Response to Requests for Information
Senator Dianne Feinstein
Letter Dated August 22, 2016

1. **What actions does NRC intend to take to strengthen its radiological materials licensing program so that only those with legitimate needs can obtain these dangerous materials?**

   The NRC took several immediate actions in October 2015 when the Government Accountability Office (GAO) notified the NRC of its investigation in which it set up shell companies and sought to acquire radioactive material licenses. The NRC issued letters to the 37 Agreement States regarding the importance of pre-licensing activities. Additionally, the NRC provided enhanced training for pre-licensing activities, which included conducting webinars with the NRC regions and Agreement States to ensure that processes and guidance for conducting pre-licensing visits are being properly implemented.

   The NRC also chartered two NRC/Agreement State working groups to evaluate vulnerabilities identified as a result of the 2015 GAO investigation, as well as possible mitigation strategies, specifically with respect to (1) enhancements to the current pre-licensing guidance, and (2) processes for license verification and transfer of Category 3 sources. The working groups are finalizing their recommendations, including actions to address all three GAO audit recommendations. Insights on specific enhancements being considered are provided in response to Questions 4 and 7. The working groups will report to the Commission on their recommendations in calendar year 2017.

   It is important to note that, as part of the Radiation Source Protection and Security Task Force (task force), the NRC, 13 of its Federal counterparts, and the Agreement States have continuously evaluated radioactive source security over the past 10 years, as required by the Energy Policy Act of 2005, and have not identified any significant regulatory gaps. Most recently, the task force reaffirmed the focus on higher-risk Category 1 and 2 sources in its August 2014 report, stating, "the global use of radioactive sources has remained stable both in species and quantity such that the addition of novel radionuclides or changes in thresholds for the existing list[1] is not justified at this time." The focus on Category 1 and 2 sources is also consistent with international safety and security conventions and guidance. The NRC has been deliberate in its application of enhanced security requirements to the most risk-significant radioactive materials, which has included implementing changes to pre-licensing practices, issuing security orders and, ultimately, adopting the regulations of Title 10 *Code of Federal Regulations* (10 CFR) Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material."

2. **The NRC made improvements to its radiological materials licensing program since the 2007 GAO report. Yet, in 2016, the GAO was able to obtain commitments to acquire a significantly more dangerous quantity of a radiological material attractive for someone seeking to build a dirty bomb. How did this happen?**

[1] The list can be found in the 2014 Radiation Source Protection and Security Task Force Report, August 14, 2014, Table 1-1, p. 6. http://www.nrc.gov/security/byproduct/2014-task-force-report.pdf.

After the 2007 GAO investigation, the NRC and Agreement States made significant improvements in strengthening their licensing and regulatory processes for radioactive material in quantities of concern (i.e., quantities of Category 1 and 2 material), including establishing requirements for the following:

- background checks and fingerprinting for access to risk-significant radioactive material;
- licensee control of personnel access to areas where radioactive material in quantities of concern is used and stored;
- licensee establishment of documented security programs;
- coordination and response planning between licensees and local law enforcement;
- coordination and tracking of radioactive material shipments;
- verification with the regulator that the receiver is authorized to possess the materials and quantities being transferred via the License Verification System (LVS); and
- confirmation that the licensee/applicant is prepared to implement the security requirements of 10 CFR Part 37 before receiving radioactive material.

The NRC and Agreement States also enhanced guidance for pre-licensing activities following GAO's 2007 audit. This included developing and implementing internal "pre-licensing" guidance checklists that were issued in September 2008 to the NRC regional offices and Agreement States. This pre-licensing guidance provides license reviewers and inspectors with criteria to: (1) establish a basis for confidence that the radioactive materials will be used as intended; (2) perform pre-licensing site visits for new applicants or new owners, who are unknown to the NRC or an Agreement State, in order to verify the legitimacy of the applicant; and (3) forward suspicious and/or ambiguous application information to the appropriate authorities for follow-up investigation. The NRC and the 37 Agreement States also collaboratively review the licensing programs of each Agreement State and the NRC. This process is known as the Integrated Materials Performance Evaluation Program (IMPEP). The IMPEP evaluations include a review of the implementation of pre-licensing guidance.

However, the most recent investigation conducted by GAO went well beyond the 2007 investigation in its sophistication and planning, in that GAO applied for the licenses and rented storefront/warehouse space to demonstrate their legitimacy during pre-licensing visits. The GAO was also provided NRC's non-public pre-licensing guidance as part of their previous audit activities. Despite this level of effort, GAO was unsuccessful in two of three instances. The Agreement State that issued the license conducted a self-assessment and root cause analysis and determined that the staff did not complete all the required steps in the Agreement State's pre-licensing process, and also concluded that management oversight of the program was not effective. In addition, the NRC and Agreement States conducted self-assessments of their implementation of the pre-licensing guidance and took corrective action when issues were identified.

The GAO's success in obtaining a radioactive materials license revealed a single, isolated failure on the part of an individual among one of our 37 Agreement State partners to fully implement the pre-licensing guidance that was put in place in

September 2008 following the GAO's 2007 investigation. When the pre-licensing process was followed by the other Agreement State and the NRC regional office, the GAO efforts to obtain a license were effectively prevented.

3. **Does NRC have the resources it needs to sufficiently strengthen its licensing program so that fake businesses cannot obtain genuine licenses? If not, since NRC is largely funded from the fees it charges, does NRC need to increase license fees to conduct sufficient oversight of its radiological materials licensing program?**

   Yes, the NRC has sufficient resources to evaluate GAO's recommendations and to take appropriate action.

4. **The NRC continues to use paper licenses to authorize the purchase and possession of dangerous radioactive materials. As the GAO work showed, paper licenses can be easily altered or forged. What does NRC intend to do to address the weaknesses and limitations associated with the use of paper licenses?**

   After carefully evaluating alternatives to paper licenses in 2008, the NRC working group assessing options to prevent counterfeiting of radioactive materials licenses determined, in its interim report, that completely transitioning away from all paper licenses was not practical and would be cost-prohibitive for the approximately 20,000 licenses held for radioactive material and overseen by the NRC and 37 Agreement States.

   Consistent with the findings of the task force mentioned in the response to Question #1, the NRC and Agreement States apply a graded approach to security of radioactive materials. For materials that are considered "risk-significant" (i.e., Category 1 and 2 quantities of material), relying on a paper license for the function of performing license verification prior to the transfer of material between licensees is not permitted by NRC or the Agreement States. For Category 1 and 2 materials, the originating licensee sending the material has to verify with the regulator or with the LVS that the licensee receiving the radioactive material is authorized to do so.

   Through these controls, an altered license for Category 1 or 2 quantities would be quickly identified by the regulator, and the originating licensee would not be approved to transfer the radioactive material. Transfers of Category 1 and 2 materials account for about 11,000 transactions each year; there are about 10,000 transactions per year involving Category 3 sources.

   As part of its response to the most recent GAO audit, the NRC working group evaluating current processes for license verification and transfer of Category 3 sources is specifically reviewing continued use of paper licenses for Category 3 materials. This working group is considering alternatives such as the verification of transfers of Category 3 material through the Web-based Licensing System (WBL), LVS, or direct contact with the regulatory agency that issued the license. These methods would not depend on paper licenses to verify the transfer of Category 3 materials.

5. **NRC has an ongoing peer-review inspection program designed to assure that NRC regional offices and agreement states are performing its radiological materials**

licensing properly. This program is called the Integrated Materials Performance Evaluation Program (IMPEP). Given that this program did not identify the poor performance that led to the GAO shell company getting a genuine license, how does NRC plan to strengthen the IMPEP program?

Since 2009, IMPEP teams evaluating the Agreement States and the NRC regional programs have reviewed the implementation of the 2008 pre-licensing guidance discussed in response to Question #2. Specifically, the teams evaluate pre-licensing guidance implementation through the assessment of inspection and licensing casework, interviews with radioactive materials program inspectors and licensing reviewers, and by performing accompaniments of inspectors on radioactive materials inspections. IMPEP reviews are retrospective audits of the effectiveness of programs and are conducted every 4 years. The IMPEP teams use a risk-informed sampling method when selecting the licensing and inspection casework.

As the NRC considers the three GAO recommendations, any changes in the pre-licensing guidance will be communicated to the Agreement States and the NRC regional offices. The IMPEP teams will evaluate adherence to the guidance as part of the IMPEP review process. Since the pre-licensing guidance was revised in 2008, all Agreement State and NRC regional programs have been evaluated for implementation of that guidance at least once via the IMPEP process. There are several examples since 2009 where weaknesses with implementation of pre-licensing guidance were noted by IMPEP teams, requiring subsequent remedial action.

In its 2013 annual report to the Commission on the Agreement State Program, the NRC staff identified weaknesses with implementation of the pre-licensing guidance for three of the nine programs reviewed in 2013 under the IMPEP process. The NRC staff subsequently issued a letter to all of the Agreement States indicating that the NRC considers the pre-licensing guidance an essential component of a licensing program given its importance in providing a basis of confidence that radioactive materials will be used as intended, ensuring that site visits are performed for “unknown” applicants, and forwarding suspicious applications to the appropriate authority for follow-up.

An IMPEP review was conducted for the Agreement State that issued the license to the GAO’s fictitious company during February 2010 and February 2014. The IMPEP teams did not identify any weaknesses with the Agreement State’s implementation of the pre-licensing guidance during these two reviews. However, the IMPEP review is unable to identify potential human errors which may occur regardless of the clarity in guidance. As noted in the response to Question #2, a root cause analysis of the Agreement State’s failure to prevent GAO’s efforts to obtain a license revealed that its staff did not complete all the required steps in the Agreement State’s pre-licensing process. In particular, staff from the Agreement State’s licensing group conducted the pre-licensing site visit of the GAO shell company whereas, as highlighted in the report following the February 2014 IMPEP review, the Agreement State’s preferred process is to have qualified inspector from the Agreement State’s staff perform this site visit.

The NRC will continue to use the IMPEP process to review implementation of the pre-licensing guidance by the Agreement States and NRC regional offices. The NRC is currently revising the process for the conduct of IMPEP reviews to improve consistency,

and to incorporate a number of changes and enhancements identified through audits and self-assessments. This revision to the IMPEP process will incorporate any enhancements that result from the NRC's evaluation of the GAO audit results.

6. **In 2013, NRC adopted an updated radiological source security regulation (10 CFR Part 37 - Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material). Since that time, has NRC or any other entity performed a wholesale review of the effectiveness of this regulation? If not, how will NRC determine whether these regulations are actually protective of radioactive materials used in healthcare, industrial, and other applications?**

   The NRC is finalizing a report to Congress on the effectiveness of 10 CFR Part 37. The report was prepared in response to the fiscal year 2015 Energy and Water Appropriations Act (hereinafter "Appropriations Act"), which directed NRC to evaluate the effectiveness of the requirements of 10 CFR Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material," and determine whether such requirements are adequate to protect high-risk radiological material (i.e., Category 1 and 2). The report is on schedule to be provided to Congress by the December 2016 deadline.

   The Appropriations Act also required that, no later than 2 years after the completion of the NRC evaluation of 10 CFR Part 37, GAO must provide a report to Congress on the effectiveness of the requirements of 10 CFR Part 37 for NRC and Agreement State licensees and recommendations to further strengthen radiological security. The Appropriations Act directed that GAO's audit include assistance from an independent group of security experts.

   In an effort to conduct a comprehensive evaluation of the rule and to address recommendations made by GAO in audits on the security of sources used in medical and industrial applications, the NRC staff performed a multifaceted evaluation of the rule and associated guidance documents, as well as licensee implementation. This evaluation encompassed a total of nine review areas, the first two of which are related to the Congressional mandate. It included: (1) analysis of 10 CFR Part 37 inspection results from the first 2 years of rule implementation; (2) review of events from the Nuclear Material Events Database and the Security Information Database; (3) evaluation of the 10 CFR Part 37 trustworthiness and reliability (T&R) program; (4) consideration of the definition of aggregation as it applies to well logging sources; (5) assessment of the adequacy of the materials security training program for NRC and Agreement State inspectors; (6) evaluation of enhanced tracking and accounting of radioactive sources; (7) conduct of a comparison to identify and evaluate differences between 10 CFR Part 37 requirements and international standards and guidance; (8) assessment of separate, independent aspects of 10 CFR Part 37 by three external consultants; and (9) consideration of comments, questions, and recommendations made during stakeholder outreach.

   The results of the NRC staff's assessment in each the these nine areas are being used to inform an overall determination on the effectiveness of 10 CFR Part 37 in fulfilling its objective to provide reasonable assurance with respect to the security of Category 1 and

Category 2 quantities of radioactive material in all applications (e.g., medical, academic, industrial) by protecting these materials from theft or diversion.

7. **The GAO 2016 report made three recommendations. Does the NRC intend to implement all of the GAO's recommendations, and when will it do so? If any are not going to be implemented, please provide your rationale for not moving forward to make these improvements.**

   The two NRC/Agreement State working groups formed to address the findings of the GAO audit have reviewed the three GAO recommendations and will address them in their reports. These reports will be finalized this fall and will serve as the basis for options on addressing the GAO recommendations that will be presented to the Commission. In addition, the Commission is currently considering a proposal by Commissioner Baran to re-evaluate Category 3 source accountability that includes the staff proposing options on addressing the GAO recommendations.

   Full implementation of the GAO recommendations, if approved by the Commission, would require the NRC to amend its regulations in 10 CFR Parts 20, 30, and 32 through rulemaking. The rulemaking process, including public comment for the affected groups of licensees, generally takes at least 2 years.

8. **Has NRC implemented all of the recommendations from GAO's 2007, 2012, and 2014 reports? Please provide a status of each of these recommendations.**

   The GAO audit reports issued in 2007, 2012, and 2014 made a total of 11 recommendations. The NRC has taken various actions in response to the GAO recommendations. The summary below describes the specific actions taken, or currently in process, to address the recommendations. Of those, recommendations, the NRC considers two to still be open. First, the recommendation on the definition and application of aggregation (GAO used the term "collocation") is open pending the completion of the comprehensive program review of 10 CFR Part 37 (discussed in response to Question #6). Second, the recommendation regarding the function of the T&R to protect against the insider threat also remains open. The completion of the comprehensive program review of 10 CFR Part 37 will provide insights into the effectiveness of the T&R process and may result in recommendations for enhancements in this area. However, this recommendation will remain open pending the completion of Temporary Instruction (TI) 2800/042, "Evaluation of Trustworthiness and Reliability Determinations," and the subsequent review of information gained from the TI. Once the review activities have been completed the NRC will pursue closure of these two recommendations with the GAO.

GAO-07-1038T, "Nuclear Security: Actions Taken by NRC to Strengthen Its Licensing Process for Sealed Radioactive Sources Are Not Effective"

Recommendation 1: To avoid inadvertently allowing a malevolent individual or group to obtain a license for radioactive materials, NRC should develop improved guidance for

examining NRC license applications. In developing improved screening criteria, NRC should consider whether site visits to new licensees should be mandatory. These improved screening criteria will allow NRC to provide reasonable assurance that licenses for radioactive materials will only be issued to those with legitimate uses.

NRC Actions: In 2007, the NRC initiated a working group to enhance the existing pre-licensing guidance to further protect against a malevolent individual obtaining a radioactive materials license. Enhancements to the guidance included requiring site visits for applicants for new licenses or new owners, who are unknown to the NRC, to verify the legitimacy of the applicant, and adding enhanced screening criteria for the review of applicants. The guidance, as revised, provides instructions on processing new license applications to determine which applicants are unknown entities. It also requires a site visit by the regulator and that unknown applicants undergo further checks to determine legitimacy. The revised guidance provides instructions on the process for performing additional screening checks for unknown applicants, including more formal additional checks using existing NRC Office of Investigations' database resources. The revised guidance clearly identifies the roles and responsibilities of NRC offices that will assist in the checks, and provides additional guidance on the conduct of pre-licensing site visits to determine the legitimacy of applicants.

After the completion of a 3-month pilot period and the incorporation of comments from the NRC regional offices and the Agreement States, the revised guidance was issued in September 2008. The NRC regional offices immediately implemented the revised guidance. Agreement States were permitted a 6-month grace period, starting at the date of issuance of the guidance, to incorporate the essential elements of the pre-licensing guidance into their licensing processes. The implementation of the essential elements of the pre-licensing guidance is, and will continue to be, evaluated during IMPEP reviews of the NRC regional offices and Agreement States.

The NRC and GAO consider this recommendation closed.

Recommendation 2: NRC should conduct periodic oversight of license application examiners so that NRC will be assured that any new guidance is being appropriately applied.

NRC Actions: The NRC's primary method of oversight of license reviewers and their adherence to established practices is through the IMPEP process. IMPEP is used to evaluate the performance of NRC regional offices and Agreement State programs using established criteria under a series of performance indicators. Typically, IMPEP reviews occur every four years for an individual program; however, the reviews may be conducted more frequently if there are existing performance issues with respect to a program. Approximately 10-12 IMPEP reviews are conducted annually. During an IMPEP review, a review team spends approximately one week in the applicable office interviewing technical staff, accompanying inspectors in the field, and reviewing documentation. The review team evaluates, among other things, the NRC regional office's or Agreement State's implementation of the pre-licensing guidance, to ensure its proper application. Based on the findings in comparison with the evaluation criteria in NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)," the review team makes an assessment of the overall program performance, as well as performance for each indicator. A report is issued to the relevant Agreement State or NRC regional office on its performance. Corrective actions, such as program-wide training, are

implemented for any weaknesses identified by the review team and are subject to follow-up review to confirm whether there is program improvement.

When performance issues that require increased NRC oversight are identified, States may be placed on heightened oversight or monitoring. Heightened oversight is a formal process that requires the State to develop a program improvement plan. The status of the program improvement plan is discussed during bimonthly conference calls between the NRC staff and Agreement State program management. States on heightened oversight typically have a follow-up IMPEP review approximately 1 year after the original IMPEP review. Currently, there are no States on heightened oversight. Monitoring is a less formal process that involves quarterly conference calls between the NRC staff and Agreement State program management to discuss the status of any open performance issues. Currently, there are five States on monitoring.

In addition, the NRC regional offices perform periodic audits of licensing and inspection documentation to ensure that procedures and guidance are being followed. Branch Chiefs (first-line supervisors) discuss errors and omissions with individual reviewers, and corrective actions are taken at the division level for any generic issues that are identified. The NRC encourages all Agreement State programs to use self-assessments as a tool for the State to evaluate its own program performance. While the NRC understands that some Agreement States do use these tools, these self-assessments are not required. IMPEP teams do not use the results of a program's self-assessment in its evaluation of the program; however, the results of a program's self-assessments may be discussed during periodic meetings that take place between IMPEP reviews. Periodic meetings are not formal evaluations, like IMPEP reviews, but are open, interactive discussions of program status and performance. Periodic meetings aid in the early identification of performance issues. The NRC believes the IMPEP process adequately addresses the GAO recommendation.

The NRC and GAO consider this recommendation closed.

Recommendation 3: NRC should explore options to prevent individuals from counterfeiting NRC licenses, especially if this allows the purchase of more radioactive materials than they are approved for under the terms of the original license.

NRC Actions: The Materials Program Working Group was chartered in 2007 to prepare a report that would assess specific and potential security vulnerabilities in NRC's radioactive materials program and provide recommendations to address any identified vulnerabilities. As part of its assessment, the working group, comprised of NRC and Agreement State representatives, evaluated options to prevent counterfeiting of radioactive materials licenses and improve license verification. The working group concluded that properly implemented measures for license verification and material tracking will render the physical counterfeiting of a paper license ineffective. The working group recommended that the NRC and the Agreement States develop mechanisms to verify licensee authorizations and inventory compliance in conjunction with the source tracking capabilities of the National Source Tracking System (NSTS). On December 31, 2008, the NSTS was deployed and made available to NRC and Agreement State licensees to track risk-significant sources. The NRC also worked with the Agreement States to develop a secure nationwide, web-based LVS, which was deployed on May 31, 2013. LVS enables licensees and other authorized individuals to verify that radioactive material transactions are authorized and do not exceed license limits by verifying transaction information against the

regulator's licensing data. The LVS interfaces with the WBL system, which was deployed on August 31, 2012, as a system to maintain radioactive materials licenses.

The NRC and Agreement States conduct pre-licensing visits to new license applicants to verify the validity of the information submitted to obtain a new radioactive material license. Also, new regulations were developed for transactions of Category 1 and 2 radioactive materials that require licensees to verify with the license-issuing authority that the transferee's license authorizes the receipt of the type, form, and quantity of the radioactive material requested, and, for Category 1 shipments, to verify the validity of the address where radioactive material is requested to be delivered. These regulations were included in the final rule, 10 CFR Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material," which was approved by the Commission and published in the *Federal Register* on March 19, 2013. The rule was effective on May 20, 2013, and NRC licensees were required to be in compliance by March 19, 2014. The implementation of the NRC's web-based LVS and promulgation of 10 CFR Part 37 addresses this GAO recommendation for NRC and Agreement State radioactive material licensees.

The NRC and GAO consider this recommendation closed.

GAO-12-925 -- Nuclear Nonproliferation: Additional Actions Needed to Improve Security of Radiological Sources at U.S. Medical Facilities

---

Recommendation 1: Because the security of radiological sources in hospitals and medical facilities has national security implications, and many potentially vulnerable medical facilities with high-risk sources have not received security upgrades, the Administrator of NNSA, in consultation with the Chairman of NRC and Agreement State officials, should increase outreach efforts to promote awareness of and participation in NNSA's security upgrade program. Special attention should be given to medical facilities in urban areas or in close proximity to urban areas that contain medical equipment with high-risk radiological sources.

NRC Actions: On multiple occasions the NRC has promoted awareness and licensee cooperation with the National Nuclear Security Administration (NNSA) Global Material Security Program's (formerly GTRI) Radiological Security Partnership voluntary security enhancements to the licensed population, which includes medical facilities nationally. In 2014, the NRC issued a publicly available guidance document entitled, "Physical Security Best Practices for the Protection of Risk-Significant Radioactive Material," which includes a comprehensive appendix on NNSA's voluntary security upgrade program, a discussion of the upgrades, available training and tabletop exercises, and contact information for licensees interested in participating in the program.

The NRC has promoted awareness of the NNSA upgrade program by discussing it as part of the training courses provided to NRC and Agreement State materials inspectors to ensure that inspectors can appropriately respond to licensee questions regarding the program. Additionally, the NRC has provided presentations to stakeholders that describe the upgrades and their availability in the context of the security requirements of 10 CFR Part 37.

In the past, the NRC issued numerous communications related to the security upgrades. Specifically, these communications were provided to all NRC licensees authorized to possess Category 1 and Category 2 quantities of radioactive material, all Agreement State Radiation Control Program Directors and State Liaison Officers, and members of the Advisory Committee on the Medical Uses of Isotopes. Additionally, a short overview of the issue was developed by NRC and NNSA, titled, "Partnership for Securing Nuclear and Radioactive Materials," which describes the domestic and international partnership between the two agencies to secure radioactive materials and includes discussion of the domestic enhancement program.

The NRC continues to collaborate with NNSA on a routine basis and supports NNSA's outreach and promotion of its available domestic programs.

The NRC considers this recommendation closed and plans no further action. The GAO considers this recommendation open.

Recommendation 2: To help address the security vulnerabilities at U.S. hospitals and medical facilities that contain high-risk radiological materials, the Chairman of the Nuclear Regulatory Commission should strengthen NRC security requirements by providing hospitals and medical facilities with specific measures they must take to develop and sustain a more effective security program, including specific direction on the use of cameras, alarms, and other relevant physical security measures.

NRC Actions: While the NRC acknowledges that GAO favors prescriptive security regulations, the NRC's existing performance-based security program for licensees who possess risk-significant radioactive materials, including those at medical facilities, is effective and provides adequate protection. Performance-based regulation is a key principle of the NRC's regulatory approach that applies to virtually all NRC-regulated activities. A performance-based requirement establishes measurable performance standards and provides appropriate flexibility to the regulated party as to the means of achieving the mandated outcomes.

The NRC and the Agreement States verify licensee performance during the inspection process. Because of the wide variety of nearly 3,000 licensed facilities affected by security requirements, prescribing specific security measures without regard to the type of facility and licensee operations may impose excessive and unnecessary requirements and burdens on licensees. In other cases, a prescriptive approach may result in a level of protection that is too low. A "one-size-fits-all" prescriptive approach is neither practical nor desirable from a safety or security perspective. Security concerns such as those mentioned in the GAO report are effectively addressed through established NRC and Agreement State inspection and enforcement processes and are not indicative of a weakness in the regulations.

Since issuance of GAO's report, the NRC staff has worked with the Agreement States to evaluate the examples of security issues documented in the report. The staff has concluded that three of the four examples were not compliance issues or security concerns. The appropriate Agreement State pursued the fourth example to determine the appropriate regulatory response. The GAO report notes concerns that some of the licensee personnel with security responsibilities lack expertise in physical security, which may result in inconsistent application of security controls. In response to these concerns, the NRC developed and provided additional written guidance to instruct licensees on best practices, including specific

guidance on the effective application of cameras, alarms, and other relevant physical security measures to consider in the implementation of their security programs. This "best practices" guidance document, "Physical Security Best Practices for the Protection of Risk Significant Radioactive Material," is in addition to the implementing guidance document already developed to accompany 10 CFR Part 37: "Implementation Guidance for 10 CFR Part 37, 'Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material.'"

The NRC considers this recommendation closed and plans no further action. The GAO considers this recommendation open.

Recommendation 3: To help address the security vulnerabilities at U.S. hospitals and medical facilities that contain high-risk radiological materials, the Chairman of the Nuclear Regulatory Commission should ensure that NRC and Agreement State inspectors receive more comprehensive training to improve their security awareness and ability to conduct related security inspections.

NRC Actions: The material security training program provides classroom instruction on a performance-based methodology to evaluate and assess the adequacy of a physical protection system to protect against theft or diversion of materials subject to the Increased Controls Orders (which were in effect at the time of the GAO audit), and was updated to reflect the current requirements in 10 CFR Part 37. This training, combined with on-the-job training, periodic refresher training, and other requirements to be a qualified radioactive materials safety inspector, prepares NRC and Agreement State inspectors to conduct security inspections.

As part of the implementation of 10 CFR Part 37, the NRC reviewed the inspector qualification program for radioactive materials security inspections and revised it accordingly to include training on the new rule. In November 2012, a Part 37 Implementation Working Group was formed including representatives from across NRC and the Organization of Agreement States. This group updated the training modules for inspectors to reflect the Part 37 rule and to include additional emphasis on best security practices, including specific guidance on the effective application of cameras, alarms, and other relevant physical security measures. This updated training class entitled, "NRC Materials Control and Security Systems and Principles," was first offered in February 2014 and is scheduled several times a year.

The NRC and GAO consider this recommendation closed.

Recommendation 4: To help address the security vulnerabilities at U.S. hospitals and medical facilities that contain high-risk radiological materials, the Chairman of the Nuclear Regulatory Commission should supplement existing guidance for facility officials, including RSOs, who may be responsible for implementing NRC's security controls, in how to adequately secure equipment containing high-risk radiological sources and conduct trustworthiness and reliability determinations.

NRC Actions: The NRC provides guidance to licensees on how to comply with regulatory requirements. In November 2012, the 10 CFR Part 37 implementation working group, which included representatives from the NRC and the Organization of Agreement States, was formed. This group developed a security "best practices" guidance document, "Physical Security Best Practices for the Protection of Risk-Significant Radioactive Material," which was published in May 2014. This document provides guidance with specific emphasis on security best practices

and effective application of security technology that licensees may consider in developing their security programs. It is in addition to the implementing guidance document ("Implementation Guidance for 10 CFR Part 37, 'Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material'") developed to accompany the final rule, 10 CFR Part 37, "Physical Protection of Byproduct Material."

The NRC considers this recommendation closed and plans no further action. The GAO considers this recommendation open.

GAO-14-293 -- Nuclear Nonproliferation: Additional Actions Needed to Increase the Security of U.S. Industrial Radiological Sources

Recommendation 1: To ensure that the security of radiological sources at industrial facilities is reasonably assured, the Chairman of the NRC should obtain the views of key stakeholders, such as licensees, during the development of the Best Practices Guide to ensure that the guide contains the most relevant and useful information on securing the highest risk radiological sources.

NRC Actions: The NRC agreed with the GAO's recommendation that the views of key stakeholders, such as licensees, should be obtained in developing the guidance document, "Physical Security Best Practices for the Protection of Risk Significant Radioactive Material" (i.e., the "best practices" guide). Published in May 2014, the "best practices" guide focuses on areas of concern that licensees communicated to the NRC during the inspection process.

As part of the program review of 10 CFR Part 37, the NRC has assessed the effectiveness of this guidance document to determine if any revisions are needed and would make revisions accordingly using NRC's public participation process.

The NRC and GAO consider this recommendation closed.

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.

NRC Actions: The NRC acknowledges the GAO's recommendation that the definition of aggregation (collocation is not used in the regulation) should be reevaluated for well logging facilities that routinely keep radiological sources in a single storage area but secured in separate containers. Of note, inspection of collocated sources indicates that appropriate security is being maintained.

The NRC is currently reviewing the effectiveness of the 10 CFR Part 37 requirements to determine whether any additional security measures, guidance documents (including revising "Implementation Guidance for 10 CFR Part 37, 'Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material'," and "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 (i.e., collocation) is included in this effort. The NRC is on schedule to provide a final report detailing the results of this program review to Congress in December 2016.

The NRC considers this recommendation open pending completion of the 10 CFR Part 37 program review. The GAO considers this recommendation open.

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 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. NRC should also consider whether certain criminal convictions or other indicators should disqualify an employee from T&R or trigger a greater role for NRC.

NRC Actions: The NRC acknowledges the GAO's recommended assessment of the T&R process to determine if it provides reasonable assurance against an insider threat. The current T&R requirements that are in place ensure that individuals who have unescorted access to Category 1 and Category 2 quantities of radioactive material are trustworthy and reliable and do not constitute an unreasonable risk to the public health and safety or security of the radioactive material.

Licensees are required to take a number of actions in order to make a T&R determination for unescorted access to Category 1 and 2 quantities of radioactive materials. This includes a Federal Bureau of Investigation identification and criminal history records check to determine if an individual has a record of criminal activity that would indicate that the individual should not have unescorted access to Category 1 and Category 2 quantities of radioactive materials. The NRC published "Physical Security Best Practices for the Protection of Risk Significant Radioactive Material" in May 2014 to provide additional guidance to licensees in conducting and evaluating T&R determinations. The NRC is currently reviewing the effectiveness of the 10 CFR Part 37 requirements to determine whether any additional security measures, guidance updates (including revising "Implementation Guidance for 10 CFR Part 37, 'Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material'," and "Physical Security Best Practices for the Protection of Risk Significant Radioactive Material"), rulemaking changes, or licensee outreach efforts are appropriate. The NRC is on schedule to provide a final report detailing the results of this program review to Congress in December 2016.

The completion of the 10 CFR Part 37 program review will provide some insights into the effectiveness of the T&R process and may result in recommendations for enhancements in this area. Additionally, the staff has issued a Temporary Instruction (TI), "Evaluation of Trustworthiness and Reliability Determinations," and information gained from this TI will be used to aid in decision making regarding the overall adequacy of the T&R process. The TI is scheduled to be completed in November 2016 and, therefore, a complete assessment of the

T&R process based on insights from the TI may not be available until after the Part 37 program review report to Congress has been completed.

The NRC considers this recommendation open pending completion of the TI and a follow-up assessment of the results. The GAO considers this recommendation open.

Recommendation 4: To better leverage resources, including expertise, to address vulnerabilities associated with radiological sources while in transit, the Administrator of NNSA, the Chairman of NRC, and the Secretary of DHS should review their existing collaboration mechanism for opportunities to enhance collaboration, especially in the development and implementation of new technologies.

NRC Actions: The NRC agrees with this recommendation and continues to conduct periodic meetings with senior management of the referenced agencies to enhance coordination and collaboration on overarching technical and policy issues related to source security. The NRC routinely collaborates with the NNSA and the Department of Homeland Security (DHS) on a range of topics including the security of radiological sources. Both the NNSA and the DHS participate, along with other agencies and State representatives, on the Radiation Source Protection and Security Task Force, which is chaired by the Chairman of the NRC, consistent with the Energy Policy Act of 2005. The NRC also collaborates with these agencies on several DHS initiatives regarding radiological materials, including the Global Nuclear Detection Architecture and the interagency Government Coordinating Council meeting to address nuclear and radiological security issues.

The NRC and GAO consider this recommendation closed.