Inspector General's Assessment of the Most Serious Management and Performance Challenges Facing the U.S. Nuclear Regulatory Commission in Fiscal Year 2023

Vogtle Units 3 and 4 Under Construction
(Source: NRC OIG, used with permission)

At a glance

WHY WE DID THIS REPORT

The Reports Consolidation Act of 2000 (Public Law 106-531) requires us to annually update our assessment of the U.S. Nuclear Regulatory Commission's (NRC) most serious management and performance challenges facing the agency and the agency's progress in addressing those challenges.

WHAT WE FOUND

The NRC licenses and regulates the nation's civilian use of radioactive materials to provide reasonable assurance of adequate protection of public health and safety, to promote the common defense and security, and to protect the environment. The NRC's proposed fiscal year (FY) 2023 budget request is $929.2 million, including 2,879 full-time equivalents (FTE). As it executes its important mission as a federal agency, the NRC must continue to be a responsible steward of taxpayer dollars and properly expend its budgeted funds.

With input from NRC leadership, we have assessed, developed, and described each of the NRC's most serious challenges for FY 2023, noting actions already completed by the agency, and the NRC's continuing work on each challenge. We have independently identified the following 10 clear, specific, and actionable challenges that require the NRC's continued attention:

1. Ensuring safety while transforming into a modern, risk-informed regulator;
2. Overseeing the decommissioning process and the management of decommissioning trust funds;
3. Strengthening the NRC's readiness to respond to future mission-affecting disruptions;
4. Advancing readiness to license and regulate new technologies in reactor design, fuels, and plant controls, and maintaining the integrity of the associated intellectual property;
5. Ensuring the effective acquisition, management, and protection of information technology and data;
6. Implementing strategic workforce planning during transformation and industry change;
7. Overseeing materials, waste, and the National Materials Program;
8. Managing financial and acquisitions operations to enhance transparency and fiscal prudence;

9. Reinforcing the NRC's readiness to address cyber and physical security threats to critical national infrastructure sectors impacting the NRC's public health and safety mission and/or NRC licensees; and,
10. Maintaining public outreach to continue strengthening the agency's regulatory process.

By addressing these challenges, the NRC will strengthen the execution of its mission, achieve its strategic goals, and maintain the highest level of accountability over taxpayer dollars.

AGENCY RESPONSE TO MANAGEMENT CHALLENGES FOR FY 2022

The NRC has constructively engaged with the Office of the Inspector General (OIG) and sought to address OIG audit report recommendations throughout the year. The NRC continues its focus on multiple transformation initiatives as it seeks to achieve its objective to become a more modern, risk-informed regulator.

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Robert J. Feitel,
NRC and DNFSB
Inspector General

FROM THE INSPECTOR GENERAL

I am pleased to present our assessment of the most significant management and performance challenges facing the NRC in FY 2023.

The Reports Consolidation Act of 2000 requires us to annually update our assessment of the NRC's "most serious management and performance challenges facing the agency…and the agency's progress in addressing those challenges." In this report, we summarize what we consider to be the most critical management and performance challenges for the NRC, and we assess the agency's progress in addressing those challenges.

The NRC continues to accomplish its mission, demonstrating through its work that it is dedicated to ensuring public health and safety, promoting the common defense and security, and protecting the environment through the effective regulation of nuclear materials. Beyond its nuclear safety and security mission, as a federal agency, the NRC must be a responsible steward of taxpayer dollars and expend its budgeted funds properly.

ABOUT THE INSPECTOR GENERAL

In accordance with the 1988 amendments to the Inspector General Act of 1978, the NRC's OIG was established on April 15, 1989, as an independent and objective unit to conduct and supervise audits and conduct investigations relating to the NRC's programs and operations. The purpose of the OIG's audits and investigations is to prevent and detect fraud, waste, abuse, and mismanagement, and promote economy, efficiency, and effectiveness in NRC programs and operations. In addition, the OIG reviews existing and proposed regulations, legislation, and directives, and comments on any significant concerns. The Inspector General serves under the general supervision of the NRC Chair but operates with personnel, contracting, and budget authority independent of the NRC. The Inspector General informs the Chair and Congress about problems, recommends corrective actions, and monitors the NRC's progress in implementing such actions.

ABOUT THE NRC

The NRC's mission is to license and regulate the nation's civilian use of radioactive materials to protect public health and safety, promote the common defense and security, and protect the environment. The NRC's vision is to

carry out this mission as a trusted, independent, transparent, and effective nuclear regulator, consistent with the NRC Principles of Good Regulation.


NRC Headquarters
(Image: NRC)

The NRC is led by a group of five Commissioners appointed by the President and confirmed by the Senate for 5-year terms. One of the Commissioners is designated by the President as Chair, who serves as official spokesperson of the Commission. President Biden designated Christopher T. Hanson as Chair of the Commission effective January 20, 2021. Chair Hanson is joined by Commissioners Jeff Baran, David A. Wright, Annie Caputo, and Bradley R. Crowell. The Commission formulates policies and approves regulations governing nuclear reactor and materials safety, issues certain orders to NRC-regulated entities, and adjudicates legal matters brought before it. The Executive Director for Operations carries out the policies and decisions of the Commission and directs the activities of the program offices. The offices reporting to the Executive Director for Operations strive to ensure the safe commercial use of nuclear materials in the United States. As part of the regulatory process, the NRC's four regional offices conduct inspection, enforcement, and emergency response programs for licensees within their regions or areas of responsibility. The NRC's FY 2022–2026 Strategic Plan describes the agency's mission, vision, and principles of good regulation, along with strategic goals, objectives, and strategies. The strategic goals of continuing to foster a healthy organization and inspiring stakeholder confidence in the NRC complement the safety and security strategic goal. The safety and security strategic goal, objectives, and strategies ensure the safe and secure use of radioactive materials.

The NRC carries out its safety and security activities through two major programs: Nuclear Reactor Safety, consisting of the Operating Reactors and New Reactors business lines, and Nuclear Materials and Waste Safety, consisting of the Fuel Facilities, Nuclear Materials Users, Decommissioning and Low-Level Waste, Spent Fuel Storage and Transportation, and High-Level Waste business lines. The agency accomplishes its mission to provide reasonable assurance of adequate protection for public health and safety through regulatory activities such as licensing, oversight, and rulemaking. In addition, the NRC's incident response activities prepare for and respond to emergencies involving radioactive materials.

The NRC's FY 2023 budget request is $929.2 million and includes 2,879.6 FTEs. Compared to the NRC's FY 2022 President's Budget, the FY 2023

budget request increased by approximately 4.7 percent, or $41.5 million, primarily to support salaries and benefits adjustments.

During FY 2022, the NRC has made progress in achieving its safety and security goals through continued oversight of the operation of nuclear power plants and fuel cycle facilities, and of the possession and use of radioactive materials. As of mid-September 2022, the NRC had satisfactorily closed 62 OIG audit recommendations during FY 2022. The NRC has also advanced toward its objective of becoming a modern, risk-informed regulator. The following examples are representative of agency accomplishments and issues addressed in FY 2022.

South Texas Project, Units 1 and 2, Bay City, Texas
(Photo courtesy of © STP)

OPERATING REACTORS

The agency's most recent performance assessments indicate that all operating power reactor plants continue to operate safely. NRC staff assess licensee performance, communicates changes in performance quarterly, and issue end-of-cycle assessment letters. The NRC most recently issued annual assessment letters to licensees in March 2022.

In February 2022, the Commission issued orders regarding the agency's National Environmental Policy Act review of subsequent license renewal (SLR) applications. The Commission also directed staff to develop a rulemaking plan to fully evaluate the environmental impacts of reactor SLR in NUREG-1437, *License Renewal Generic Environmental Impact Statement*. In April 2022, the Commission approved the plan proposed by staff, which would complete the rulemaking within 2 years.

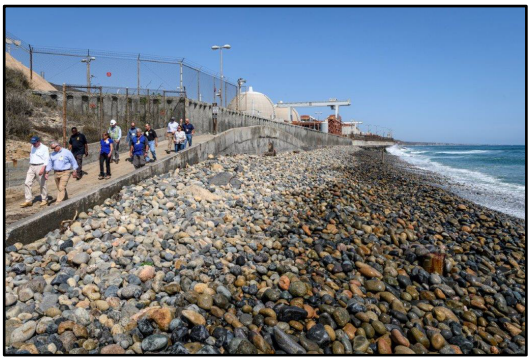
The NRC has continued to engage with industry to improve application of inspection resources through the Reactor Oversight Process. In addition, the agency has reviewed inspection experience from the Coronavirus Disease 2019 (COVID-19) public health emergency to identify best practices for effective onsite inspection.

MATERIALS, FUEL, WASTE, AND DECOMMISSIONING

In September 2022, the NRC issued a renewed operating license for the Westinghouse Columbia Fuel Fabrication Facility, as well as a Record of Decision for the final Environmental Impact Statement. The license renewal allows the facility to operate for an additional 40 years. The facility is one of three fuel fabrication facilities currently in operation in the U.S. The NRC staff reviews concluded that the company's programs are adequate to ensure

safe operation of the facility for the 40-year period and considered the company's performance and efforts to mitigate onsite contamination before renewing the license.

In April 2022, the Commission approved a staff rulemaking plan to revise the licensing requirements for low-level radioactive waste disposal and address Greater-Than-Class-C and transuranic waste disposal requirements. The rule would ensure that low-level waste streams that are significantly different from those considered during the development of existing regulations, such as depleted uranium, will continue to be disposed of safely and meet the performance objectives for land disposal of low-level radioactive waste. The rule would also clearly define the requirements for the near surface land disposal of Greater-Than-Class-C and transuranic waste.



NRC OIG team tours the seawall at the decommissioning San Onofre Nuclear Generating Station, San Clemente, California (Image: OIG, with permission)

Oversight of decommissioning activities includes materials sites and research and test reactors, as well as power reactor facilities. Decommissioning of power reactors generates significant public interest. The reactor decommissioning program continues to adapt to changes from increases in the number of sites entering decommissioning and of sites opting to implement accelerated schedules for decommissioning. Both trends result in an increased workload to support simultaneous licensing and inspection activities. Accelerated decommissioning also increases demands on the agency's capabilities to evaluate financial qualifications and decommissioning funding assurance. The NRC has revised key decommissioning guidance documents, and enhanced funding review process controls and internal guidance, to respond to the increased decommissioning oversight needs.

The NRC continues to implement the agency's Tribal Policy statement, conducting outreach, guidance development, and training. The agency also coordinates with other federal agencies on Tribal matters and on NRC projects involving Tribal consideration. In April 2022, the Commission traveled to New Mexico for public meetings related to the impacts of uranium contamination on the Navajo Nation.

NEW AND ADVANCED REACTORS

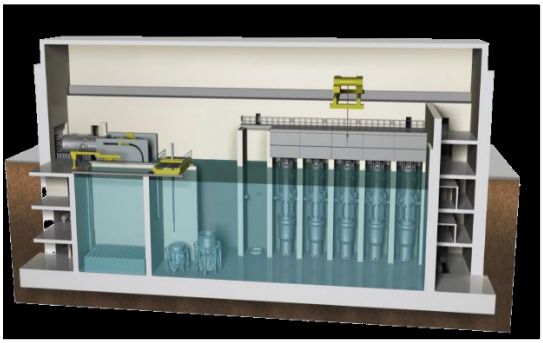
The NRC's new reactor program is focusing on licensing and construction oversight activities for large light water reactors (LWRs) and small modular LWRs, and continuing to develop the specific regulatory framework and infrastructure for advanced reactors (non-LWRs). In addition, the NRC is actively engaged in several international cooperative initiatives to improve safety reviews of new reactor designs and improve the effectiveness and efficiency of inspections and the collection and sharing of construction experience.

NRC OIG team tours the Vogtle Units 3 and 4 construction project, Waynesboro, Georgia (Image: OIG, with permission)

The NRC has authorized Southern Nuclear Operating Company (SNC) to load nuclear fuel and begin operation at Vogtle Unit 3, near Waynesboro, Georgia. Unit 3, which is adjacent to Vogtle's operating Units 1 and 2, is the first reactor to reach this stage in the agency's combined license process. SNC recently informed the agency that the company completed the inspections, tests, analyses, and acceptance criteria (ITAAC) needed to show Vogtle Unit 3 can begin safe operations. NRC staff independently verified completion of the final ITAAC and notified the Commission of the staff's intent to authorize operation. The Director of the NRC's Office of Nuclear Reactor Regulation then authorized fuel load and operation of Vogtle Unit 3. The NRC's decision moves Vogtle Unit 3 out of the construction reactor oversight program and into the operating reactor oversight process, marking a significant regulatory milestone for the agency. The NRC will remain focused on safety as Vogtle Unit 3 transitions through fuel loading and start-up testing and into commercial operations. Vogtle Unit 4 construction continues under the NRC's construction reactor oversight program.

In July 2022, the Commission approved staff publication of a final rule to certify the NuScale design. NuScale Power, LLC applied for certification of its standard design on December 31, 2016. In August 2020, the NRC staff completed its review and issued the final safety evaluation report for the standard design application. In 2021, the staff published for comment in the Federal Register a proposed rule to certify NuScale's design. After considering public comments on the proposed rule, and based on its safety review of the design, the staff concluded that the NuScale design certification rule meets all applicable requirements. Commission approval of the standard plant design allows applicants to reference the design certification in future applications.

The NRC has two pending, technology-inclusive rulemakings related to small modular reactors (SMR) and other new technologies (ONT). In one effort, in January 2022, the NRC staff requested Commission approval to publish the draft final rule establishing alternative emergency preparedness (EP) requirements for SMRs and ONTs. The new EP requirements and implementing guidance adopt a consequence-oriented, risk-informed, performance-based, and technology-inclusive approach. Facilities to be licensed after the date of the final rule would have the option to develop a performance-based EP program, rather than using the existing, deterministic, EP requirements in 10 Code of Federal Regulations (C.F.R.) Part 50.



Artist's rendering of a NuScale nuclear power plant with multiple reactor units (Image: NuScale Power)

In the other effort, the NRC staff is developing in 10 C.F.R. Part 53 a technology-inclusive, risk-informed, and performance-based framework to prepare for the licensing of advanced reactors and other nuclear technologies. The NRC staff is engaged with approximately 15 vendors in pre-application activities and anticipates at least 10 applications in the next 5 years. The staff has issued guidance in certain areas to support applicants developing diverse designs and technologies. After extensive stakeholder engagement, the staff is on schedule to deliver the proposed rule to the Commission in early calendar year 2023 and meet the December 31, 2027 deadline for issuing a final rule imposed by the Nuclear Energy Innovation and Modernization Act (NEIMA).

TRANSFORMATION: BECOMING A MODERN RISK-INFORMED REGULATOR

During FY 2022, the NRC conducted a survey of external stakeholders to obtain perspectives regarding the agency's transformation efforts. While the feedback was generally positive, the results showed uncertainty among respondents regarding how the NRC uses risk information to make timely decisions. However, the NRC has taken steps toward automating information exchange with external stakeholders to increase accessibility and improve data validation and capture into systems. Transformation efforts have also included steps to improve engagement in and timeliness of the deliberative rulemaking process, apply the "Be riskSMART" framework to security oversight programs, leverage the NRC's SPAR risk models to support efficiencies in operating reactor licensing and oversight, and enhance the accessibility of the NRC's eBilling application.

NRC FY 2023 MANAGEMENT AND PERFORMANCE CHALLENGES

We have assessed, developed, and described each of the NRC's most serious challenges for FY 2023, noting actions already completed by the agency, and the NRC's continuing work on each challenge. The challenges are not listed in any order of priority, nor do they necessarily equate to problems; rather, they should be considered areas of continuing important focus for NRC management and staff.

NRC leadership noted its own assessment of the key challenges facing the agency in its response to the OIG's request for input in this area. We have considered this input and independently identified the following 10 clear, specific, and actionable challenges that require the NRC's continued attention:

1. Ensuring safety while transforming into a modern, risk-informed regulator;
2. Overseeing the decommissioning process and the management of decommissioning trust funds;
3. Strengthening the NRC's readiness to respond to future mission-affecting disruptions;
4. Advancing readiness to license and regulate new technologies in reactor design, fuels, and plant controls, and maintaining the integrity of the associated intellectual property;
5. Ensuring the effective acquisition, management, and protection of information technology and data;
6. Implementing strategic workforce planning during transformation and industry change;
7. Overseeing materials, waste, and the National Materials Program;
8. Managing financial and acquisitions operations to enhance transparency and fiscal prudence;
9. Reinforcing the NRC's readiness to address cyber and physical security threats to critical national infrastructure sectors impacting the NRC's public health and safety mission and/or NRC licensees; and,
10. Maintaining public outreach to continue strengthening the agency's regulatory process.

By addressing these challenges, the NRC will strengthen the execution of its mission, achieve its strategic goals, and maintain the highest level of accountability over taxpayer dollars.

Challenge 1: Ensuring Safety while Transforming into a Modern, Risk-Informed Regulator

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

The NRC's increasing emphasis on risk-informed regulation necessitates guidance changes, as well as efforts to raise staff awareness of these changes and ensure regulatory consistency. The NRC must also engage external stakeholders to ensure transparency of resulting changes to its licensing and oversight processes.

CHALLENGE SYNOPSIS

Since 1995, it has been NRC policy to inform regulatory activities with risk insights, thereby balancing deterministic engineering judgment with quantitative analysis based on operating experience. The agency has emphasized this policy in recent years as risk analysis models have become more sophisticated and nuclear power licensees have increasingly used probabilistic safety risk assessment to support changes to their license requirements.

Nevertheless, the NRC and the nuclear industry have methodological differences in their respective approaches to probabilistic risk assessment, and agency staff members sometimes disagree internally on the use of risk analysis in regulatory actions such as license amendments and inspection findings.

Additionally, the years-long decline in reactor inspection findings of very low safety significance (i.e., "green" findings) has raised questions among NRC staff and external stakeholders about the root causes of this trend and whether it reflects an appropriate increase in risk tolerance by the NRC.

Further, the NEIMA directed the NRC to develop and implement, where appropriate, strategies for the increased use of risk-informed, performance-based licensing evaluation techniques and guidance for commercial advanced nuclear reactors within the existing regulatory framework. Advanced reactor designs present unique challenges given the lack of operating experience data to inform risk modeling.

ONGOING ACTIONS

Staff are drafting changes to Reactor Oversight Process governance documents regarding qualitative descriptions of white and yellow safety significance for inspection findings, and will incorporate associated changes in a planned revision to the NRC Enforcement Policy.

Staff drafted papers for Commission review regarding proposed changes to the frequency of engineering and problem identification and resolution inspections, the emergency preparedness significance determination process, and treatment of licensee performance indicators in the Reactor Oversight Process Action Matrix.

COMPLETED ACTIONS

Staff applied the new Risk-Informed Process for Evaluations to one reactor licensing action.

Staff developed guidance for applying the Risk-Informed Process for Evaluation to reactor Technical Specification license amendment requests.

Staff completed a pilot program to risk-inform technical reviews for spent fuel dry storage.

Staff completed its CY 2021 Reactor Oversight Process program assessment, which focused on inspection data trends and effectiveness of new initiatives such as the Very Low Safety Significance Issue Resolution process.

Challenge 2: Overseeing the Decommissioning Process and the Management of Decommissioning Trust Funds

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

The increased numbers of power reactor sites in decommissioning, and of those opting for accelerated decommissioning, add to demands on decommissioning program resources for all decommissioning licensing and oversight activities, including the NRC's independent analyses of licensees' decommissioning funding status reports.

CHALLENGE SYNOPSIS

There are 25 power reactors currently undergoing decommissioning. The licensees for these reactors and other nuclear reactors must provide reasonable assurance that funds will be available for the entire decommissioning process.

To oversee licensees' decommissioning funding, the NRC requires licensees to provide a decommissioning financial status report biennially, and annually for five years prior to permanent cessation of operations. Prior to or within 2 years after permanent cessation of operations, licensees are required to submit a Post Shut-Down Decommissioning Activities Report that includes a description and schedule for the planned decommissioning activities and a site-specific cost estimate. Licensees in decommissioning must then annually submit decommissioning funding status reports.

The NRC has identified technical resource needs for the program in inspection, risk analysis, licensing review, and project management. Local communities may have additional concerns about the accelerated decommissioning model, entailing augmented opportunities for public interactions.

Key decommissioning challenges include:

- Ensuring that agency processes adequately address current reactor decommissioning business models, including those that provide for accelerated decommissioning activities;
- Managing oversight of decommissioning trust fund shortfalls for both operating and decommissioning reactors;
- Maintaining reasonable assurance that operating reactors will have sufficient funds to decommission safely; and,
- Improving decommissioning guidance.

Ongoing Actions

The NRC is conducting power reactor decommissioning rulemaking to clarify regulations. In FY 2022, NRC staff held 6 public meetings in various locations, and testified before Congress, related to the proposed decommissioning rule, guidance development, and site-specific licensing actions.

Staff are processing public comments received during the extended public comment period.

Completed Actions

In December 2021, the NRC staff approved the transfer of licenses for Palisades and Big Rock Point nuclear power plants and their associated spent fuel storage facilities to a decommissioning operator.

The NRC revised Inspection Manual Chapter 2561, Decommissioning Power Reactor Inspection Program, to incorporate lessons learned and to reflect inspection procedure changes.

Challenge 3: Strengthening the NRC's Readiness to Respond to Future Mission-Affecting Disruptions

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

The COVID-19 public health emergency caused significant disruptions to the U.S. workforce, but the NRC adopted policies and procedures to protect its staff and licensee personnel while continuing to execute its mission. The agency can prepare for events of similar or greater impact by incorporating lessons learned during its COVID-19 response into routine policies and procedures, as well as the agency's contingency planning.

CHALLENGE SYNOPSIS

Following the President's declaration of the COVID-19 public health emergency in March 2020, the NRC directed most employees to work from home to minimize risks and other disruptions to agency business. Nevertheless, NRC offices remained open to support work that could not be performed remotely, such as intelligence analysis and processing of classified and safeguards information. Additionally, NRC inspectors continued their oversight work at nuclear power plants and materials licensee facilities, while using information technology to minimize face-to-face interaction with licensee personnel, as appropriate.

As public health trends improved in 2021 and 2022, the NRC gradually resumed in-person operations with workplace safety measures and in accordance with local epidemiological conditions. Nevertheless, new COVID-19 variants continue to present workplace safety risk, as do other pathogens that could trigger another national or global health crisis. Natural disasters, such as hurricanes, floods, and wildfires, present ongoing operational risk to NRC licensees. Cyber-attacks and other threats from outside actors could severely disrupt the agency's capacity to execute its mission.

Ongoing Actions

NRC management will review the agency's COVID-19 lessons learned assessment and implement endorsed recommendations while considering internal and external stakeholder input.

Completed Actions

The COVID-19 working group completed its lessons learned assessment, recommending actions to clarify agency policies and procedures for remote and hybrid inspections, to improve inspectors' access to licensee information, and to monitor licensee performance trends.

The NRC revised its pandemic plan to reflect lessons learned about mitigation measures, communications, and coordination across offices and regions.

Challenge 4: Advancing Readiness to License and Regulate New Technologies in Reactor Design, Fuels, and Plant Controls, and Maintaining the Integrity of the Associated Intellectual Property

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

The Nuclear Energy Innovation Capabilities Act requires the NRC and the Department of Energy to share technical expertise and knowledge on advanced reactor technologies, many of which are in the developmental pre-licensing phase. The unique designs of these reactors present technical challenges for NRC staff when engaging with prospective licensees and require extensive stakeholder outreach as NRC staff members develop a technology-neutral regulatory framework for advanced reactors.

CHALLENGE SYNOPSIS

Unfavorable electric power market conditions have slowed construction of new commercial nuclear power plants in the United States and led to plant closures in recent years. However, increased public and private sector concern over carbon emissions has supported development of new reactor designs, which could produce electricity at lower cost with greater scalability than current operating reactors.

Domestic utilities are developing technologies that can extend the operating lifetimes of existing reactors, and Congress has passed legislation designed to facilitate research, development, and licensing of new reactor technologies. The technical complexity of these initiatives, combined with their experimental nature, has challenged the NRC to adapt its regulatory processes to accommodate technologies that cannot be readily assessed using existing approaches.

At the same time, the quality of information necessary for timely NRC review can challenge applicants new to nuclear licensing. As new reactor and fuel technologies are reviewed and licensed, it is critical that the NRC, as well as its federal partners, vendors, and license applicants, protect the proprietary information entrusted to them.

Ongoing Actions

NRC staff members are detailed to Department of Energy technical program offices to facilitate information sharing, and senior leaders from both agencies meet quarterly to discuss topics of mutual interest.

The NRC continues engaging external stakeholders as it develops the proposed Part 53 rule for advanced reactors, with a goal of issuing the final rule by July 2025.

Completed Actions

Staff issued guidance on fuel qualification methodology for non-light water reactors (NUREG-2246). Staff published Reg Guide 1.247 for trial use for potential endorsement of the American Society of Mechanical Engineers and American Nuclear Society standards for non-light water reactor probabilistic risk assessment.

Staff issued several final safety evaluations on topical reports submitted by three prospective advanced reactor licensees (TerraPower, Kairos, and X-energy).

Challenge 5: Ensuring the Effective Acquisition, Management, and Protection of Information Technology and Data

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

Information technology continues to advance rapidly. The challenge is supporting a future-ready workforce equipped with the modern tools, technologies, skills, and knowledge necessary to meet current and future mission needs.

CHALLENGE SYNOPSIS

The NRC must continue to meet the regulatory and statutory federal mandates for Information Technology and Information Management (IT/IM). The responsibility of the NRC's IT/IM program is to maintain and enhance services and infrastructure to enable accomplishment of the agency's mission. The NRC must continue to use robust, proactive measures to protect its personnel, buildings, and data from internal and external threats. The NRC also faces evolving cyber threats and challenges to the security of data related to its oversight of operating and decommissioning facilities, use of nuclear materials, emergency preparedness, and incident response.

The NRC has increased investments to enhance its cybersecurity posture in the face of evolving threats and new federal mandates by automating compliance activities, developing an Information Security Architecture, and migrating Federal Information Security Modernization Act (FISMA) systems to a more streamlined environment. As the agency continues efforts to modernize IT, it also works to better manage acquisitions by using best practices, and to improve the customer experience.

Key IT and information management and security oversight challenges for the NRC include:

- Managing more frequent patching in the face of increasing threats and vulnerabilities;
- Managing risk-based security strategies to protect against increasing numbers, types, and sophistication of cyber threats;
- Directing agencywide information resource planning to help the agency select and manage IT/IM and IT security resources to provide maximum value;
- Executing the insider threat prevention and detection program to protect classified and safeguards information; and,
- Executing actions required by the FISMA, to strengthen information technology security.

Ongoing Actions

The NRC is working to support scientific analysis with modernized computer codes and tools for artificial intelligence.

The NRC continues to broaden use of web-based portals to support licensing activities.

The NRC is enabling new technologies in data analytics, such as dashboards and data warehousing.

Completed Actions

The NRC completed an IT Strategic Roadmap, Data Strategy, and content management analysis to support long-term strategic planning.

The NRC has created multiple dashboards across the agency to help better monitor performance and aid in program implementation.

Challenge 6: Implementing Strategic Workforce Planning During Transformation and Industry Change

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

Strategic workforce planning is critical to help the NRC maintain its focus on longer-term workforce development and accomplish organizational goals during periods of agency transformation and industry change.

CHALLENGE SYNOPSIS

The NRC's enhanced Strategic Workforce Planning (SWP) is a structured, data-driven process. The SWP process develops short- and long-term strategies and action plans that enable the NRC to recruit, retain, and develop a skilled and diverse workforce with the competencies and agility to address emerging needs and workload fluctuations. In addition, the NRC is transforming to realize its vision of becoming a modern, risk-informed regulator and be in the best position to continue meeting its important safety and security mission well into the future.

Transformation will help the NRC keep pace with the highly dynamic, interconnected environment in which the agency operates, and be prepared to regulate an industry that is innovative and has new technologies. The SWP process takes place annually to develop strategies for workforce needs in the budget 5 years into the future.

The NRC's proposed FY 2023 budget is $929.2 million, an increase of $41.5 million over its enacted budget for FY 2022. This includes 2,879 FTE, a slight increase compared to the FY 2022 enacted budget.

The NRC faces the challenges of fulfilling the agency's mission while complying with mandates to limit corporate costs, and while attrition reduces staff. These challenges highlight the importance of effective future workforce planning. The OCHCO's New Human Capital Dashboard illustrates the NRC's challenges in meeting hiring goals. The OIG audited the NRC's Strategic Workforce Planning process in FY 2022.

Ongoing Actions

The agency evaluates the Strategic Workforce Planning process every year, identifying areas for adjustment the following year.

The agency has set aside resources for entry-level hiring, and training and travel for the program hires.

The NRC is working to address organizational health to support decision-making and performance.

Completed Actions

The Commission approved staff recommendations to support recruitment and retention of resident inspectors.

The NRC negotiated a new Collective Bargaining Agreement with the National Treasury Employees Union that supports the use of telework as part of changing work models.

Challenge 7: Overseeing Materials, Waste, and the National Materials Program

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

This challenge involves sustained, high-level coordination between the NRC and 39 Agreement States to ensure a consistent understanding and implementation of regulations associated with the oversight of radioactive materials, in addition to the NRC's ability to effectively oversee the continued increase in high-level radioactive waste.

CHALLENGE SYNOPSIS

The NRC is responsible for maintaining an established regulatory framework for the safe and secure use of nuclear materials; medical, industrial, and academic applications; uranium recovery activities; and, high-level radioactive waste.

The NRC's regulatory framework includes Agreement States, which are U.S. states that have entered into an agreement with the NRC to regulate certain radioactive materials and limited quantities of special nuclear material. Agreement States must demonstrate that their regulatory programs are adequate to protect public health, safety, and the environment, and are compatible with the NRC's program. There are currently 39 Agreement States; however, Connecticut and Indiana have submitted letters of intent to also become Agreement States.

The broad collective effort of the NRC and Agreement States to carry out their respective regulatory programs for radioactive material is called the National Materials Program (NMP). The mission of the NMP is to have a partnership between the NRC and Agreement States that ensures protection of public health, safety, security, and the environment from the hazards associated with radioactive material.

In addition to the NMP, the NRC has sole responsibility for overseeing high-level radioactive waste (HLW), the highly radioactive byproduct of the reactions that occur inside nuclear reactors. Spent (used) reactor fuel is one form of HLW.

Ongoing Actions

The NRC is currently updating Material Control & Accounting (MC&A) inspector qualification program guidance to include a strategy to address emergent MC&A inspection program needs.

The NRC is updating Inspection Manual Chapter 2800, and four additional inspection procedures, to further risk-inform the materials inspection program and incorporate pandemic-related insights.

The NRC has developed and implemented training for inspection staff on how to record inspection data in the Web-Based Licensing System (WBL). This training is also being provided to Agreement State WBL users.

Completed Actions

The NRC has completed 10 inspection procedure revisions under Inspection Manual Chapter 2800.

The procedures were prioritized to impact oversight of the greatest number of materials licensees under NRC or Agreement State jurisdiction.

The NRC formally designated the WBL System as the official system to manage all materials and waste inspections under 10 C.F.R. Part 30, as well as Part 40 and Part 70 inspections that are not tracked under the Reactor Program System.

The inspection module is also available to Agreement State users of WBL.

Challenge 8: Managing Financial and Acquisitions Operations to Enhance Transparency and Fiscal Prudence

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

Sound financial management is vital for federal agencies to accomplish their missions effectively and efficiently. A strong acquisition management process increases the likelihood that the agency awards contracts to the right contractors and monitors contracting actions in accordance with regulations.

CHALLENGE SYNOPSIS

The NEIMA requires the NRC to recover, to the maximum extent practicable, approximately 100 percent of its annual budget, less certain amounts excluded from this fee-recovery requirement. It also requires the NRC to establish a schedule of charges that fairly and equitably assesses the fees to licensees and permit holders. To improve efficiency and accuracy, the NRC is piloting new IT applications to improve its fee calculation process.

To maintain transparency, the NRC must continue to implement robust internal controls over financial management and reporting. Sound acquisition practices are also an important aspect of NRC operations. The agency has continued to promote sound acquisition award practices, improvements in the management of contracts, and timely closeout of contracting actions. In addition, the agency must continue to administer its grants program in accordance with the prescribed federal regulations.

Key financial and acquisition challenges include the following:

- Developing and implementing the agency's budget in accordance with federal laws, regulations, and guidance;
- Maintaining a fee structure in accordance with laws and regulations that is fair to all types of entities regulated by the agency;
- Improving controls over license fee billing; and,
- Exploring ways to improve the award, management, and timely closeout of acquisition actions.

Ongoing Actions

The NRC is applying the agency's "Be riskSMART" initiative, generalizing existing risk-informed decision-making concepts to make them more broadly applicable to any decision made at the NRC, including management processes.

The NRC continues to address recommendations made by the OIG in the audit of the NRC's property management program.

Completed Actions

The NRC implemented the eBilling application, which provides up-to-date invoice information, and improved access for small entities.

The NRC completed all corrective actions related to previous OIG audits affecting the agency's grants program.

The NRC has addressed recommendations made by the OIG's independent auditors in conjunction with the unmodified opinion on the FY 2021 financial statements.

Challenge 9: Reinforcing the NRC's Readiness to Address Cyber and Physical Security Threats to Critical National Infrastructure Sectors Impacting the NRC's Public Health and Safety Mission and/or NRC Licensees

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

Cyber and physical security threats present a persistent challenge to the safe and reliable operation of the nation's electric power generation and distribution system. As the primary regulator of the nation's commercial nuclear power fleet, the NRC must maintain robust and adaptive oversight programs to ensure nuclear power licensees can protect their facilities effectively against evolving threats and a broad spectrum of potential adversaries, including competitor nation states, organized criminal groups, and domestic terrorists.

CHALLENGE SYNOPSIS

Federal government policy organizes critical infrastructure into 16 sectors with assets, systems, and networks considered vital to the security, economy, and public health and safety of the United States. The Department of Homeland Security's Cybersecurity and Infrastructure Security Agency serves as the Sector Risk Management Agency for the Nuclear Reactors, Materials, and Waste Sector. The NRC regulates these activities in accordance with its statutory mission to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.

Cybersecurity presents unique challenges to critical infrastructure protection because information technology and industrial control systems are highly complex and dynamic, technologically diverse, and often geographically dispersed. This complexity increases the difficulty in identifying, managing, and protecting the numerous operating systems, applications, and devices involved.

Ongoing Actions

The NRC continues efforts to increase the realism of Force-on-Force exercises conducted at nuclear power plants and Category I fuel cycle facilities.

The NRC continues to monitor threats directed toward NRC-licensed facilities to communicate time-sensitive information and to assess the need for changes to the design-basis threat as applicable.

Completed Actions

In September 2021, the NRC issued a baseline inspection procedure for biennial oversight of nuclear power licensee cybersecurity programs that started in January 2022.

The NRC began implementing the new nuclear power cybersecurity inspection procedure biennially and incorporated these inspections into the Reactor Oversight Process.

Challenge 10: Maintaining Public Outreach to Continue Strengthening the Agency's Regulatory Process

WHY IS THIS A SERIOUS MANAGEMENT AND PERFORMANCE CHALLENGE?

Since the public has a strong interest in effective nuclear regulation, it is the NRC's policy to provide the public with opportunities for meaningful participation in NRC processes.
The pace of regulatory work increases the need for outreach activities, and new technologies open possibilities to enhance outreach efforts.

CHALLENGE SYNOPSIS

The NRC has a long history of, and commitment to, public participation and collaboration in agency regulatory activities. The NRC has had a formal policy regarding open meetings since 1978. In March 2021, the Commission published its most recent update to the policy statement, *Enhancing Public Participation in NRC Meetings*. It reiterated the NRC policy "to open meetings between the agency staff and one or more outside persons to observation and participation to the extent possible," and "to balance openness and transparency with the need to exercise regulatory and safety responsibilities without undue administrative burden." Public meetings and opportunities for comment may occur as part of numerous NRC activities, ranging from rulemaking and guidance development to some licensing processes, certain oversight activities and performance assessments, and symposia regarding regulatory research.

In the recent policy statement update, the Commission committed the NRC to making efforts to find new and innovative ways to interact with individuals, including exploring varied meeting formats and other ways to incorporate technologies that allow participation from locations other than a meeting room. Experiences with new methods will be shared across the agency for information and consideration by other NRC staff.

The NRC Strategic Plan for Fiscal Years 2022–2026 emphasizes the public participation policy through the goal of inspiring stakeholder confidence in the NRC. One objective in this goal is to communicate in clear and accessible ways with diverse stakeholders.

Ongoing Actions

Following a Commission Order of February 2022, NRC staff are revising the Generic Environmental Impact Statement for renewal of operating reactor licenses to address subsequent license renewal. The revision process will include opportunity for public comment.

The NRC has engaged with a spectrum of stakeholders to obtain input to inform the development of the NRC's Draft Artificial Intelligence Strategic Plan for Fiscal Years 2023–2027.

Completed Actions

The NRC extended the schedule for the rulemaking for licensing and regulation of advanced reactors in 10 C.F.R. Part 53 to enhance engagement and respond to input.

The Commission conducted public meetings in New Mexico to receive an overview of the 10-year plan to address impacts of uranium contamination on the Navajo Nation and to hear directly from stakeholders about contamination impacts and remediation efforts.

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COMMENTS AND SUGGESTIONS

If you wish to provide comments on this report, please email the OIG using this link.

In addition, if you have suggestions for future OIG audits, please provide them using this link.