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Comptroller General  
of the United States

May 10, 2024

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 2023, we reported that, on a government-wide basis, 75 percent of our recommendations made 4 years ago were implemented.<sup>2</sup> NRC's recommendation implementation rate was 70 percent. As of April 2024, NRC had 17 open recommendations. Fully implementing these open recommendations could significantly improve agency operations.

Since our May 2023 letter, NRC has implemented one of our eight open priority recommendations.<sup>3</sup> Specifically, in September 2023, NRC provided updated privacy policies and procedures, which specify the role of the Senior Agency Official for Privacy in key risk management steps for systems with personally identifiable information (PII), as we recommended. By taking this step, NRC increased the assurance that privacy protections are adequately incorporated into systems with PII.<sup>4</sup>

We ask your continued attention to the remaining seven open priority recommendations. We are also adding one new recommendation related to addressing the security of radiological sources. This brings the total number of priority recommendations to eight. (See the Enclosure for the list of recommendations.)

The eight priority recommendations fall into the following two areas.

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<sup>1</sup>Priority recommendations are those that GAO believes 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 2023*, [GAO-24-900483](#) (Washington, D.C.: Nov. 15, 2023).

<sup>3</sup>GAO, *Priority Open Recommendations: Nuclear Regulatory Commission*, [GAO-23-106462](#) (Washington, D.C.: May 10, 2023).

<sup>4</sup>GAO, *Privacy: Dedicated Leadership Can Improve Programs and Address Challenges*, [GAO-22-105065](#) (Washington, D.C.: Sept. 22, 2022).

**Addressing the security of radiological sources.** Implementing our seven 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, because there is no disposal pathway for americium-241 from other countries, we recommended in November 2023 that NRC, in coordination with the Department of Energy, evaluate options and take action to better secure the long-term storage of americium-241 when the origin is foreign. Additionally, in April 2019, we recommended that NRC consider the potential socioeconomic consequences and fatalities from evacuations as part of the criteria for determining required security measures for radioactive materials that could be used in a radiological dispersal device (RDD). Two other recommendations from July 2022 focus on addressing vulnerabilities in NRC’s licensing and verification processes, with one recommending that NRC add security features, such as multifactor authentication. The other recommended adding requirements that vendors verify category 3 licenses with the appropriate regulatory authority to make these processes less vulnerable to altering or license forgery.

By implementing these and our three other recommendations, NRC would have greater assurance that radioactive sources were less vulnerable to theft and that the agency considers the more likely and more significant consequences of a RDD when establishing its security requirements for radioactive material. NRC would also have greater confidence that only valid licenses were issued to purchase high-risk radioactive materials.

**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 regulatory decisions made by NRC Commissioners. Fully implementing our recommendation to complete and issue its updated cost estimating procedures to align with best practices identified in GAO’s cost estimating guide will better ensure that NRC’s cost estimates are reliable and provide the Commissioners with adequate information on which to base their decisions.

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

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 (OMB), and the leadership and staff in agencies, including within NRC. In March 2022, we issued a report on key practices to

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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).

successfully address high-risk areas, which can be a helpful resource as your agency continues to make progress to address high-risk issues.<sup>6</sup>

In addition to your attention on these issues, we recognize the key role Congress plays in providing oversight and maintaining focus on our recommendations to ensure they are implemented and produce their desired results. Legislation enacted in December 2022 included 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>7</sup>

Congress can use various strategies to address 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 OMB and the appropriate congressional committees. In addition, the report will be available on the GAO website at [Priority Open Recommendation Letters | U.S. GAO](#).

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 continue to coordinate with your staff on all the 17 open recommendations, as well as those additional recommendations in the high-risk areas for which NRC has a leading role. 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, flowing style with a long horizontal stroke extending to the right.

Gene L. Dodaro  
Comptroller General  
of the United States

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<sup>6</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>7</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)).

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 Recommendations 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. (Agreement states are states that enter into agreements with NRC to operate their own radioactive materials licensing program.)

**Action Needed:** NRC neither 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 an analysis on these issues to the Commission and recommended against including both category 3 sources in the National Source Tracking System and adding information on agreement state category 3 licenses to the Web-based Licensing System. As of February 2024, NRC has not changed its position. 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 that are, 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.

**Action Needed:** NRC neither agreed nor disagreed with this recommendation. From December 2022 until March of 2024, NRC was considering a rule to require that licensees transferring category 3 quantities of radioactive material to verify licenses in NRC's License Verification System or by directly contacting NRC or the agreement state. As a part of the same possible rule, NRC was also considering establishing a requirement that safety and security equipment be in place before licenses are granted to such entities. This would have addressed concerns over the potential for unknown entities to obtain valid licenses using false information. However, in March 2024, the Commission announced that it was not able to reach a decision, and, therefore, the draft rule was not approved. Nonetheless, we maintain that by immediately implementing this recommendation, NRC would be better able to prevent bad actors from manipulating the system and obtaining dangerous quantities of radioactive material.

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

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

*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 Recommendations 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 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 an 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 2024, NRC had not updated the 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 high-risk radioactive materials from being stolen and used in an 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 an 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 1 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 an RDD, it resulted in at least \$156 million in cleanup and remediation costs, closure of the medical facility for 2 years, and negative effects on researchers and medical professionals. The accident illustrates the risk posed by security failures involving similar quantities of material. We maintain that by implementing our recommendation, NRC would have greater assurance that it considers more likely and significant consequences of an RDD when establishing security requirements for radioactive material.

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

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*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 Recommendations 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 the agency committed to take action to require that vendors verify category 3 licensees with the appropriate regulatory agency. However, NRC did not agree to immediately address license vulnerabilities. In March

2024, the Commission announced that it was not able to reach a decision, and, therefore, the draft rule that would require specific measures for licensees to verify licenses for category 3 quantities of radioactive material was not approved. As a result, license vulnerabilities will remain, and we continue to believe that NRC should immediately address these issues so that a malevolent actor does not use a fake or forged license to acquire a dangerous quantity of radioactive material and use it in a dirty bomb.

**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 2024, 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, such as using multifactor authentication. In addition, we made another recommendation in an Official Use Only version of our report that, if implemented, would reduce the risk of a dirty bomb.<sup>8</sup>

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*High-Risk Radioactive Material: Opportunities Exist to Improve the Security of Sources No Longer in Use.* [GAO-24-105998](#). Washington, D.C.: November 30, 2023.

**Year Recommendation Made:** 2023

**Recommendation:** The Chairman of NRC, in coordination with the Department of Energy, and in consultation with other relevant stakeholders, should conduct an analysis to evaluate options and take action to facilitate long-term storage, within agency authorities, to better secure foreign-origin americium-241 until a permanent disposal or viable recycling option is available.

**Actions Needed:** NRC generally agreed with this recommendation. As of February 2024, NRC had not taken any action. To fully address this recommendation, NRC needs to conduct an analysis of options to better secure foreign-origin americium-241 and then take action to implement one or more of the options. Doing so will reduce the risk that this material will be lost, stolen, or used by a bad actor to create a dirty bomb.

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### **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.

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<sup>8</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).

**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>9</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 the update to its cost estimating procedures to align with best practices identified in GAO's cost estimating guide. By doing so, NRC will have greater assurance that its cost estimates are reliable, and that NRC Commissioners have adequate information on which to base their regulatory decisions.

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

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<sup>9</sup>GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Program Costs*, [GAO-20-195G](#) (Washington, D.C.: Mar. 12, 2020).



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