/30/22	10/24/22
Issued NUREG/CR on Fuel Qualification for Molten Salt Reactors (ML22339A161).	12/30/22	12/05/22
Submitted SECY paper on options for a fusion regulatory framework to the Commission for its consideration (ML22273A178).	12/30/22	01/03/23[27]

[26] Two pre-decisional draft RGs were released on this topic: Technology-Inclusive, Risk-Informed, and Performance-Based Methodology for Seismic Design of Commercial Nuclear Plants (ML22276A149) and Seismically Isolated Nuclear Power Plants (ML22276A154).
[27] The SECY paper was delayed slightly due to the New Year holiday.

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Advanced Nuclear Reactor Technologies Activities	Projected Completion Date
Submit draft proposed rule providing the 10 CFR Part 53 requirements for advanced reactors to the Commission for its consideration.	02/23/23
Issue final safety evaluation (SE) to X-energy for its topical report on pebble fuel qualification methodology.	02/24/23
Issue final SE to Kairos for its topical report on fuel qualification methodology.	02/28/23[28]
Release draft interim staff guidance on facility training programs to support stakeholder engagement.	02/28/23[29]
Publish the final RG (RG 1.87, Revision 2) for potential endorsement of the ASME Boiler and Pressure Vessel Code Section III, Division 5, High Temperature Reactors.	03/31/23[30]
Issue final SE to X-energy for its topical report on control room staffing analysis methodology.	03/31/23[31]
Issue final SE to Kairos for its topical report on graphite materials qualification.	03/31/23[32]
Issue final SE to Kairos for its topical report on metallic material qualification program.	03/31/23[33]
Issue draft RG (DG-1404) for potential endorsement of industry-led Nuclear Energy Institute (NEI) 21-07, “Technology Inclusive Guidance for Non-Light Water Reactors,” and nine NRC-led ARCAP interim staff guidance for public comment.	03/31/23[34]
Issue final SE to X-energy for its topical report on transient and safety analysis methodologies framework.	04/07/23[35]
Release draft interim staff guidance on material compatibility to support stakeholder engagement.	04/28/23[36]
Issue draft white paper on expectations for PRAs supporting construction permit applications for non-LWRs implementing the Licensing Modernization Project.	04/30/23[37]

[28] The projected completion date was extended from December 30, 2022, to February 28, 2023, to allow for additional time to address the ACRS’s comments on the draft SE.

[29,30,31,34,35,36] The projected completion dates for these activities were extended due to the need to prioritize work on the Part 53 draft proposed rule and SECY paper on options for a fusion regulatory framework. The NRC staff is applying additional staff resources to complete these activities in a timely manner, and the staff routinely engage with stakeholders to ensure that they are apprised of schedule changes.

[32] The projected completion date was extended from November 30, 2022, to March 31, 2023, due to the need for additional time for resolution of internal comments for the draft SE.

[33] The projected completion date was extended from November 30, 2022, to March 31, 2023, due to changes by Kairos to a previous revision of the metallic materials qualification topical report that were necessary for the NRC staff’s draft SE.

[37] This activity was previously identified as “Issue draft interim staff guidance on non-LWR PRA standard applicability for initial licensing for public comment.” The description has been updated to clarify the scope and work product for this activity, and the completion date was modified from February 28, 2023, to April 30, 2023, to reflect refinement of the technical approach.

2-8 Advanced Reactor Licensing Reviews

Kairos Hermes Construction Permit Application Review

Kairos Power LLC (Kairos) submitted an application for a construction permit for the Kairos Power Fluoride Salt-Cooled, High Temperature Non-Power Reactor (Hermes). Kairos submitted applications documents to the NRC by letters dated September 29, 2021 (submitting the Preliminary Safety Analysis Report) (ML21272A375), and October 31, 2021 (submitting the Environmental Report) (ML21306A131).

The NRC staff performed an acceptance review of the Hermes construction permit application and docketed the application on November 29, 2021 (ML21319A354). On December 15, 2021, the staff issued a letter to Kairos (ML21343A214) providing the schedule and resource estimates for the review. The NRC staff is currently conducting a detailed technical review of the safety of the Hermes design, which will lead to a SE. The NRC staff performed a review of the effects of the Hermes design on the environment and issued a draft environmental impact statement (ML22259A126) for public comment on September 29, 2022 (87 FR 59124). On November 15, 2022, the NRC staff completed all regulatory audits and development of the individual safety evaluation sections. The NRC staff is currently in the process of developing the fully assembled advanced SE, which will be provided to the ACRS to support the ACRS's review. Application documents and information on the review are available on the NRC's public website (https://www.nrc.gov/reactors/non-power/hermes-kairos.html).

Abilene Christian University Molten Salt Research Reactor Construction Permit Application Review

On August 12, 2022, ACU submitted an application for a construction permit for a MSRR (less than 1 megawatt thermal power) to be located on the ACU campus in Abilene, TX (ML22227A201). On October 20, 2022, ACU supplemented its application to provide additional instrumentation and control design information (ML22293B817).

The NRC staff performed an acceptance review of the MSRR construction permit application and docketed the application on November 18, 2022 (ML22313A097). On December 16, 2022, the staff issued a letter to ACU (ML22341A615) providing the schedule and resource estimates for the review. The NRC staff is currently conducting a detailed technical review of the safety of the MSRR design, which will lead to a SE. Application documents and information on the review are available on the NRC's public website (https://www.nrc.gov/reactors/non-power/new-facility-licensing/msrr-acu.html).

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

Advanced Reactor Licensing Review Activities	Projected Completion Date	Completion Date
Completed regulatory audits and evaluated any additional docketed information necessary for the preparation of the Kairos Hermes SE.	11/15/22	11/15/22

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Advanced Reactor Licensing Review Activities	Projected Completion Date
Complete development of the Kairos Hermes advanced SE, with all sections completed and assembled.	02/23/23
Complete review and NRC staff approval of Kairos Hermes SE.[38]	05/04/23

2-9 Reactor Oversight Process

The ROP is a risk-informed, performance-based oversight program that contains provisions for continuous self-assessment and improvement. During FY 2022, the staff submitted several SECY papers to the Commission with options and recommendations for changes to the ROP (ML22188A221, ML22145A448, and ML22189A201); the staff's plan to submit these recommendations to the Commission was discussed with external stakeholders at the January, March, May and July ROP bi-monthly public meetings.[39] The staff also 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 ROP self-assessment program. The staff will seek Commission approval of changes to the ROP, or provide the Commission with notification of changes, in accordance with Management Directive/Directive Handbook 8.13, "Reactor Oversight Process" (ML17347B670).

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

ROP Activities	Projected Completion Date	Completion Date
Completed a ROP program area evaluation on the SDP timeliness (ML22335A003).	11/30/22	12/22/22[40]

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected ROP Activities	Projected Completion Date
Complete an effectiveness review of the incorporation of safety culture oversight into the ROP.	03/31/23[41]
Submit a paper to the Commission recommending whether the Alert and Notification System Performance Indicator should be eliminated.	03/31/23[42]
Complete CY 2022 ROP Self-Assessment and submit a paper to the Commission.	04/15/23

[38] The final SE will not be issued until after the ACRS completes its review of the SE.
[39] The ROP bi-monthly public meeting summaries are available at ML22034A766, ML22091A184, ML22159A212, and ML22221A224.
[40] The activity was completed on December 22, 2022, rather than the projected completion date of November 30, 2022, to allow additional time for staff review.
[41] The projected completion date was extended from December 15, 2022, to March 31, 2023, due to internal briefings and review of the proposed recommendations.
[42] The projected completion date was extended from December 30, 2022, to March 31, 2023, due to internal briefings and review of the proposed recommendations.

2-10 Backfit

The NRC's backfitting rules are codified in 10 CFR 50.109, "Backfitting," 70.76, "Backfitting," 72.62, "Backfitting," and 76.76, "Backfitting." 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…."[43] The rules 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 approvals and certifications issued under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

The Commission changed its backfitting and issue finality policy as well as its policy on "forward fits," which it defined as 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" (ML18093B087). The NRC completed draft NUREG-1409, "Backfitting Guidelines," Revision 1, in March 2020 and issued a notice of availability in the FR for public comment (ML18109A498). The NRC received approximately 250 individual comments from members of the public, licensees, and industry representatives. The NRC staff evaluated the comments, updated the draft NUREG, and provided the Commission with the staff's proposed NUREG-1409, Revision 1 (Final Report) (ML21006A431). This revised document is currently before the Commission for its consideration.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

Backfit Activities	Projected Completion Date	Completion Date
Issued the Fitness-for-Duty Drug Testing Requirements Final Rule, which constitutes backfitting (87 FR 71422).	12/29/22	11/22/22

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Backfit Activities	Projected Completion Date
Publish, for public comment, a proposed rule that contains a proposed change to NRC regulations that would constitute backfitting if issued as a final rule: Alignment of Licensing Processes and Lessons Learned from New Reactor Licensing.	05/23/23

[43] 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.

2-11 Risk-informed Activities

The NRC staff continues to make progress to advance the use of risk insights more broadly to inform decision-making. 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.[44] The NRC staff continues to implement and monitor the use of the agencywide Be riskSMART risk-informed decision-making framework to inform a broad range of decisions spanning technical, legal, and corporate arenas. For example, the NRC staff continues to review and approve applications to adopt advanced risk management programs such as 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors," and Risk-Informed Technical Specifications Initiative 4b,[45] that provide for operational flexibilities that enhance safety by ensuring that power reactor licensees and the NRC prioritize the most risk significant issues. In addition, the staff has successfully completed its reviews and approved the applications submitted by all operating reactor licensees to adopt a risk-informed surveillance frequency control program, Risk-Informed Technical Specifications Initiative 5b.

Activities Planned and Completed for the Reporting Period (Q1 FY 2023)

Risk-Informed Activities	Projected Completion Date	Completion Date
Developed a seminar for new staff to provide an overview of the Risk Tool and its use to risk-inform technical reviews for spent nuclear fuel dry storage.	12/30/22	12/30/22

[44] 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.

[45] A description of these and other operating reactors risk-informed initiatives is available at https://www.nrc.gov/about-nrc/regulatory/risk-informed/rpp/reactor-safety-operating.html. To date, the NRC has approved 28 applications enabling licensees to adopt 10 CFR 50.69 and 19 applications enabling licensees to adopt Risk-Informed Technical Specifications Initiative 4b.

Projected Activities for the Next Two Reporting Periods (Q2 and Q3 FY 2023)

Projected Risk-Informed Activities	Projected Completion Date
Provide the new seminar to new staff with an overview of the Risk Tool and its use to risk-inform technical reviews for spent nuclear fuel dry storage.	02/28/23
Hold a technical session at the 2023 NRC RIC entitled "Building on a Strong Foundation: A Voyage through Risk Informed Decision-Making." This session will include representatives from the NRC, Electric Power Research Institute (EPRI), and industry, including NEI. The session will highlight novel and innovative approaches to leveraging risk-informed decision-making (RIDM) across operating, new, and advanced reactors and will address the advancement of the RIDM infrastructure to support increased adoption of more complex risk-informed applications, advancements in PRA technology and risk tools, and the emergence of new designs and operational concepts.	03/14/23
Complete the revision of four materials Inspection Procedures (IPs) associated with Inspection Manual Chapter 2800 (specifically, IP 87121, "Industrial Radiography Programs"; IP 87122, "Irradiator Programs"; IP 87125, "Materials Processor/Manufacturer Programs"; and IP 87127, "Radiopharmacy Programs"). The NRC staff is developing risk modules in each IP, with each module focusing on the risks of the relevant types of radioactive materials and their usage.	04/30/23[46]
Issue an information notice to share international and domestic operating experience relating to high energy arcing faults (HEAFs), including qualitative and quantitative risk insights derived from operating experience using the NRC's Office of Nuclear Reactor Regulation Office Instruction LIC-504, "Integrated Risk-Informed Decisionmaking Process for Emergent Issues," Revision 5. This information notice will also provide information about the availability of an updated HEAF PRA methodology developed by the NRC's Office of Nuclear Regulatory Research in coordination with EPRI.	06/30/23

2-12 Coronavirus Disease (COVID-19) Pandemic

The NRC continues to implement precautionary measures in response to the pandemic 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. The NRC is monitoring the effects of the COVID-19 pandemic 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 steps as warranted without compromising its public health and safety mission.

NRC Occupancy of Facilities

During this reporting period, the NRC continued to operate in a hybrid work environment at all locations, combining telework and in-office staff presence. The guidance for inspection program

[46] The projected completion date was extended from December 30, 2022, to April 30, 2023, to allow additional time to receive and address comments from external stakeholders.

implementation remains in effect in accordance with memorandum, "Implementation of Inspection Programs Following Re-Entry from the Public Health Emergency for the Reactor Safety Program" (ML21295A302). The agency continues to closely monitor guidance from the Federal Government's Safer Federal Workforce Taskforce, the CDC, and the Occupational Safety and Health Administration to facilitate a healthy and safe physical workspace.

Licensing and Oversight Items of Interest

The NRC staff took steps to identify areas of our regulations that proved challenging during the pandemic, 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 has communicated 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 website (https://www.nrc.gov/about-nrc/covid-19/).

The NRC has also developed portions of its website devoted to the regulatory activities taken in response to the COVID-19 pandemic. Specific posts related to nuclear power plant licensees, nuclear materials licensees, and security and emergency preparedness are available to keep the public informed on how the NRC adapted its regulatory approach during the pandemic. Between October 1 and December 31, 2022, the NRC did not receive any requests for COVID-19-related flexibilities from nuclear materials or nuclear reactor licensees. A complete list of licensing requests approved by the NRC in response to the COVID-19 pandemic is available on the NRC public website at https://www.nrc.gov/about-nrc/covid-19/.

Regulatory Activities Taken in Response to the COVID-19 Pandemic 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[47]
Power Reactor	0	N/A
Non-Power Reactor	0	N/A
Other (e.g., topical reports)	0	N/A
Decommissioning of Nuclear Facilities and Uranium Recovery	0	N/A
Storage and Transportation of Spent Nuclear Fuel	0	N/A
Fuel Cycle Facilities	0	N/A
Medical, Industrial and Academic Uses of Nuclear Materials and Agreement States	0	N/A

[47] This average is calculated based on the dates 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.

Enclosure 3 – Summary of Activities

3-1 Reactor Oversight Process (ROP) Findings

The table below provides the calendar year (CY) ROP findings for the year-to-date and 3-year rolling metrics.[48]

Location	Number of Findings	CY 2019	CY 2020	CY 2021	CY 2022
Nationally	**Total**	440	291	278	391[49]
Region I	Green	95	50	61	81
	White	0	0	1	2
	Yellow	0	0	0	0
	Red	0	0	0	0
	Greater-Than-Green (GTG) Security	0	0	0	0
	Total	**95**	**50**	**62**	**83**
	No. of Units Operating During CY	24	22[50]	21[51]	20[52]
Region II	Green	110	77	69	88
	White	1	2	0	1
	Yellow	0	0	0	0
	Red	0	0	0	0
	GTG Security	0	1	0	0
	Total	**111**	**80**	**69**	**89**
	No. of Units Operating During CY	33	33	33	33
Region III	Green	96	51	65	89
	White	1	0	0	2
	Yellow	0	0	0	0
	Red	0	0	0	0
	GTG Security	0	0	1	1
	Total	**97**	**51**	**66**	**92**
	No. of Units Operating During CY	23	23	22[53]	22
Region IV	Green	137	110	81	130
	White	0	0	0	1
	Yellow	0	0	0	0
	Red	0	0	0	0
	GTG Security	0	0	0	0

[48] For the purposes of this report, the total number of findings per CY is based on the year in which an inspection report was issued instead of the year in which a finding was identified.
[49] The inspection reports for the fourth quarter of CY 2022 will continue to be finalized through February 15, 2023. The report for the next reporting period will be updated to include any additional findings from the fourth quarter of CY 2022.
[50] 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.
[51] The reduction of one unit for CY 2021 reflects the permanent shutdown of Indian Point Nuclear Generating Unit 2 on April 30, 2020.
[52] The reduction of one unit for CY 2022 reflects the permanent shutdown of Indian Point Nuclear Generating Unit 3 on April 30, 2021.
[53] The reduction of one unit for CY 2021 reflects the permanent shutdown of Duane Arnold on August 10, 2020.

Location	Number of Findings	CY 2019	CY 2020	CY 2021	CY 2022
	Total	**137**	**110**	**81**	**131**
	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 the Nuclear Energy Innovation and Modernization Act (NEIMA), the licensing actions referenced in this section include "requested activities of the Commission" for which the U.S. Nuclear Regulatory Commission (NRC) staff issues a final safety evaluation (SE). These totals do not include license amendment requests (LARs), as they are addressed separately in section 3-3. "Total Inventory" refers to the total number of licensing actions that are open and accepted by the NRC at the end of the quarter. "Licensing Actions Initiated During the Reporting Period" are the number of licensing actions (regardless of acceptance) that are received by the NRC during the reporting period.

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	Percentage of Licensing Actions Completed Prior to the Established Schedule[54]
Q2 FY 2022	144	103	93	100%	95%
Q3 FY 2022	136	41	43	100%	100%
Q4 FY 2022	124	28	32	100%	81%[55]
Q1 FY 2023	128	53	36	100%	58%[56]

[54] The "established schedule" is the schedule communicated to the licensee and made publicly available at the completion of the acceptance review.
[55] This percentage is due to a smaller number of actions in the quarter and the disproportionate weight of a Dominion Fleet request involving six actions that required verification of referenced topical reports.
[56] This percentage is due to two fleet actions involving eleven requests for relief from in-service inspection requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel code to extend the period of performance beyond the end of the current 10-year inspection interval (in some cases up to the end of the operating life of the plant). The review of these requests required coordination of over 25 similar relief requests from multiple licensees, additional time to resolve policy and technical issues, public meetings, and multiple rounds of requests for additional information. The review of the remaining requests is expected to be completed in Q2 FY 2023.

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 2022	1	0	1[57]	N/A	N/A
Q3 FY 2022	1	1	1	100%	100%
Q4 FY 2022	1	1	1	100%	100%
Q1 FY 2023	2	2	1	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 2022	6	8	4	100%	75%[58]
Q3 FY 2022	6	6	6	100%	100%
Q4 FY 2022	8	8	6	100%	60%[59]
Q1 FY 2023	4	6	10	100%	60%[60]

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 issues a final SE. 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).

[57] During the reporting period, the NRC staff denied, without prejudice, the Oklo Aurora combined license application and terminated all review activities.
[58] One licensing action exceeded the established schedule by 82 days due to additional time needed for the licensee to obtain signed financial documents from a third party.
[59] Two fuel cycle licensing actions exceeded the established schedule by approximately one month due to prioritizing other work.
[60] Four of the ten fuel cycle licensing actions exceeded the established schedule by approximately one month due to prioritizing other work.

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	Percentage of LAR Reviews Completed Prior to the Established Schedule[61]
Q2 FY 2022	304	72	94	100%	99%
Q3 FY 2022	289	78	93	100%	91%
Q4 FY 2022	269	65	84	100%	93%
Q1 FY 2023	247	74	89	100%.[62]	90%.[63]

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 2022	0	0	0	N/A	N/A
Q3 FY 2022	0	0	0	N/A	N/A
Q4 FY 2022	1	1	0	N/A	N/A
Q1 FY 2023	0	0	1	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 2022	11	12	7	100%	100%
Q3 FY 2022	10	4	5	100%	60%.[64]
Q4 FY 2022	7	1	4	100%	75%.[65]

[61] The "established schedule" is the schedule communicated to the licensee and made publicly available at the completion of the acceptance review.
[62] One review of a complex LAR exceeded the 2-year date for issuance of a final SE set in the NRC's generic milestone schedule. As required by Section 102(c)(3) of NEIMA, the NRC submitted a report regarding this LAR to the House Committee on Energy and Commerce and the Senate Committee on Environment and Public Works on August 5, 2022 (ML22217A145 and ML22173A160, respectively). The applicant notified the NRC in October 2022 that its supplement to the LAR is now expected in March 2023. This exceedance of a generic milestone schedule will be reflected in the percentage for the quarter in which the final SE is issued.
[63] One review of an LAR that proposed two first-of-a-kind methodologies exceeded the established schedule by 180 days. The NRC staff identified complex technical issues with the application that resulted in requests for additional information, multiple public meetings, and the licensee modifying its request. The staff expects to complete its review in May 2023.
[64] Reviews for two LARs exceeded the established schedule, one by 5 days and the other by 7 days, due to prioritizing other work.
[65] One review of an LAR exceeded the established schedule by 26 days due to prioritizing other work.

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
Q1 FY 2023	9	3	1	100%	100%

3-4 Research Activities[66]

Summary of New Research Projects

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

MACCS Modernization Project (NRR-2022-021)	
Importance to the NRC Mission	The purpose of this work is to modernize MACCS, the NRC's consequence analysis computer code, to support long-term usability. MACCS is a severe accident consequence computer code developed to analyze the offsite consequences of a hypothetical release of radioactive material. The NRC staff utilizes the MACCS code in risk-informed decision-making and regulatory research activities. This modernization effort is necessary to sustain the NRC's ability to support future regulatory actions as nuclear energy technologies evolve.
Planned Activities	The purpose of this modernization effort is to achieve two outcomes. The first outcome is to modernize the graphical user interface and allow for the ability to perform multi-scenario and sensitivity/uncertainty studies. The second outcome is to modernize the MACCS source code to an updated architecture. This modernization effort will support continued operability using a modern operating system to review new designs, technologies, and emergency response strategies. Achieving these outcomes would simplify using the various MACCS models currently used for operating reactors and provide a more flexible modeling tool to expand its use for advanced nuclear technologies.
Requesting Business Line	Operating Reactors
Estimated Completion	FY 2026
Estimate of Total Research Resources	3 Full-Time Equivalent (FTE) and $2.25M over a 4-year period

[66] 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.

Summary of Completed Research Projects[67]

During the reporting period, the following research projects were completed:

Decommissioning and Uranium Recovery Computer Code (RESRAD, VSP, DandD & MILDOS) Maintenance (NMSS-2021-003)	
Importance to the NRC Mission	RES assists the Office of Nuclear Material Safety and Safeguards (NMSS) by maintaining and distributing decommissioning computer codes to NRC employees and domestic and international organizations who use the codes to assess radiation exposures to humans involved with uranium recovery sites and radioactive materials and nuclear facility sites being decommissioned. Four codes are maintained and distributed, namely, RESidual RADioactivity (RESRAD), Visual Sample Plan (VSP), Decommissioning and Decontamination (DandD) and uranium recovery (MILDOS) dose assessment computer codes via the NRC's Radiation Protection Computer Code Analysis and Maintenance Program (RAMP). As delineated in SECY-14-0117 (ML14204A698), RAMP is an integrated code-sharing program to prioritize, maintain, develop, update, distribute, and establish a more robust software quality assurance (SQA) program for NRC-sponsored radiation protection and dose assessment computer codes.
Research Results or Findings	Four computer codes used to assess radiation exposures to humans involved with uranium recovery sites and radioactive materials and nuclear facility sites being decommissioned, namely, RESRAD, VSP, DandD, and MILDOS were maintained without programming bugs and distributed to interested parties, and new models for these codes were added and validated, as appropriate. Two new computer codes, namely, TableCalculator and the Integrated Modules for Bioassay Applications, were also added to RAMP.
Duration of the Project	2 years
Estimate of Total Research Resources	1.2 FTE and $150K over the 2-year period

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.[68]

Fee Class	FY 2022 Part 170 Receipts Estimated – Annual Fee Rule ($M)	Part 170 Billed in Q1 FY 2023 ($M)	Total Part 170 – Billed in FY 2023 ($M)
Fuel Facilities	$8.0	$1.3	$1.3
Generic Decommissioning	$0.3	$0.2	$0.2

[67] 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.
[68] The FY 2022 Final Fee Rule estimated collections are being used until the FY 2023 Proposed Fee Rule is published. The FY 2022 Final Fee Rule was published in the *Federal Register* (FR) on June 22, 2022 (87 FR 37197).

Fee Class	FY 2022 Part 170 Receipts Estimated – Annual Fee Rule ($M)	Part 170 Billed in Q1 FY 2023 ($M)	Total Part 170 – Billed in FY 2023 ($M)
Materials Users[69]	$0.9	$0.2	$0.2
Operating Power Reactors	$165.8	$21.8	$21.8
Research and Test Reactors	$5.8	$1.0	$1.0
Spent Fuel Storage / Reactor Decommissioning	$13.8	$2.0	$2.0
Rare Earth	$0.2	$0.0	$0.0
Transportation	$3.4	$0.4	$0.4
Uranium Recovery	$0.6	$0.1	$0.1

Significant Ongoing Licensing Actions

The following table includes a comparison of the fees billed to projected resources for subsequent license renewal application reviews, the SHINE Medical Technologies, LLC (SHINE) operating license application review, and the Kairos Hermes construction permit application review.

Docket	Project Name	Projected Resources ($M)[70]	Fees Billed to Date ($M)[71]
Point Beach Units 1 and 2 05000266/05000301	Point Beach Units 1 and 2 Subsequent License Renewal Application — Safety Review	$5.0[72]	$3.5
Point Beach Units 1 and 2 05000266/05000301	Point Beach Units 1 and 2 Subsequent License Renewal Application — Environmental Review	$1.4	$1.4
North Anna Units 1 and 2 05000338/05000339	North Anna Units 1 and 2 Subsequent License Renewal Application — Safety Review	$5.0[73]	$3.0

[69] Materials Users—Billed as flat fee applications and included in the estimates and billed.
[70] 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 the professional hourly rate.
[71] 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 reflect costs for NRC work performed through September 2022.
[72] When the formal acceptance letter for the Point Beach subsequent license renewal application was sent to the licensee on January 15, 2021 (ML21006A417), the NRC estimated that it would take approximately $6.4M to complete the application review.
[73] When the formal acceptance letter for the North Anna subsequent license renewal application was sent to the licensee on October 13, 2020 (ML20258A284), the NRC estimated that it would take approximately $6.4M to complete the application review.

Docket	Project Name	Projected Resources ($M)[70]	Fees Billed to Date ($M)[71]
North Anna Units 1 and 2 05000338/05000339	North Anna Units 1 and 2 Subsequent License Renewal Application — Environmental Review	$1.4	$1.5
Oconee Units 1, 2, and 3 05000269/05000270/ 05000287	Oconee Units 1, 2, and 3 Subsequent License Renewal Application — Safety Review	$5.0[74]	$3.5
Oconee Units 1, 2, and 3 05000269/05000270/ 05000287	Oconee Units 1, 2, and 3 Subsequent License Renewal Application — Environmental Review	$1.4	$0.7
SHINE Medical Technologies, LLC 05000608	SHINE Medical Isotope Production Facility Operating License Application Review — Safety and Environmental Reviews	$6.5[75]	$6.9[76]
St. Lucie Units 1 and 2 05000335/05000389	St. Lucie Units 1 and 2 Subsequent License Renewal Application — Safety Review	$5.0[77]	$3.3
St. Lucie Units 1 and 2 05000335/05000389	St. Lucie Units 1 and 2 Subsequent License Renewal Application — Environmental Review	$1.4	$0.4
Kairos Hermes 05007513	Kairos Hermes – Construction Permit – Safety and Environmental Reviews	$5.5[78]	$2.4

[74] When the formal acceptance letter for the Oconee subsequent license renewal application was sent to the licensee on July 22, 2021 (ML21194A245), the NRC estimated that it would take approximately $6.4M to complete the application review.
[75] The update to the projected resource estimate for this application review was provided to SHINE by letter dated February 17, 2022 (ML22047A179).
[76] Increases in the scope of the review related to the phased construction approach, unexpected design modifications, and novel technical and licensing challenges for this first-of-a-kind facility resulted in increased resource expenditures relative to the estimate.
[77] When the formal acceptance letter for the St. Lucie subsequent license renewal application was sent to the licensee on September 24, 2021 (ML21246A091), the NRC estimated that it would take approximately $6.4M to complete the application review.
[78] The projected resource estimate was provided to Kairos Power LLC by letter dated December 15, 2021 (ML21343A214).

3-6 Requests for Additional Information (RAIs)

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 SE, 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[79]
Operating Reactors	278	38	30	93
Non-Power Production and Utilization Facilities[80]	447	4	0	15
Design Certifications for New Reactors[81]	N/A	N/A	N/A	N/A
Early Site Permits for New Reactors[82]	N/A	N/A	N/A	N/A
Combined Licenses for New Reactors	0	0	0	0
Construction Permits for New Reactors or Non-Power Production and Utilization Facilities	0	0	0	0
Fuel Facilities	54	9	12	16
Power Reactor Decommissioning	71	1	1	0
Research and Test Reactor Decommissioning	12	0	0	0
Spent Fuel	802	102	22	51
Materials	0	0	0	0
Pre-Application Activities for Advanced Reactors	4	4	0	0

[79] RAIs are considered closed once the final SE, 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.
[80] 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, "Domestic Licensing of Production and Utilization Facilities," including the ongoing review of the SHINE operating license application.
[81] No design certification applications are 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.
[82] No early site permit applications are 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.

3-7 Workforce Development and Management

FY 2023 Staffing by Office[83]

	FY 2023 Budget	FTE Utilization 09/25/22 – 10/22/22	FTE Utilization 10/23/22 – 11/19/22	FTE Utilization 11/20/22 – 12/31/022	FTE Utilization as of 12/31/22	Delta (Q1 FTE Utilization – FY 2023 Budget)	End of Year (EOY)[84] Projection w/ Personnel Actions	Delta (EOY Utilization – FY 2023 Budget)
Totals	2888.1	207.7	208.1	313.7	729.2	-2158.9	2787.2	-100.9
COMM	42.0	2.4	2.4	3.8	8.6	-33.4	37.9	-4.1
OIG	73.0	4.2	4.1	6.1	14.3	-58.7	61.4	-11.6
Totals Other Offices	2773.1	201.1	201.6	303.8	706.3	-2066.8	2687.8	-85.3
OCFO	93.0	6.6	6.6	10.2	23.4	-69.6	88.7	-4.3
OGC	90.4	7.1	7.1	10.6	24.8	-65.6	90.5	0.1
OCA	10.0	0.7	0.8	1.1	2.6	-7.4	9.9	-0.1
OCAA	7.0	0.4	0.4	0.7	1.5	-5.5	6.2	-0.8
OPA	13.0	1.0	1.1	1.6	3.7	-9.3	12.7	-0.3
SECY	17.0	1.2	1.2	1.8	4.3	-12.7	16.4	-0.6
OIP	35.0	2.4	2.4	3.6	8.5	-26.5	34.1	-0.9
ASLBP	23.3	1.5	1.5	2.2	5.2	-18.1	20.6	-2.7
ACRS	25.1	1.9	1.8	2.5	6.2	-18.9	26.3	1.2
OEDO	26.0	2.1	2.1	2.8	7.0	-19.0	26.0	0.0
NRR	568.0	38.1	38.5	57.9	134.5	-433.5	530.4	-37.6
NMSS	310.8	21.6	21.6	33.1	76.3	-234.5	295.2	-15.6
RES	202.1	14.2	14.2	21.5	49.8	-152.3	190.7	-11.4
NSIR	155.6	11.0	11.1	16.9	39.1	-116.5	152.2	-3.4
R-I	169.8	12.8	12.7	18.9	44.4	-125.4	167.7	-2.1
R-II	192.7	16.3	16.4	24.4	57.1	-135.6	204.1	11.4
R-III	167.1	13.1	12.8	19.3	45.2	-121.9	161.1	-6.0
R-IV	162.9	12.9	13.1	19.6	45.6	-117.3	168.0	5.1
OE	31.3	2.3	2.3	3.4	7.9	-23.4	27.7	-3.6
OI	35.0	2.3	2.3	3.5	8.2	-26.8	32.4	-2.6
OCIO	172.0	12.2	12.2	18.3	42.7	-129.3	163.4	-8.6
ADM	117.0	9.2	9.1	13.6	31.9	-85.1	119.8	2.8
SBCR	13.0	1.0	1.0	1.5	3.5	-9.5	14.1	1.1
OCHCO	133.0	9.0	9.1	14.5	32.5	-100.5	127.4	-5.6
CSU	3.0	0.1	0.1	0.2	0.4	-2.6	2.4	-0.6

3-8 Inspection Activities

The table below shows the average number of hours of direct inspection per plant in CY 2022.

[83] Some numbers might not add due to rounding.
[84] Based on FTE utilization as of December 31, 2022

Average ROP 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
1610 Hours	1561 Hours	2223 Hours[85]	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 CY.

Items	Description	CY 2021 (Hours)	CY 2022 (Hours)
i.	Baseline Inspection	230,383	213,363
ii.	Plant-Specific Inspection	4,854	7,946
iii.	Generic Safety Issue Inspections	2,426	83
iv.	Performance Assessment	3,530	3,062
v.	Other Activities	93,068	97,511
vi.	Total Staff Effort	334,261	321,964
vii.	Total Staff Effort Per Operating Site	5,969[86]	5,854[87]

3-9 Backfit

Facility-Specific Backfits

No facility-specific backfits were issued during the reporting period.

Generic Backfits

The Fitness-for-Duty Drug Testing Requirements final rule (87 FR 71422; 11/22/2022) constitutes backfitting based on the new requirements for current holders of operating licenses and construction permits for power reactors under 10 CFR Part 50, “Domestic licensing of production and utilization facilities,” and renewed licenses under 10 CFR Part 54, “Requirements for renewal of operating licenses for nuclear power plants,” and applicable current 10 CFR Part 70 licensees under § 70.76(a)(1). This final rule affects the issue finality accorded to current holders of combined licenses under § 52.98. The NRC staff determined the backfit is a cost-justified substantial increase in the overall protection of the public health and safety or common defense and security. Compliance is required by November 22, 2023.

[85] Callaway Plant was in Column 2 of the ROP Action Matrix (ROP Action Matrix) in Q1 FY 2022, and moved to Column 1 on May 6, 2022 (ML22123A227). Davis-Besse Nuclear Power Station, Unit 1 moved to Column 2 in Q1 FY 2022 (ML22055B117). Waterford Steam Electric Station, Unit 3 moved to Column 2 in Q3 FY 2022 (ML22241A143). Quad Cities Nuclear Power Station, Unit 2 moved to Column 2 in Q4 FY 2022 (ML22313A150). Peach Bottom Atomic Power Station, Unit 2 moved to Column 2 in Q4 FY 2022 (ML22314A098). Calvert Cliffs Nuclear Power Plant, Unit 1 moved to Column 2 in Q4 FY 2022 (ML22314A100). Virgil C. Summer Nuclear Station moved to Column 2 in Q2 FY 2022 (ML22287A184).

[86] Total staff effort is divided by 56 sites for CY 2021, due to Duane Arnold Unit 1 permanently ceasing operations in August 2020.

[87] Total staff effort is divided by 55 sites for CY 2022, due to Indian Point Unit 3 permanently ceasing operations in April 2021.

Backfit Appeals Filed by Licensees and Applicants

There were no backfit appeals submitted to the NRC during the reporting period.[88]

[88] By letter dated September 20, 2022 (ML22263A440), Constellation Energy Generation, LLC provided the NRC with forward fitting concerns associated with the NRC staff's communications during review of a licensing action for a proposed alternative. The NRC staff is reviewing the concern and developing a response.