U.S. Nuclear Regulatory Commission Actions to Address Priority Open U.S. Government Accountability Office Recommendations

1. Addressing the Security of Radiological Sources

The U.S. Government Accountability Office (GAO) identified four open priority recommendations for the U.S. Nuclear Regulatory Commission (NRC) from two reports that addressed the security of Category 3 sources (GAO-16-330) and security measures for radioactive materials that could be dispersed through a radiological dispersal device (GAO-19-468).

In the report GAO-16-330, "Nuclear Security: NRC Has Enhanced the Controls of Dangerous Radioactive Materials, but Vulnerabilities Remain," GAO recommended that the NRC:

1) Take the steps needed to include Category 3 sources in the National Source Tracking System [NSTS] and add Agreement State Category 3 licenses to the Web-Based Licensing [WBL] System as quickly as reasonably possible.

2) At least until such time as Category 3 licenses can be verified using the License Verification System, require that transferors of Category 3 quantities of radioactive materials confirm the validity of a would-be purchaser's radioactive material license with the appropriate regulatory authority before transferring any Category 3 quantities of licensed material.

In response to both GAO-16-330 and Commission direction in Staff Requirements Memorandum for COMJMB-16-0001, "Proposed Staff Re-Evaluation of Category 3 Source Accountability," the NRC staff formed the Category 3 Source Security and Accountability Working Group. The working group was tasked to: 1) evaluate the pros and cons of different methods for verifying the validity of a license before a Category 3 source is transferred; 2) evaluate the pros and cons of including Category 3 sources in the NSTS; 3) assess additional options for addressing GAO source accountability recommendations; 4) identify changes in the threat environment since 2009 and determine whether those changes support adding Category 3 sources to the NSTS; 5) assess the risks posed when a licensee possesses enough Category 3 sources to require the higher level protections required for Category 2 quantities; and 6) collaborate with Agreement States, non-Agreement States, licensees, public interest groups, and industry groups to fully assess the potential impact of any recommendations made by the working group. The working group also considered relevant recommendations made by previous working groups that evaluated license verification and the effectiveness of Title 10 of the *Code of Federal Regulations* Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material."

The Commission is currently considering the results of the staff's evaluation and recommended path forward, as described in SECY-17-0083, "Re-Evaluation of Category 3 Source Security and Accountability in Response to SRM [Staff Requirements Memorandum] - COMJMB-16-0001" (Agencywide Documents Access and Management System [ADAMS] Accession No. ML17188A249).

Agreement States have expressed significant interest in utilizing WBL as a licensing system, beyond the current use of that system for listing all licensees that possess Category 1 and 2 sources. The NRC is focused on assisting Agreement States in adopting WBL. To date, seven

of the 39 Agreement States are in the system, with 11 more states in the process of adopting WBL.

In the report GAO-19-468, "Combating Nuclear Terrorism: NRC Needs to Take Additional Actions to Ensure the Security of High-Risk Radioactive Material," GAO recommended that the NRC:

1) Consider socioeconomic consequences and fatalities from evacuations in the criteria for determining what security measures should be required for radioactive materials that could be used in a radiological dispersal device (RDD).

2) Require additional security measures for high-risk quantities of certain Category 3 radioactive material and assess whether other Category 3 materials should also be safeguarded with additional security measures.

The NRC staff disagrees with GAO's recommendation regarding evacuation effects and maintains that the current regulatory requirements provide for the safe and secure use of radioactive materials, regardless of the category of material. The NRC has encouraged GAO to consider the conclusions of the Radiation Source Protection and Security Task Force (Task Force), which includes members 14 Federal agencies and the Organization of Agreement States, that indicate the current radionuclides and activity thresholds are appropriate for enhanced security. Task Force reports have included statements that "current measures for the security and control of radioactive sources are appropriately protective of risk-significant quantities of radioactive material"[1] and that "there are no significant gaps in the area of radioactive source protection and security that are not already being addressed."[2]

GAO also considered postulated fatalities that could occur during evacuations in response to the use of an RDD as part of its basis for recommending increased security measures for radioactive materials. The NRC continues to actively participate in U.S. efforts to educate the public on appropriate responses to emergency situations and to maintain capabilities to mitigate adverse consequences of the misuse of radioactive materials.

Regarding the second recommendation, the Commission is also considering security measures for Category 3 quantities of radioactive materials, as part of its review of SECY-17-0083.

The NRC's established policy on the consequences of concern that form the basis of the regulatory framework for safety and security of radioactive materials continues to be based on potential health effects, not on socioeconomic impacts. The 2019 accidental dispersal of radioactive material at the University of Washington in Seattle demonstrated the importance of public and interagency communications about radioactive materials. The NRC has enhanced its communications and coordination with State partners through a letter to the Agreement State Radiation Control Program Directors[3]. The NRC is also enhancing its communication and coordination with NNSA to reinforce each agency's regulatory authorities during source

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[1] U.S. Nuclear Regulatory Commission. "The 2018 Radiation Source Protection and Security Task Force Report," January 31, 2019, ADAMS Accession No. ML18276A155, page 1.

[2] Ibid, Executive Summary, page i.

[3] U.S. Nuclear Regulatory Commission. "Transmission of Background, Key Messages and Questions and Answers on Dispersal of Cesium-137 at the University of Washington in May 2019 (RCPD-20-001)," April 10, 2020, ADAMS Accession No. ML20100P790 (non-public).

removals. This will ensure that future high activity source removals are appropriately planned by NNSA with the managerial controls and safety measures in place to prevent or minimize the possibility or severity of a recurrence of this type of accident, as noted in the Joint Investigation Report[4].

2. Improving the Reliability of Cost Estimates

In the report GAO-15-98, "Nuclear Regulatory Commission: NRC Needs to Improve Its Cost Estimates by Incorporating More Best Practices," GAO stated that the NRC should aligns its cost estimating procedures with relevant best practices identified in the GAO Cost Estimating and Assessment Guide (GAO Cost Guide).

The NRC is updating its cost-benefit guidance to incorporate cost estimating best practices and the treatment of uncertainty to support the development of more realistic estimates of the costs to implement proposed requirements. This guidance update addresses relevant best practices provided by GAO and feedback provided by licensees, the Nuclear Energy Institute, and other stakeholders. This update will also consolidate guidance documents, incorporate recommendations from the GAO report on the NRC's cost-estimating practices and cost-estimating best practices from the GAO Cost Guide, and capture best practices for the consideration of qualitative factors in accordance with Commission direction in the SRM for SECY-14-0087, "Qualitative Consideration of Factors in the Development of Regulatory Analyses and Backfit Analyses."

The draft cost-benefit guidance update was released on April 14, 2017, for a 60-day public comment period. Comments received were reviewed and addressed, and in March 2018, the staff submitted a draft of the final guidance (NUREG/BR-0058) to the Commission for approval. In July 2019, the Commission directed the staff to update NUREG/BR-0058 to align with the update to Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," that the Commission approved in May 2019. The staff made conforming changes to NUREG/BR-0058 and submitted a revised draft of NUREG/BR-0058 to the Commission on January 28, 2020 (SECY-20-0008, "Draft Final NUREG/BR-0058, Revision 5, 'Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission'").

3. Improving Strategic Human Capital Management

In the report GAO-17-233, "Strategic Human Capital Management: NRC Could Better Manage the Size and Composition of Its Workforce by Further Incorporating Leading Practices," GAO recommended that the NRC set agencywide goals, which could be ranges, for overall workforce size and skills composition that extend beyond the 2-year budget cycle.

In 2017, the NRC's Executive Director for Operations initiated a three-office pilot project of an enhanced Strategic Workforce Planning (SWP) process for the NRC that better integrates workload projections over a 5-year period, skills identification, human capital management, individual development, and workforce management activities. Two headquarters offices and one regional office participated in the pilot project, which concluded in June 2018. A lesson-learned report found that the enhanced SWP process provided a sound, repeatable

[4] National Nuclear Security Administration. "Joint Investigation Report: Sealed Source Recovery at the University of Washington Harborview Training and Research Facility Results in Release of Cesium-137 on May 2, 2019," https://www.energy.gov/sites/prod/files/2020/04/f73/JIT-Seattle-Cesium-Event-2019-05-02.pdf, page 3.

process that was used to prepare a projection for staff of the anticipated type and amount of work in the pilot organizations. The NRC SWP implementation team thereafter made recommendations for adjusting the process and expanding implementation to additional offices and regions.

In 2019, the agency implemented Phase II of the SWP that expanded the process to cover 11 offices, including all four Regional Offices, the Office of Nuclear Reactor Regulation, the Office of New Reactors, the Office of Nuclear Material Safety and Safeguards, the Office of Nuclear Regulatory Research, the Office of Nuclear Security and Incident Response, the Office of the Chief Financial Officer (OCFO), and the Office of the Chief Information Officer. These offices represented approximately 79 percent of the agency's workforce. Phase II, now successfully completed, demonstrated that the enhanced SWP process will support agency efforts to better forecast the amount and type of work now and in the future, and the workforce needed to perform this work.

With the phased initial implementation of the enhanced SWP process completed, it has now become part of the agency's standard operating procedures. Implementation for the ensuing fiscal year will begin each September and includes all offices that report to the Office of the Executive Director for Operations and two offices that report to the Commission (OCFO and the Office of the General Counsel).

The NRC's SWP process is used to forecast the anticipated workload and associated skill sets needed to perform this work five years in the future. The process estimates the workload and skill sets needed to accomplish the NRC's mission based on known and anticipated factors with a reasonable level of certainty. Previous projected estimates are evaluated and adjusted annually to account for an increasing level of certainty of the factors used. Through this iterative process, the NRC establishes the estimated workload and skill sets needed prior to budget formulation. The NRC staff continues to refine the SWP to improve the accuracy of projections regarding the agency's workforce size and necessary skill-set composition.