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Comptroller General  
of the United States

May 10, 2023

The Honorable Christopher T. Hanson  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**Priority Open Recommendations: Nuclear Regulatory Commission**

Dear Chairman Hanson:

The purpose of this letter is to provide an update on the overall status of the Nuclear Regulatory Commission’s (NRC) implementation of GAO’s recommendations and to call your continued personal attention to areas where open recommendations should be given high priority.<sup>1</sup> In November 2022, we reported that, on a government-wide basis, 77 percent of our recommendations made 4 years ago were implemented.<sup>2</sup> NRC’s recommendation implementation rate for that year was 100 percent, reflecting the implementation of 10 recommendations made in five reports from fiscal year 2018.<sup>3</sup> As of March 2023, NRC had 21 open recommendations. Fully implementing these open recommendations could significantly improve agency operations.

NRC has not implemented any of the five open priority recommendations we identified in our June 2022 letter.<sup>4</sup> We ask your continued attention to these five remaining open priority recommendations. We are also adding three new recommendations related to NRC’s materials licensing program and federal agencies’ privacy programs. This brings the total number of priority recommendations to eight. (See enclosure for the list of recommendations.)

The eight priority recommendations fall into the following three areas:

**Addressing the security of radiological sources.** Implementing our six priority recommendations in this area will better enable NRC to carry out its responsibility for licensing and regulating the secure use of radioactive materials while ensuring the protection of public health and safety and the environment. For example, in July 2022, we recommended that NRC

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<sup>1</sup>Priority recommendations are those we believe warrant priority attention from heads of key departments or agencies. They are highlighted because, upon implementation, they may significantly improve government operations, for example, by realizing large dollar savings; eliminating mismanagement, fraud, and abuse; or making progress toward addressing a high-risk or duplication issue.

<sup>2</sup>GAO, *Performance and Accountability Report: Fiscal Year 2022*, [GAO-23-900398](#) (Washington, D.C.: Nov. 15, 2022).

<sup>3</sup>NRC’s recommendation implementation rates in previous years are as follows: 89 percent in 2022, 78 percent in 2021, 67 percent in 2020, 86 percent in 2019, 75 percent in 2018, and 81 percent in 2017.

<sup>4</sup>GAO, *Priority Open Recommendations: Nuclear Regulatory Commission*, [GAO-22-105602](#) (Washington, D.C.: June 3, 2022).

add security features, such as multifactor authentication, to its licensing process to improve the process's integrity and make it less vulnerable to altering or forging licenses. Additionally, in April 2019, we made another recommendation that NRC consider socioeconomic consequences and fatalities from evacuations in the criteria for determining required security measures for radioactive materials that could be used in a radiological dispersal device (RDD). By implementing these and the four other recommendations, NRC would have greater assurance that bad actors cannot manipulate the system and that it considers the more likely and more significant consequences of a RDD when establishing its security requirements for radioactive material.

**Improving the reliability of cost estimates.** NRC develops cost estimates when analyzing the costs and benefits of actions such as modifications to nuclear power plants. These estimates help inform NRC Commissioners' regulatory decisions. By fully implementing our recommendation to complete and issue its updated cost estimating procedures to align with best practices identified in our cost estimating guide, NRC will better ensure that its cost estimates are reliable and provide the Commissioners with adequate information on which to base their decisions.

**Ensuring the cybersecurity of the nation.** Federal agencies can better protect information systems containing personally identifiable information by ensuring that agency policies and procedures fully define and document privacy officials' roles in reviewing, approving, overseeing and authorizing aspects of these systems. By implementing our one priority recommendation to fully define and document the role of senior agency official, NRC will be in a better position to ensure that privacy protections are adequately incorporated into agency systems that contain personally identifiable information.

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In April 2023, we issued our biennial update to our [High-Risk List](#). This list identifies government operations with greater vulnerabilities to fraud, waste, abuse, and mismanagement. It also identifies the need for transformation to address economy, efficiency, or effectiveness challenges.<sup>5</sup>

Several government-wide high-risk areas have direct implications for NRC and its operations. These include (1) [the government-wide personnel security clearance process](#), (2) [ensuring the cybersecurity of the nation](#),<sup>6</sup> (3) [improving the management of IT acquisitions and operations](#), (4) [strategic human capital management](#), and (5) [managing federal real property](#).

We urge your attention to these government-wide high-risk issues as they relate to NRC. Progress on high-risk issues has been possible through the concerted actions and efforts of Congress; the Office of Management and Budget; and the leadership and staff in agencies, including within NRC. In March 2022, we issued a report on key practices to successfully

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<sup>5</sup>GAO, [High-Risk Series: Efforts Made to Achieve Progress Need to be Maintained and Expanded to Fully Address All Areas](#), [GAO-23-106203](#) (Washington, D.C.: Apr, 20, 2023).

<sup>6</sup>With regard to cybersecurity, we also urge you to use foundational information and communications technology supply chain risk management practices set forth in our December 2020 report, [GAO, Information Technology: Federal Agencies Need to Take Urgent Action to Manage Supply Chain Risks](#), [GAO-21-171](#) (Washington, D.C.: Dec. 15, 2020).

address high-risk areas, which can be helpful resources as your agency continues to make progress to address high-risk issues.<sup>7</sup>

In addition to your continued attention on these issues, Congress plays a key role in providing oversight and maintaining focus on our recommendations to ensure they are implemented and produce their desired results. Legislation enacted in December 2022 includes a provision for GAO to identify any additional congressional oversight actions that can help agencies implement priority recommendations and address any underlying issues relating to such implementation.<sup>8</sup>

There are various strategies Congress can use in addressing our recommendations, such as incorporating them into legislation. Congress can also use its budget, appropriations, and oversight processes to incentivize executive branch agencies to act on our recommendations and monitor their progress. For example, Congress can hold hearings focused on NRC's progress in implementing GAO's priority recommendations, withhold funds when appropriate, or take other actions to provide incentives for agencies to act. Moreover, Congress could follow up during the appropriations process and request periodic updates. Congress also plays a key role in addressing any underlying issues related to the implementation of these recommendations. For example, Congress could pass legislation providing an agency explicit authority to implement a recommendation or requiring an agency to take certain actions to implement a recommendation.

Copies of this report are being sent to the Director of the Office of Management and Budget and the appropriate congressional committees. In addition, the report is available on the GAO website at <http://www.gao.gov/>.

I appreciate NRC's continued commitment to these important issues. If you have any questions or would like to discuss any of the issues outlined in this letter, please do not hesitate to contact me or Mark Gaffigan, Managing Director, Natural Resources and Environment, at [GaffiganM@gao.gov](mailto:GaffiganM@gao.gov) or (202) 512-3841. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Our teams will

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<sup>7</sup>GAO, *High-Risk Series: Key Practices to Successfully Address High-Risk Areas and Remove Them from the List*, GAO-22-105184 (Washington, D.C.: Mar. 3, 2022).

<sup>8</sup>James M. Inhofe National Defense Authorization Act for Fiscal Year 2023, Pub. L. No. 117-263, § 7211(a)(2), 136 Stat. 2395, 3668 (2022); H.R. Rep. No. 117-389 (2022) (accompanying Legislative Branch Appropriations Act, H.R. 8237, 117th Cong. (2022)).

continue to coordinate with your staff on all of the 21 open recommendations. Thank you for your attention to these matters.

Sincerely yours,

A handwritten signature in black ink that reads "Gene L. Dodaro". The signature is written in a cursive style with a large, prominent initial "D".

Gene L. Dodaro  
Comptroller General  
of the United States

Enclosure

cc: The Honorable Shalanda Young, Director, Office of Management and Budget

Enclosure

## Priority Open Recommendations to the Nuclear Regulatory Commission

### Addressing the Security of Radiological Sources

*Nuclear Security: NRC Has Enhanced the Controls of Dangerous Radioactive Materials, but Vulnerabilities Remain.* [GAO-16-330](#). Washington, D.C.: July 1, 2016.

**Year Recommendation Made:** 2016

**Recommendation:** Because some quantities of radioactive materials are potentially dangerous to human health if not properly handled, the Nuclear Regulatory Commission (NRC) should take action to better track and secure these materials and verify the legitimacy of the licenses for those who seek to possess them. Specifically, NRC should take the steps needed to include category 3 sources in the National Source Tracking System and add agreement state category 3 licenses to the Web-based Licensing System as quickly as reasonably possible.

**Actions Needed:** NRC neither explicitly agreed nor disagreed with this recommendation but stated that it would consider our recommendation as part of an existing working group. In August 2017, the working group provided a staff analysis on these issues to the Commission and recommended against including category 3 sources in the National Source Tracking System or adding information on agreement state category 3 licenses to the Web-based Licensing System. As of February 2023, NRC had no plans to put category 3 quantities into the National Source Tracking System, according to agency officials. We continue to believe that by implementing our recommendation, NRC would have greater assurance that bad actors could not manipulate the system, such as by altering a paper license to acquire radioactive materials in aggregate greater than what they are authorized to possess.

**Recommendation:** Because some quantities of radioactive materials are potentially dangerous to human health if not properly handled, NRC should take action to better track and secure these materials and verify the legitimacy of the licenses for those who seek to possess them. Specifically, NRC should, at least until such time that 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 materials license with the appropriate regulatory authority before transferring any category 3 quantities of licensed materials.

**Actions Needed:** NRC neither explicitly agreed nor disagreed with this recommendation. As of February 2023, NRC was considering a rulemaking that would require that licensees transferring category 3 quantities of radioactive material verify licenses in NRC's License Verification System or by directly contacting NRC or the agreement state. As a part of the same rulemaking process, NRC is also considering establishing a requirement that safety and security equipment be in place before licenses are granted to such entities. This would address concerns over the potential for unknown entities to obtain valid licenses using false information. However, NRC has not yet proposed this rule. By implementing this recommendation as soon as possible, NRC would be better able to prevent bad actors from manipulating the system and obtaining dangerous quantities of radioactive material.

*Combating Nuclear Terrorism: NRC Needs to Take Additional Actions to Ensure the Security of High-Risk Radioactive Material.* [GAO-19-468](#). Washington, D.C.: April 4, 2019.

**Year Recommendation Made:** 2019

**Recommendation:** The Chairman of NRC should 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.

**Actions Needed:** NRC neither explicitly agreed nor disagreed with this recommendation but stated that it would consider the recommendation as part of an existing working group. In August 2017, the working group provided a staff analysis on these issues to the Commission that concluded that category 3 materials did not require additional security measures. In our April 2019 report, we provided new information such as expert views and studies on the risks of category 3 materials in a radiological dispersal device (RDD)—also known as a dirty bomb. However, as of February 2023, NRC had not updated this analysis to take into account this new information. We continue to believe that by implementing our recommendation, NRC would have greater assurance that its requirements are sufficient to help prevent any high-risk radioactive materials from being stolen and used in a RDD.

**Recommendation:** The Chairman of NRC should direct NRC staff to 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 RDD.

**Actions Needed:** NRC disagreed with this recommendation, maintaining that the current regulatory requirements provide for the safe and secure use of all radioactive materials, regardless of category. We disagree with NRC's assessment. About a month after we published our April 2019 report, a small amount of radioactive material was accidentally released at the University of Washington in Seattle. Although the release was not a RDD, it resulted in at least \$156 million in cleanup and remediation costs, closure of the medical facility for 2 years, and negative impacts on researchers and medical professionals. This accident illustrates the risk posed by security failures involving similar quantities of material. We continue to believe that by implementing our recommendation, NRC would have better assurance that it considers more likely and more significant consequences of a RDD when establishing its security requirements for radioactive material.

*Preventing a Dirty Bomb: Vulnerabilities Persist in NRC's Controls for Purchases of High-Risk Radioactive Materials.* [GAO-22-103441](#). Washington, D.C.: July 14, 2022.

**Year Recommendation Made:** 2022

**Recommendation:** The Chairman of NRC should immediately require that vendors verify category 3 licenses with the appropriate regulatory authority.

**Actions Needed:** NRC partially agreed with this recommendation, and committed to take action to require that vendors verify category 3 licensees with the appropriate regulatory agency, but it did not agree to address these vulnerabilities immediately. As of February 2023, NRC was considering a rulemaking that would require specific measures for licensees to verify licenses for category 3 quantities of radioactive material. However, these vulnerabilities will remain while the rulemaking is under consideration, and we continue to believe NRC should immediately address these issues.

**Recommendation:** The Chairman of NRC should add security features to its licensing process to improve its integrity and make it less vulnerable to altering or forging licenses. These security features could include multifactor authentication or moving away from paper licenses to electronic-based licensing.

**Actions Needed:** NRC agreed with this recommendation. As of February 2023, NRC stated that as part of its ongoing rulemaking process, it would develop additional guidance to regulators and licensees to reduce the potential that altered or counterfeit licenses could be used to purchase category 3 material. This includes exploring the specific methods listed in our recommendation. In addition, we made another recommendation in an Official Use Only version of this report that, if implemented, would reduce the risk of a dirty bomb.<sup>9</sup>

**Director:** Allison Bawden, Natural Resources and Environment

**Contact Information:** [BawdenA@gao.gov](mailto:BawdenA@gao.gov), (202) 512-3841

### Improving the Reliability of Cost Estimates

*Nuclear Regulatory Commission: NRC Needs to Improve Its Cost Estimates by Incorporating More Best Practices.* [GAO-15-98](#). Washington, D.C.: December 12, 2014.

**Year Recommendation Made:** 2014

**Recommendation:** To improve the reliability of its cost estimates, as NRC revises its cost estimating procedures, the NRC Chairman should ensure that the agency aligns the procedures with relevant cost estimating best practices identified in the *GAO Cost Estimating and Assessment Guide* and ensure that future cost estimates are prepared in accordance with relevant cost estimating best practices.<sup>10</sup>

**Actions Needed:** NRC generally agreed with the recommendation. NRC updated a draft of its cost estimating procedures in January 2020 to conform with agency-wide directives and provided it to the NRC Commissioners for their review. However, NRC has not issued the final procedures. To fully implement this recommendation, NRC needs to issue its update to its cost estimating procedures to align with best practices identified in our cost estimating guide. By doing so, NRC will have better assurance that its cost estimates are reliable and that the NRC Commissioners have adequate information on which to base their regulatory decisions.

**Director:** Frank Rusco, Natural Resources and Environment

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### Ensuring the Cybersecurity of the Nation

*Privacy: Dedicated Leadership Can Improve Programs and Address Challenges,* [GAO-22-105065](#). Washington, D.C.: Sept. 22, 2022.

**Year Recommendation Made:** 2022

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<sup>9</sup>GAO, *Preventing a Dirty Bomb: Vulnerabilities Persist in NRC's Controls for Purchases of High-Risk Radioactive Materials*, [GAO-22-106076SU](#) (Washington, D.C.: Aug. 23, 2022).

<sup>10</sup>GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-20-195G](#) (Washington, D.C.: Mar. 12, 2020).

**Recommendation:** The Chairman of NRC should fully define and document the role of the senior agency official for privacy or other designated privacy official in reviewing and approving system categorizations, overseeing privacy control assessments, and reviewing authorization packages.

**Action Needed:** We recommended that NRC fully define and document the role of the senior agency official for privacy or other designated privacy official in reviewing and approving system categorizations, overseeing privacy control assessments, and reviewing authorization packages. NRC concurred with our recommendation and stated that it was developing plans to address it; however, as of February 2023, it had not reported taking these actions. To fully address this recommendation, NRC needs to ensure it documents in its policies and procedures the role of its senior agency official for privacy or other privacy officials in each of these three steps. Doing so will help ensure that privacy protections are adequately incorporated into agency systems that contain personally identifiable information.

**High-Risk Area:** Ensuring the Cybersecurity of the Nation

**Director:** Jennifer Franks, Information Technology and Cybersecurity

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