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**GAO Report – Information Security: Federal Agencies Have
Taken Steps to Secure Wireless Networks, but Further Actions Can Mitigate Risk
November 2010
(GAO-11-42SU)**

The U.S. Government Accountability Office (GAO), in its report, “Information Security: Federal Agencies Have Taken Steps to Secure Wireless Networks, but Further Actions Can Mitigate Risk,” made three recommendations to the U.S. Nuclear Regulatory Commission (NRC) to improve the security controls with regard to agency use of wireless networks. In response, on January 26, 2011, the Chairman of the NRC informed Congress about the actions planned in response to the GAO recommendations. The status of the recommendation that remained open as of the NRC’s last report is provided below.

Recommendation 2:

Finalize and implement a written policy for configuring mobile devices when taken on international travel or to other potentially risky locations and for applying preventative measures to devices when they are returned.

Status:

The NRC currently has both a written procedure for international travelers to request loaner equipment to use during travel and a policy for people who use their own mobile devices internationally to wipe their device when they return back to the country. There are pages in the NRC Service Catalog for loaner laptops and devices (i.e., smartphones and tablets). On these pages, a traveler can select whether the loaner is for international or domestic travel. There is a process for wiping these machines when they are returned to the loaner pool. Management Directive (MD) 12.5 section I.C. 6(a) states that NRC cybersecurity standards are mandatory and are developed and approved by the Designated Approving Authority. Standards generally define items like mandatory agencywide software configurations and technology specifications. MD 12.5 is the written agency policy that mandates configurations standards. The standards for all mobile devices are based on the Defense Information Systems Agency Security Technical Implementation Guide, and are mandatory for all NRC issued devices. With this process in place and operational, the NRC has met the action associated with this recommendation.

The NRC considers this GAO recommendation to be closed.

**GAO Report – Nuclear Regulation: Nuclear Regulatory Commission's Oversight of
Nuclear Power Reactors' Decommissioning Funds Could Be Further Strengthened
May 2012
(GAO-12-258)**

The U.S. Government Accountability Office (GAO), in its report, "Nuclear Regulatory Commission's Oversight of Nuclear Power Reactors' Decommissioning Funds Could Be Further Strengthened," provided five recommendations to the U.S. Nuclear Regulatory Commission (NRC) regarding decommissioning funding oversight. The status of the actions taken by the NRC in response to the GAO recommendations that remained open as of the NRC's last report is provided below.

Recommendation 2:

Ensure reliability as part of the agency's process of reevaluating its decommissioning funding formula by using the cost-estimating characteristics as a guide for a high-quality cost-estimating formula in the event that the NRC chooses to update the formula.

Status:

NRC commissioned a study to re-evaluate the adequacy of the NRC minimum formula in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.75 (c). The study was performed by Pacific Northwest National Laboratory (PNNL) and is documented in draft report, "Assessment of the Adequacy of the 10 CFR 50.75(c) Minimum Decommissioning Funding Formula," dated November 2011 which is publicly available (Agencywide Documents Access and Management System Accession No. ML13063A190). Based on its review of the PNNL study, consideration of GAO recommendations in GAO-12-258, "NRC's Oversight of Nuclear Power Reactor' Decommissioning Funds Could Be Further Strengthened," and subsequent stakeholder engagement, the NRC staff concluded that a revision of the formula was not warranted, at that time, since the formula successfully established a common minimum standard (or reference level) by which licensees must accumulate funds for decommissioning during the life of the operating license. Use of the formula will be supplemented by a site-specific decommissioning cost estimate at 5 years prior to permanent cessation of operations, or within 2 years following a premature shutdown. Currently, a licensee must certify funding to align with this cost-estimate. The staff's analyses of the PNNL study and conclusions are documented in a paper to the Commission, SECY-13-0066, "Staff Findings on the Table of Minimum Amounts Required to Demonstrate Decommissioning Funding Assurance," dated June 20, 2013, and is publicly available.

The NRC considers this GAO recommendation closed.

Recommendation 4:

Better ensure that licensees are providing reasonable assurance that they will have the necessary funds and improve the consistency of information the agency collects by continuing the reviews of fund balances in a way that is most-efficient and effective for the agency.

Status:

The NRC staff have developed revisions to the agency guidance document, "Procedures for NRC's Independent Analysis of Decommissioning Funding Assurance for Operating Nuclear Power Reactors" (LIC-205). The guidance now incorporates factors to be considered by the staff as a basis to perform as-needed spot-checks of licensee decommissioning fund balances. The revised guidance is expected to be released by the end of the second quarter of fiscal year 2017.

This GAO recommendation remains open.

**GAO Report – Nuclear Regulatory Commission: Natural Hazard Assessments Could Be
More Risk-Informed
April 2012
(GAO-12-465)**

The U.S. Government Accountability Office (GAO), in its report: “Nuclear Regulatory Commission: Hazard Assessments Could Be More Risk-Informed,” made a recommendation to the U.S. Nuclear Regulatory Commission (NRC) to analyze whether licensees of operating reactors should be required to develop Probabilistic Risk Assessments (PRAs) that address natural hazards. In response, on July 30, 2012, the Chairman informed Congress about the actions directly related to this issue. The status of the actions taken by the NRC in response to the GAO recommendation is provided below.

Recommendation:

Analyze whether licensees of operating reactors should be required to develop PRAs that address natural hazards.

Status:

Although the NRC does not currently require PRAs for operating reactors, all operating reactor licensees have developed internal event PRA models and, in many cases, external event models. In addition, to evaluate the effects of recent seismic hazard reevaluations, a number of licensees are developing seismic PRAs.

In 2011 former NRC Commissioner George Apostolakis led a risk management task force to consider a more comprehensive, holistic, risk-informed, performance-based regulatory approach for nuclear reactors.

An interoffice working group then considered the task force report, as well as other related risk-informed activities, in preparing options for future risk-informed regulation. The related paper SECY-15-0168, “Recommendations on Issues Related to Implementation of a Risk Management Regulatory Framework,” was issued on December 18, 2015. Commission direction resulting from SECY-15-0168 enabled the NRC staff to fully disposition this GAO recommendation.

The NRC considers this GAO recommendation to be closed.

**GAO Report – Spent Nuclear Fuel: Accumulating Quantities at
Commercial Reactors Present Storage and Other Challenges
August 2012
(GAO-12-797)**

The U.S. Government Accountability Office (GAO), in its report, “Spent Nuclear Fuel: Accumulating Quantities at Commercial Reactors Present Storage and Other Challenges,” recommended that the U.S. Nuclear Regulatory Commission (NRC) develop a mechanism for identifying and accessing all classified studies to help facilitate decisions on storing and disposing of spent nuclear fuel over the coming decades. The status of the recommendation that remained open as of the NRC’s last report is provided below.

Recommendation:

To help facilitate decisions on storing and disposing of spent nuclear fuel over the coming decades, the Chairman of the NRC should direct agency staff to develop a mechanism that allows individuals with appropriate clearances and the need to know to easily identify and access classified studies so as to help ensure that institutional knowledge is not lost.

Background:

The NRC staff committed to developing and implementing a pilot program database to include unclassified information detailing key attributes of a document to identify location and points of contact. The pilot program was completed in 2013 and the NRC staff completed a second, expanded pilot program in December 2014. The scope of the expanded pilot program extended beyond spent nuclear fuel studies and included a representative sampling of all classified documents and media received and produced by the NRC. To address concerns regarding classification by compilation during the course of the second pilot program, the expanded pilot program participants developed a localized catalog of the classified documents and media in their possession and tracked the level of effort associated with completing this task. The staff compiled the data gathered from the second pilot program and documented lessons learned regarding classified records management at the NRC.

In April 2015 the NRC staff provided the Commission with the following recommendations for maintaining accountability of all classified documents and media received and produced by the NRC in the future:

- (1) institute annual classified information clean-up days at the NRC headquarters and regional facilities;
- (2) develop security plans for General Services Administration (GSA)-approved safes with local catalogs of safes’ contents;
- (3) provide classified records management training to applicable staff; and
- (4) expand use of the National Archives and Records Administration’s Federal Records Centers.

Status:

The NRC staff determined that an unclassified digital index of the agency’s classified holdings cannot be practically implemented because of concerns of classification by compilation. The staff considered several alternate approaches, including the development of classified information technology solutions. However, given the small population of NRC personnel that

routinely work with classified information, the NRC staff determined that the associated resource burden and potential insider threat concerns outweighed the business benefit. After considering the lessons learned from the pilot projects, the staff identified several commitments to significantly improve classified records management at the agency without imposing a resource burden beyond budgeted resources for participating business lines. By implementing the improvements detailed below, the NRC staff believes that it has adequately address the GAO recommendation to develop a mechanism for locating all classified studies related to spent fuel storage.

To date, the NRC staff has completed the following actions:

- (1) Hosted the first annual classified information and Safeguards Information (SGI) clean-up days at the NRC headquarters and regional facilities in April 2016.
- (2) Developed a generic security plan for GSA-approved security containers, which requires container owners to compile a local catalog of a security container's classified contents on an annual basis, and requested agency compliance with the requirement no later than August 1, 2016. To date, the plans for 50% of the agency's GSA approved security containers are complete, and the remaining plans are on track for completion by March 2017. The NRC staff will continue to monitor implementation of this requirement across the agency.
- (3) Developed web-based classified records management training, which includes training on the records retention schedules and the policies and procedures for long-term retention of the agency's classified holdings, to include the three phases of the classified record's lifecycle. Additionally, the course identifies the roles and responsibilities of records management and classification management personnel at every point throughout the classified record's lifecycle. Beginning fiscal year 2017, before an individual can be designated the owner of a GSA-approved security container or gain access to the combination of a GSA-approved security container, the individual must complete the web-based classified records management training and biennially thereafter. The requirement to complete the web-based classified records management training has been incorporated into the aforementioned generic security plan for GSA-approved security containers.
- (4) Issued the "Office of the Chief Information Officer Office Procedure for Disposition of Records Containing Classified Information and/or Safeguards Information," effective January 1, 2017. This procedure identifies the processes required to determine which of the agency's classified holdings should be transferred to Federal Records Centers and the necessary steps to complete the transfers. Staff will use this office procedure to disposition agency records containing classified information and/or SGI and initiate transfers to Federal Records Centers, as necessary.

The NRC considers this GAO recommendation to be closed.

GAO Report – Nuclear Power: Analysis of Regional Differences and Improved Access to Information Could Strengthen NRC Oversight
September 2013
(GAO-13-743)

The U.S. Government Accountability Office (GAO), in its report: “Nuclear Power: Analysis of Regional Differences and Improved Access to Information Could Strengthen NRC Oversight,” made three recommendations to the U.S. Nuclear Regulatory Commission (NRC). In response, on December 16, 2013, the Chairman of the NRC informed Congress about the planned response to the recommendations identified by GAO. The status of actions taken by the NRC in response to the GAO recommendation that remains open are provided below:

Recommendation 3:

To help NRC staff more efficiently use past experiences in its oversight activities, direct agency officials to evaluate the challenges inspectors face in retrieving all relevant information on plant performance and previous oversight activities, and improve its systems accordingly to address these challenges.

Status:

The NRC will make plant performance and oversight information more readily searchable and available to NRC inspection staff and other appropriate NRC personnel. As an example, the NRC is working to upgrade the Reactor Program Systems software and improve staff access to operating experience. The NRC plans to integrate these changes with an update to the internal Resident Inspector webpage. These enhancements are estimated to be completed in fiscal year 2017.

This GAO recommendation remains open.

**GAO Report – Information Technology: Additional
OMB and Agency Actions Are Needed to Achieve
Portfolio Savings
November 2013
(GAO-14-65)**

The U.S. Government Accountability Office (GAO), in its report, “*Information Technology: Additional OMB and Agency Actions Are Needed to Achieve Portfolio Savings*,” reviewed the Office of Management and Budget’s (OMB) policy, requirements, and implementation of the 2012 PortfolioStat initiative, a process whereby 26 Federal agencies, including the U.S. Nuclear Regulatory Commission (NRC), gather information on their information technology (IT), investments, and develop plans for consolidation and increased use of shared service delivery models. The status of actions taken by the NRC in response to the GAO recommendation is provided below.

Recommendation:

Develop a complete commodity IT baseline.

Status:

The NRC complies with current OMB reporting requirements to develop a complete commodity IT baseline. The NRC provides the required information to OMB as part of the quarterly integrated data collection.

To capture relevant information and meet internal and OMB reporting requirements, the NRC centralized IT commodity spending under the Office of the Chief Information Officer. The NRC instituted new internal controls to ensure the agency’s Chief Information Officer (CIO) has visibility into how all IT funds are budgeted and executed. These controls require the CIO to regularly review and approve new IT procurements that are categorized by standard IT Commodity Code established in fiscal year 2016.

The NRC considers this GAO recommendation to be closed.

**GAO Report – Countries' Regulatory Bodies Have Made Changes in Response to the
Fukushima Dai-ichi Accident
March 2014
(GAO-14-109)**

The U.S. Government Accountability Office (GAO), in its report, "Countries' Regulatory Bodies Have Made Changes in Response to the Fukushima Dai-ichi Accident," recommended that the U.S. Nuclear Regulatory Commission (NRC) consider expediting its decision on whether or how to upgrade its automated system for transmitting key reactor data.

Recommendation:

To increase the likelihood of NRC's access to timely, accurate, and comprehensive information during nuclear accidents, the NRC Chairman should consider expediting NRC's decision on whether or how to upgrade the Emergency Response Data System (ERDS) so that it would remain functional during a severe accident.

Background:

On November 2, 2015, the NRC issued SECY-15-0137, "Proposed Plans for Resolving Open Fukushima Tier 2 and 3 Recommendations" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15254A006), which discussed the NRC staff's proposed plans to resolve and close the remaining open Tier 2 and 3 Near-Term Task Force recommendations developed in response to the March 11, 2011, accident at the Fukushima Dai-ichi nuclear power plant. Enclosure 7, "Proposed Resolution Plan on Tier 3 Recommendations 9, 10, and 11: Emergency Preparedness Activities Not Addressed Elsewhere," (ADAMS Accession No. ML15254A039) provides the staff's proposed closure resolution for Recommendation 10.3, "ERDS Enhancements."

Recommendation 10.3, "ERDS Enhancements" included the following tasks: 1) evaluate ERDS to determine an alternate method (e.g., via satellite) to transmit ERDS data that does not rely on hardwired infrastructure that could be unavailable during a severe natural disaster; 2) evaluate ERDS to determine whether the data set currently being received from each site is sufficient for modern assessment needs; and 3) evaluate ERDS to determine whether the system should be required to transmit continuously, such that no operator action is needed during an emergency.

Status:

The NRC's role in incident response is to obtain and evaluate event information and to oversee licensees' actions in assessing the potential impact of the event on public health and safety and the environment. The NRC provides expert consultation, support, and assistance to State and local public safety officials responding to the event. ERDS provides the data set that the NRC has determined is required to support this role; but the NRC has no operational responsibility during an accident. ERDS would be activated by the licensees during declared emergencies classified at the Alert or higher level to begin transmission to the NRC Headquarters Operations Center. In the event ERDS is unavailable, alternate methods are available for the NRC to carry out its incident response role (e.g., through phone communication). The Emergency Notification System, a voice communication system, will still be available to transmit data and any other relevant information that is not available through ERDS.

The NRC staff conducted evaluations of the tasks under Recommendation 10.3. In order for the NRC to impose new requirements to enhance the capabilities of the existing ERDS, the NRC would need to demonstrate that such a requirement represents a cost-justified substantial safety improvement, pursuant to 10 CFR Part 50, Section 50.109, "Backfitting." Given our role in incident response, the staff does not believe that additional enhancements would represent such a safety improvement. Therefore, the NRC staff recommended closure of Recommendation 10.3.

On February 8, 2016, the Commission, in Staff Requirements Memorandum SECY-15-0137 – Proposed Plans for Resolving Open Fukushima Tier 2 and 3 Recommendations (ADAMS Accession No. ML16039A175) approved the staff's recommendation to close Recommendation 10.3.

The NRC considers this GAO recommendation to be closed.

**GAO Report – Nuclear Nonproliferation: Additional Actions
Needed to Increase the Security of U.S. Industrial Radiological Sources
June 2014
(GAO-14-293)**

The U.S. Government Accountability Office (GAO), in its report, “Nuclear Nonproliferation: Additional Actions Needed to Increase the Security of U.S. Industrial Radiological Sources,” made three recommendations solely to the U.S. Nuclear Regulatory Commission (NRC) and one recommendation jointly to the NRC, the U.S. Department of Energy and the U.S. Department of Homeland Security regarding security at NRC-licensed and Agreement-State licensed facilities using high-risk industrial radiological sources. The status of the recommendations that remained open as of the NRC’s last report is provided below.

Recommendation 2:

To ensure that the security of radiological sources at industrial facilities is reasonably assured, the Chairman of the Nuclear Regulatory Commission should reconsider whether the definition of collocation should be revised for well logging facilities that routinely keep radiological sources in a single storage area but secured in separate storage containers.

Status:

On December 14, 2016, the NRC provided Congress a report detailing its review of the effectiveness of the requirements in 10 CFR Part 37, “Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material.” This review considered whether any additional security measures, guidance documents (including revising NUREG-2155, “Implementation Guidance for 10 CFR Part 37, ‘Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material,’” and NUREG-2166, “Physical Security Best Practices for the Protection of Risk Significant Radioactive Material”), rulemaking changes, or licensee outreach efforts are appropriate. The re-evaluation of the definition of aggregation (referred to as collocation by GAO) as it applies to well logging sources was also included in this effort. The NRC concluded that the definition of aggregation in 10 CFR Part 37 is adequate to ensure that the security of radiological sources at well logging facilities is reasonably assured and that, as a result, no changes to the rule were needed. However, the NRC did identify guidance enhancements that could be beneficial in this area. Specifically, the NRC staff will revise the pre-licensing guidance procedures used by license reviewers and inspectors for well logging licensees that are authorized to possess an amount of material that, if aggregated, could exceed a Category 2 quantity of radioactive material to ensure a thorough evaluation of licensee strategies for controlling radioactive material. Routine inspections to assess licensee controls for storage and use of well logging sources continue to indicate that appropriate security is being maintained by licensees.

The NRC considers this GAO recommendation closed.

Recommendation 3:

To ensure that the security of radiological sources at industrial facilities is reasonably assured, the Chairman of the Nuclear Regulatory Commission should conduct an assessment of the trustworthiness and reliability (T&R) process--by which licensees approve employees for unescorted access--to determine if it provides reasonable assurance against insider threats, including (1) determining why criminal history information concerning convictions for terroristic

threats was not provided to a licensee during the T&R process to establish if this represents an isolated case or a systemic weakness in the T&R process; and (2) revising, to the extent permitted by law, the T&R process to provide specific guidance to licensees on how to review an employee's background. The NRC should also consider whether certain criminal convictions or other indicators should disqualify an employee from T&R or trigger a greater role for the NRC.

Status:

The first part of this recommendation, regarding terroristic threats, was addressed in the NRC's August 2014 letter to Senator Thomas Carper. As explained in that letter, the case referenced in the GAO report referred to a misdemeanor domestic dispute on a local law enforcement record, 12 years prior to the request for unescorted access, which was not cited on the Federal Bureau of Investigation (FBI) criminal history record. As a result, the information was not available to support the T&R determination for the individual, and did not reflect a performance deficiency or a systematic weakness.

As to the second part of this recommendation, on December 14, 2016, the NRC provided Congress a report detailing its review of the effectiveness of the requirements in 10 CFR Part 37 to determine whether any additional security measures, guidance updates, rulemaking changes, or licensee outreach efforts are appropriate. The completion of the 10 CFR Part 37 program review included insights into the effectiveness of the T&R process. Specifically, the review generated recommendations for enhancements in the area of T&R, including, among other things, increased controls for protection of information related to individuals having access to Category 1 and 2 quantities of radioactive materials; improved guidance related to information individuals must disclose when applying for unescorted access; development of sample forms or templates for use in T&R evaluations; and improved coordination efforts with the FBI to share potential terrorist threat information involving individuals seeking approval for new or continued unescorted access to Category 1 and 2 quantities of radioactive materials.

While these enhancements will further advance the process for conducting T&R evaluations, certain aspects of the NRC staff's assessment of the T&R process are ongoing. Specifically, on November 25, 2016, the staff closed Temporary Instruction (TI) 2800/042, "Evaluation of Trustworthiness and Reliability Determinations," and is using the information gained from this TI to consider additional enhancements to the T&R process. As part of this continuing effort, the NRC will evaluate the potential use of disqualifying criteria in making T&R determinations and the incorporation of additional insider mitigation program features, such as requiring the self-reporting of legal actions into the T&R process to which the individual has been subject. The NRC expects this evaluation to be completed in 2017 and recommendations will be provided to the Commission for its consideration, as appropriate. Routine inspections to assess licensee's implementation of T&R programs continue to indicate that appropriate security is being maintained by licensees.

This GAO recommendation remains open.

**GAO Report – Federal Software Licenses: Better Management Needed to Achieve
Significant Savings Government-Wide
May 2014
(GAO-14-413)**

The U.S. Government Accountability Office (GAO), in its report “Federal Software Licenses: Better Management Needed to Achieve Significant Savings Government-Wide,” made recommendations to government entities, including the U.S. Nuclear Regulatory Commission (NRC), to ensure the effective management of software licenses. The status of the actions taken by the NRC in response to the six GAO recommendations is provided below:

Recommendation 1:

Develop an agency-wide comprehensive policy for the management of software licenses that addresses the weaknesses identified by GAO.

Status:

The NRC participated in a pilot with the General Services Administration’s (GSA) Software License Management as a Service (SLMS) program, from July 19, 2016, through January 19, 2017. With the expertise of the GSA SLMS program, the NRC executed the first phase of the Information Technology Asset Management (ITAM) Project, achieving the following objectives:

- Identified all information technology (IT) assets, both software (including licensing) and hardware, in the NRC environment and gaps in the data associated with these assets required for proper analysis and IT asset lifecycle management. The NRC initiated, and will continue with, an effort to gather and verify all asset data to complete a baseline software inventory and a baseline hardware inventory, so proper analysis and planning can commence. This included gathering, validating, and analyzing information on software licenses and terms and conditions on all software in the NRC environment.
- Developed an ITAM policy document that will serve as interim ITAM guidance until the next revision of the appropriate Management Directive. The ITAM policy includes software license management requirements, roles, and responsibilities. The ITAM policy document was approved on December 19, 2016, posted to the NRC IT Policy Archive, and communicated to all NRC staff on December 20, 2016.
- Established ownership, roles, and responsibilities for managing software and hardware throughout their lifecycle. This is documented in the interim ITAM guidance and the ITAM Program Charter.
- Developed draft ITAM process and procedures documents and an ITAM Program Charter to be finalized by the identified ITAM Program staff and leveraged to implement the program, process, and procedures. This includes process and procedures for implementing proper software license management in accordance with Federal mandates and associated policy.
- Defined the tool requirements for centralized, automated tracking and management of IT assets throughout their lifecycle. The requirements include the ability to track and manage software licenses.
- Developed a Statement of Objectives to procure an ITAM toolset.

All deliverables from the first phase of the ITAM Project are being transitioned to the recently identified ITAM staff to be leveraged for implementing the ITAM Program during the second phase of the project. The target end date of the NRC ITAM Project is December 31, 2017. The

ITAM project, including the procurement of the tool, is constrained by the availability of resources and staff.

This GAO recommendation remains open.

Recommendation 2:

Employ a centralized software license management approach that is coordinated and integrated with key personnel for the majority of agency software license spending and/or enterprise-wide licenses.

Status:

During the second phase of the ITAM Project, the NRC will finalize the ITAM Program Charter, process and procedures, and implement the program. As part of the ITAM program, the Agency Software Manager will implement process and procedures for managing software licenses. The Agency Software Manager will develop the NRC Software Management Centralization Plan to meet NRC's business needs and to ensure compliance with applicable Federal mandates and guidelines, including those from the Office of Management and Budget, the Federal Information Technology Acquisition Reform Act, the Federal Information Security Management Act, and from the National Institute of Standards and Technology. Development of the Software Management Centralization Plan is dependent on gathering and verifying the software license data necessary for proper analysis and strategic planning and vendor management.

This GAO recommendation remains open.

Recommendation 3:

Establish a comprehensive inventory of software licenses using automated tools for the majority of agency software license spending and/or enterprise-wide licenses.

Status:

Scanning tools were used to generate a list of all IT assets in the NRC environment, including software. The tools used by the current service provider, however, were not configured to collect and report on software licenses. A manual effort is underway to gather and verify data associated with the software on the list to complete a comprehensive inventory of software licenses. In addition, requirements for an ITAM tool and a Statement of Objectives were developed so that establishing and maintaining a comprehensive inventory will be an automated process moving forward.

This GAO recommendation remains open.

Recommendation 4:

Regularly track and maintain a comprehensive inventory of software licenses using automated tools and metrics.

Status:

Upon deployment of an automated tool, the NRC will regularly track and maintain a comprehensive inventory of all software licenses. The acquisition strategy for a software asset management tool to track and maintain a comprehensive inventory of software licenses is in alignment with the re-compete of the agency's infrastructure and support services contract in 2017.

This GAO recommendation remains open.

Recommendation 5:

Analyze agency-wide software license data, such as costs, benefits, usage, and trending data, to identify opportunities to reduce costs and better inform investment decision-making.

Status:

This analysis and the finalization of a Software Management Centralization Plan will be done after procuring an ITAM tool and completing Recommendation 3 and Recommendation 4 above.

This GAO recommendation remains open.

Recommendation 6:

Provide software license management training to appropriate agency personnel addressing contract terms and conditions, negotiations, laws and regulations, acquisition, security planning, and configuration management.

Status:

The NRC will participate in software license management training, which is currently being developed by the Office of Management and Budget and the Federal Acquisition Institute and the Defense Acquisition University. The NRC ITAM Program will require training and communication, as appropriate, for all key personnel.

This GAO recommendation remains open.

**GAO Report - Nuclear Regulatory Commission: NRC Needs to Improve Its Cost
Estimates by Incorporating More Best Practices
December 2014
(GAO-15-98)**

In GAO-15-98, the U.S. Government Accountability Office (GAO) recommended that the U.S. Nuclear Regulatory Commission (NRC) align its procedures with relevant cost-estimating best practices identified in GAO-089-3SP, “GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs” (March 2009). In response, on February 10, 2015, the NRC’s Chairman informed Congress of the actions the NRC planned to take in response to GAO’s recommendation. The status of the actions described in that response is provided below.

Recommendation:

To improve the reliability of its cost estimates, we recommend that, as the NRC revises its cost estimating procedures, the NRC Chairman ensures 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.

Status:

The NRC staff is updating its cost-benefit guidance to incorporate cost estimating best practices and the treatment of uncertainty to support the development of realistic estimates of the costs to implement proposed requirements. This guidance is considering relevant best practices provided by the GAO and feedback provided by licensees, the Nuclear Energy Institute, and other stakeholders. The cost-benefit guidance update is expected to be released in draft form for public comment in the spring of 2017. This update will consolidate guidance documents; incorporate recommendations from the GAO’s 2014 report on the NRC’s cost-estimating practices and cost-estimating best practices from the GAO’s guide; and capture best practices for the consideration of qualitative factors in accordance with Commission direction in the Staff Requirements Memorandum for SECY-14-0087. As the staff updates these documents, the staff will engage the Advisory Committee on Reactor Safeguards and the public to ensure meaningful input.

Until the updated guidance is issued for use, all pending regulatory proposals will be guided by the 2004 guidance document. However, the NRC staff will be applying the improvements in cost estimating and cost-benefit analysis to the pending regulatory proposals as each improvement is adopted.

This GAO recommendation remains open.

GAO Report – Information Technology Reform: Billions of Dollars in Savings Have Been Realized, but Agencies Need to Complete Reinvestment Plans, September 2015 (GAO-15-617)

The U.S. Government Accountability Office (GAO), in its report, “*Information Technology Reform: Billions of Dollars in Savings Have Been Realized, but Agencies Need to Complete Reinvestment Plans*,” reviewed the information technology (IT) agency cost savings resulting from data center consolidation and PortfolioStat actions since 2012 to determine how agencies reinvested their savings. GAO’s objectives were to (1) assess agencies’ progress in achieving savings from their IT reform efforts; (2) evaluate the extent to which agencies have established plans to reinvest their savings; and (3) evaluate how selected agencies have reinvested their savings, including the extent to which IT governance processes are in place to oversee such reinvestments. GAO recommended the Chairman of the U.S. Nuclear Regulatory Commission (NRC) direct the Chief Information Officer to take the following two actions:

Recommendation 1:

As part of any future update to the agency’s Information and Records strategic plan or equivalent document, include information regarding the approach to reinvesting savings from the consolidation of commodity IT resources (including data centers) in accordance with the Office of Management and Budget (OMB) guidance.

Status:

The next NRC IT/Information Management Strategic Plan revision, targeted for February 2018 in alignment with the Government Performance and Results Modernization Act of 2010, will include, in accordance with OMB guidance, information regarding the approach to reinvesting savings from the consolidation of commodity IT resources (including data centers).

This GAO recommendation remains open.

Recommendation 2:

Ensure that the agency’s integrated data collection submission to OMB includes, for all reported initiatives, complete plans to reinvest any resulting cost savings and avoidances from OMB-directed IT reform-related efforts.

Status:

The NRC reported the use of all cost savings for OMB-directed reform-related efforts as part of the November 2016 integrated data collection. The cost savings from OMB-directed IT reform efforts was applied to cuts in the base budget for the following year.

The NRC considers this GAO recommendation to be closed.

**GAO Report - Agencies Making Progress, but Planned Savings Goals Need to Be
Established
March 2016
(GAO-16-323)**

In 2010 as the focal point for information technology management across the government, the Office of Management and Budget's (OMB's) Federal Chief Information Officer launched the Federal Data Center Consolidation Initiative to reduce the growing number of centers. Information technology reform legislation was subsequently enacted in December 2014 that included a series of provisions related to the Federal data center consolidation effort, including requiring agencies to report on cost savings and requiring the U.S. Government Accountability Office (GAO) to review agency inventories and strategies annually.

GAO's objectives were to (1) review agencies' data center closures to date and plans for further closures, (2) evaluate agencies' progress in achieving consolidation savings and describe plans for future savings, and (3) assess agencies' progress against OMB's data center optimization targets. To do so, GAO assessed agencies' data center inventories, reviewed agency-reported cost savings and avoidance documentation, and compared agencies' data center optimization data as of November 2015 against OMB's established targets.

Recommendation:

The Secretaries of the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, the Interior, Labor, State, Transportation, the Treasury, and Veterans Affairs; the Attorney General of the United States; the Administrators of the Environmental Protection Agency, General Services Administration, National Aeronautics and Space Administration, and U.S. Agency for International Development; the Director of the Office of Personnel Management; the Chairman of the U.S. Nuclear Regulatory Commission (NRC); and the Commissioner of the Social Security Administration should take action to improve progress in the data center optimization areas that we reported as not meeting the Office of Management and Budget's established targets, including addressing any identified challenges.

Status:

Automated Monitoring

The NRC has network management tools in place that monitor and report on server utilization for a significant percentage of the agency's servers. However, in order to fully meet the metric per the formula provided, the NRC is performing the following activities in the data centers:

- Tiered data centers – NRC is evaluating current tool sets to determine if we have the tools in-house that can provide and meet the full server utilization metric. This evaluation will be completed by February 28, 2017. This however, will not improve the metric, until every server in one single data center is reporting server utilization.
- Non-tiered data centers – NRC plans to close all non-tiered data centers by end of fourth quarter fiscal year 2018; therefore there will not be any improvement of this metric.

Power Metering Metric

The NRC has requested quotes to upgrade to an “advanced metering solution” for the Three White Flint North data center no later than September 30, 2018. The NRC will monitor power usage effectiveness after the “advanced metering solution” has been installed. Additionally, the NRC will complete an evaluation of options to improve facility utilization by end of first quarter fiscal year 2019.

This GAO recommendation remains open.

**GAO Report – Nuclear Security: NRC Has Enhanced the Controls of Dangerous Materials,
but Vulnerabilities Remain**
July 2016
(GAO-16-330)

The U.S. Government Accountability Office (GAO), in its report, “Nuclear Security: NRC Has Enhanced the Controls of Dangerous Materials, but Vulnerabilities Remain,” made three recommendations to the U.S. Nuclear Regulatory Commission (NRC) to address vulnerabilities associated with licensing and accountability strategies for Category 3 sources and quantities of radioactive material. The status of the three recommendations is provided below.

Recommendation 1:

Because some quantities of radioactive materials are potentially dangerous to human health if not properly handled, the 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, the 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.

Status:

In early 2016, the NRC formed a working group, the “License Verification and Transfer of Category 3 Sources Working Group” (LVWG), to evaluate license verification and transfer requirements for Category 3 sources. The LVWG evaluated the inclusion of Category 3 licenses in the NRC’s Web-Based Licensing System and the methods available for verifying the legitimacy of licenses held by those licensees prior to the transfer of material. The working group also evaluated the inclusion of Category 3 sources in the National Source Tracking System (NSTS) for the specific purpose of preventing licensees from accumulating Category 3 sources into Category 2 or higher quantities of radioactive material. The LVWG made recommendations to enhance the existing processes for license verification and source tracking beyond Category 1 and Category 2 thresholds.

On October 18, 2016, in the Staff Requirements Memorandum (SRM) for COMJMB-16-0001, “Proposed Staff Re-Evaluation of Category 3 Source Accountability,” the Commission directed the NRC staff to re-evaluate Category 3 source accountability given the agency’s operating experience with higher-risk sources and in response to findings made by GAO in its materials licensing audit, “Nuclear Security: NRC Has Enhanced the Controls of Dangerous Materials, but Vulnerabilities Remain” (GAO-16-330). In the direction provided in the SRM, the Commission stated that the staff should assess the risks posed by the aggregation of Category 3 sources into Category 2 quantities as part of its efforts to re-evaluate Category 3 source accountability. As directed by the Commission, the NRC staff will further assess the risks posed by aggregation of Category 3 sources into higher quantities and will provide a notation vote paper to the Commission in August 2017 that addresses this tasking and other aspects of the re-evaluation.

A new working group - the “Category 3 Source Security and Accountability Working Group” - was formed to address the tasks directed by the Commission. The tasks include: evaluating the pros and cons of different methods for verifying the validity of a license before a Category 3 source is transferred; evaluating the pros and cons of including Category 3 sources in the NSTS; assessing any additional options to address the source accountability recommendations

made by the GAO; identifying changes in the threat environment since 2009 and considering whether they support expanding the NSTS to include Category 3 sources; assessing the risks posed when a licensee possesses enough Category 3 sources to require the higher level protections for Category 2 quantities; and collaborating with our Agreement State partners, non-Agreement States, licensees, public interest groups, industry groups, and the reactor community to fully assess the regulatory impact of any recommendation made by the working group. The Category 3 Source Security and Accountability working group will consider recommendations made by the LVWG and will also inform its evaluation with the results of the recently-completed review of the effectiveness of 10 CFR Part 37, the results of which were reported to Congress in December 2016. As directed by the Commission, the Category 3 Source Security and Accountability Working Group will develop a notation vote paper that will be submitted to the Commission in August 2017.

This GAO recommendation remains open.

Recommendation 2:

Because some quantities of radioactive materials are potentially dangerous to human health if not properly handled, the 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, the 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.

Status:

The LVWG evaluated this recommendation, and its analysis will be considered by the Category 3 Source Security and Accountability Working Group in the development of the notation vote paper that will be submitted to the Commission in August 2017.

This GAO recommendation remains open.

Recommendation 3:

Because some quantities of radioactive materials are potentially dangerous to human health if not properly handled, the 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, the NRC should, as part of the ongoing efforts of NRC working groups meeting to develop enhancements to the prelicensing requirements for Category 3 licenses, consider requiring that an on-site security review be conducted for all unknown applicants of Category 3 licenses to verify that each applicant is prepared to implement the required security measures before taking possession of licensed radioactive materials.

Status:

In early 2016, the NRC formed a working group, the "Enhancements to Pre-Licensing Guidance Working Group" (PLWG), to evaluate pre-licensing activities and develop recommendations for enhancements to the pre-licensing process. The PLWG developed recommendations that involve changes to existing regulations and revisions to existing training, guidance, and procedures. The NRC staff will implement recommendations from the PLWG through

development of a rulemaking plan for Commission consideration as well as a separate action plan for those activities that do not require rulemaking. The rulemaking plan is expected to be provided to the Commission in 2018 in combination with any rulemaking recommendations that result from the staff's re-evaluation of Category 3 source security and accountability. Development of the action plan to address recommendations that do not require rulemaking will be completed in spring 2017.

This GAO recommendation remains open.

**GAO Report - INFORMATION SECURITY:
Agencies Need to Improve Controls over Selected High-Impact Systems,
May 2016
(GAO-16-501)**

Federal systems categorized as high impact are those systems that hold sensitive information, and the loss of this information could cause individuals, the government, or the nation catastrophic harm. These systems warrant increased security to protect them.

The U.S. Government Accountability Office's (GAO's) objectives were to (1) describe the extent to which agencies have identified cyber threats and reported incidents involving high-impact systems, (2) identify government-wide guidance and efforts to protect these systems, and (3) assess the effectiveness of controls to protect selected high-impact systems at selected Federal agencies. GAO made five recommendations to U.S. Nuclear Regulatory Commission (NRC). The status of these recommendations is provided below.

Recommendation 1:

Update security plans for selected systems to ensure that all controls specific to high-impact systems are addressed, including a rationale if the control is not implemented.

Status:

The NRC provided the revised security plans of the selected systems to GAO.

The NRC considers this GAO recommendation to be closed.

Recommendation 2:

Provide and track specialized training for all individuals who have significant security responsibilities.

Status:

The NRC provided the requested training process, a single comprehensive list of all individuals who had significant security responsibilities, and a record of their specialized training to GAO.

The NRC considers this GAO recommendation to be closed.

Recommendation 3:

Re-evaluate security control assessments to ensure that they comprehensively test technical controls.

Status:

The NRC provided a security control assessment showing scope, controls, procedures, and roles for the selected system to GAO.

This NRC considers this GAO recommendation to be closed.

Recommendation 4:

Update remedial action plans for selected systems, to include responsible organization, estimated funding, funding source, and scheduled completion dates.

Status:

The NRC has provided both older and recently entered Plan of Action and Milestone entries that includes at least three FISCAM controls areas for the selected systems to GAO.

The NRC considers this GAO recommendation to be closed.

Recommendation 5:

Update the standard that addresses continuous monitoring to include metrics and ongoing status monitoring.

Status:

The NRC will provide the milestones and a completion date for revising the Computer Security Standard to GAO.

This GAO recommendation remains open.

GAO Report – Nuclear Regulatory Commission: Agencies Need to Fully Identify and Report Major Management Challenges and Actions to Resolve them in their Agency Performance Plans
June 15, 2016
(GAO-16-510)

The U.S. Government Accountability Office (GAO), in its report, “Nuclear Regulatory Commission: Agencies Need to Fully Identify and Report Major Management Challenges and Actions to Resolve them in their Agency Performance Plans,” recommended that U.S. Nuclear Regulatory Commission (NRC) improve its reporting of performance information, performance goals, performance indicators, milestones, planned actions, and designate a responsible agency official for resolving major management challenges—as required by the GPRA Modernization Act of 2010 (GPRAMA).

Recommendation:

To improve the public reporting of major management challenges and to ensure performance information is useful, transparent, and complete, the Chairman of the NRC should affirmatively state that the agency does not have major management challenges when applicable in the NRC’s agency performance plan.

Status:

In the development of future agency performance plans (APPs), if the NRC does not identify any major management challenges that meet the GPRAMA definition, the APP will include a clear statement to that effect.

The NRC 2018 Congressional Budget Justification (CBJ) will be sent to the Commission for approval in spring 2017. Attached to the CBJ under Chapter 4-Annual Performance Plan will be language that addresses major management challenges.

The NRC considers this GAO recommendation to be closed.

GAO Report – Information Technology: Agencies Need to Improve Their Application Inventories to Achieve Additional Savings
September 2016
(GAO-16-511)

The Federal Government is expected to spend more than \$90 billion on information technology (IT) in fiscal year 2017. This includes a variety of software applications supporting agencies' enterprise needs. Since 2013, the Office of Management and Budget has advocated the use of application rationalization. This is a process by which an agency streamlines its portfolio of software applications with the goal of improving efficiency, reducing complexity and redundancy, and lowering the cost of ownership.

The U.S. Government Accountability Office's (GAO's) objectives were to determine (1) whether agencies have established complete application inventories and (2) to what extent selected agencies have developed and implemented processes for rationalizing their portfolio of applications. To do this, GAO assessed the inventories of the 24 CFO Act agencies against four key practices and selected six agencies—the Departments of Defense, Homeland Security, the Interior, Labor, and the National Aeronautics and Space Administration (NASA) and the National Science Foundation (NSF)—due to their IT spending, among other factors, to determine whether they had processes addressing applications.

Recommendation:

To improve Federal agencies' efforts to rationalize their portfolio of applications, the heads of the Departments of Agriculture, Commerce, Education, Energy, Health and Human Services, Housing and Urban Development, the Interior, Labor, State, Transportation, the Treasury, and Veterans Affairs; and heads of the Environmental Protection Agency; NASA; NSF; the U.S. Nuclear Regulatory Commission (NRC); Office of Personnel Management; Small Business Administration; Social Security Administration; and U.S. Agency for International Development should direct their Chief Information Officers and other responsible officials to improve their inventories by taking steps to fully address the practices we identified as being partially met or not met.

Status:

The NRC met three out of the four specified areas noted within the report. The NRC partially met the fourth, which was to document the procedures and processes to maintain the systems inventory. The NRC is currently reviewing and updating the draft procedures as referenced in the GAO report with plans to issue the final version by June 2017.

This GAO recommendation remains open.

GAO Report – Nuclear Material: Agencies Have Sound Procedures for Managing Exchanges but Could Improve Inventory Monitoring
October 24, 2016
(GAO-16-713)

The U.S. Government Accountability Office (GAO), in its report, “Agencies Have Sound Procedures for Managing Exchanges but Could Improve Inventory Monitoring,” made two recommendations to improve inventory monitoring, one of which applied to the U.S. Nuclear Regulatory Commission (NRC). In response, on January 3, 2017, the Chairman of the NRC informed Congress about the actions planned in response to the GAO recommendations. The status of the recommendation that remained open is provided below.

Recommendation 1:

Clarify in guidance the conditions under which facilities may carry negative obligation balances.

Status:

The NRC staff intends to review and revise NUREG/BR-0006, “Instructions for Completing Nuclear Material Transaction Reports (DOE/NRC Forms 741 and 740M)” and NUREG/BR-0007, “Instructions for the Preparation and Distribution of Material Status Reports (DOE/NRC Forms 742 and 742C).” The NRC informed licensees of this plan at the 2016 Annual Nuclear Material Management and Safeguards System (NMMSS) Users Training Meeting in May 2016. Since that meeting, the NRC staff has worked with the U.S. Department of Energy/National Nuclear Security Administration and NMMSS program staff to commence the review of these documents. The revisions will include clarifications to the guidance pertaining to obligation balances and reporting, including negative obligation balances. The NRC staff anticipates having the revised guidance available in 2017.

This GAO recommendation remains open.