April 6, 2004

The Honorable George V. Voinovich, Chairman
Subcommittee on Clean Air, Climate Change, and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On behalf of the Nuclear Regulatory Commission (NRC), I am enclosing a summary of actions taken by the NRC in response to recommendations contained in various General Accounting Office (GAO) reports that address NRC activities. This summary, which is required by Section 236 of Public Law 91-510, the "Legislative Reorganization Act of 1970," describes the progress made in addressing the recommendations from GAO reports issued during 2003 and recommendations remaining open as of our last summary report of February 6, 2003.

Sincerely,

/RA/

Nils J. Diaz

Enclosure:
Summary of NRC Actions

cc: Senator Thomas R. Carper

Identical letter to be sent to:

The Honorable Ted Stevens, Chairman
Committee on Appropriations
United States Senate
Washington, D.C. 20510
cc: Senator Robert C. Byrd

The Honorable Susan Collins, Chair
Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510
cc: Senator Joseph I. Lieberman

The Honorable C.W. Bill Young, Chairman
Committee on Appropriations
United States House of Representatives
Washington, D.C. 20515
cc: Representative David Obey

The Honorable Tom Davis, Chairman
Committee on Government Reform
United States House of Representatives
Washington, D.C. 20515
cc: Representative Henry Waxman

The Honorable Ralph M. Hall, Chairman
Subcommittee on Energy and Air Quality
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515
cc: Representative Rick Boucher

The Honorable Joe Barton, Chairman
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515
cc: Representative John D. Dingell

The Honorable James M. Inhofe, Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510
cc: Senator James M. Jeffords

The Honorable Pete V. Domenici, Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510
cc: Senator Jeff Bingaman

The Honorable George V. Voinovich, Chairman
Subcommittee on Clean Air, Climate Change, and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510
cc: Senator Thomas R. Carper

The Honorable David M. Walker
Comptroller General of the United States
General Accounting Office
Washington, D.C. 20548

The Honorable Joshua B. Bolten
Director, Office of Management and Budget
Washington, D.C. 20503

SUMMARY OF NRC ACTIONS

RESPONSE TO GAO REPORTS

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GAO Report - Nuclear Regulation
Action Needed to Control Radioactive Contamination
at Sewage Treatment Plants
May 1994
(GAO/RCED-94-133)

The General Accounting Office (GAO), in its report "Nuclear Regulation - Actions Needed to Control Radioactive Contamination at Sewage Treatment Plants," made specific recommendations for responding to contamination of sewage sludge by discharges from NRC and Agreement State licensees. The recommendations and the NRC's responses and report of progress are provided below.

Recommendation 1

Determine the extent to which radioactive contamination of sewage sludge, ash, and related byproducts is occurring.

NRC Response

Through the Sewage Sludge Subcommittee of the Interagency Steering Committee on Radiation Standards (ISCORS), which NRC co-chairs, NRC and the Environmental Protection Agency (EPA) conducted a national survey of sewage treatment plants to assess the extent of radioactive contamination in sludge and ash. The Subcommittee, which is also co-chaired by NRC and EPA, designed and conducted a survey of radioactivity in sewage sludge and ash from sewage treatment plants, commonly referred to as publicly owned treatment works (POTWs). The objectives of the survey were to (1) obtain national estimates of high probability occurrences of elevated levels of radioactive materials in sludge and ash at POTWs, (2) estimate the extent to which radioactive contamination comes from either NRC/Agreement State licensees or naturally occurring radioactivity, and (3) support rulemaking decisions by the NRC and the EPA. Subcommittee members include representatives from the NRC, the EPA, the Department of Energy, the State of New Jersey Department of Environmental Protection, the Northeast Ohio Regional Sewer District, and the Middlesex County (New Jersey) Utilities Authority.

The survey has been completed and is published in "ISCORS Assessment of Radioactivity in Sewage Sludge: Radiological Survey Results and Analysis." Its availability was noticed in the *Federal Register* on November 26, 2003 (68 FR 66503). It is also available on the ISCORS web site, www.iscors.org/. This report presents a summary of the information collected in response to a questionnaire and developed from laboratory analyses of samples from 313 POTWs in various locations across the United States. POTWs were selected that had a high potential to have detectable levels of radioactive materials. There were 311 sewage sludge samples and 35 ash samples analyzed. The results of the analyses revealed that the samples primarily contained naturally occurring radioactive material such as radium.

We consider this GAO recommendation closed. Recommendation 3 addresses how these survey results have been used.

Recommendation 3

Establish acceptable limits for radioactivity in sludge, ash, and related byproducts to ensure the health and safety of treatment workers and the public.

NRC Response

NRC has continued to work with EPA and with the operators of publicly owned treatment works (POTWs) through the ISCORS Sewage Sludge Subcommittee to ensure adequate protection of the public health and safety. The current EPA standards for sewage sludge (40 CFR 503) do not include radionuclides.

Using the results of the sewage sludge survey contained in "ISCORS Assessment of Radioactivity in Sewage Sludge: Radiological Survey Results and Analysis," the Sewage Sludge Subcommittee undertook a radiation dose assessment to help assess the potential threat that these radioactive materials may pose to human health. A draft report, "ISCORS Assessment of Radioactivity in Sewage Sludge: Modeling to Assess Radiation Doses," was made available to the public for comment in the *Federal Register* on November 26, 2003 (see Recommendation 1 for details). This report describes the methodology and results of the dose modeling effort. The general approach used in the report consists of two steps. First, seven general scenarios were constructed to represent typical situations in which members of the public and POTW workers are likely to be exposed to sludge. The selection of radionuclides for consideration was based on the results of the ISCORS survey of sewage sludge and ash at various POTWs and includes man-made and naturally occurring isotopes. Second, a widely accepted multi-pathway environmental transport model (the RESRAD family of computer codes) was employed to obtain sludge concentration-to-dose conversion factors.

A third report, "ISCORS Assessment of Radioactivity in Sewage Sludge: Recommendations on Management of Radioactive Materials in Sewage Sludge and Ash at Publicly Owned Treatment Works," provides guidance to POTW operators based on the survey results and radiation dose assessment. This report was also issued for public comment in the above referenced *Federal Register* notice and is available on the ISCORS web site, www.iscors.org. This guidance document is for use by POTW operators to evaluate whether the presence of radioactive materials in sewage sludge or ash could pose a threat to the health and safety of POTW workers or the general public. Based upon the information produced by the ISCORS survey and dose modeling efforts, this guidance document has three major purposes: (1) to alert POTW operators and State and Federal regulators to the possibility of radioactive materials concentrating in sewage sludge and incinerator ash; (2) to inform POTW operators how to determine if, indeed, there are elevated levels of radioactivity in their sludge and ash; and (3) to assist POTW operators in identifying actions for reducing potential radiation exposure from sludge and ash. ISCORS has concluded in this report that the levels of radioactive materials detected in sewage sludge and ash in the ISCORS survey indicate that at most POTWs, radiation exposure to workers or to the general public is not likely to be a concern. Final decisions on actions needed will await completion of the comment period on the dose modeling report and recommendations document, and publication of the final reports, which is expected to occur in 2004.

This GAO recommendation remains open.

GAO Report - Nuclear Regulation
Strategy Needed to Regulate
Safety Using Information on Risk
March 1999
(GAO/RCED-99-95)

The General Accounting Office (GAO), in its report "Nuclear Regulation - Strategy Needed to Regulate Safety Using Information on Risk," made a specific recommendation to help ensure the safe operation of plants and the continued protection of public health and safety in a competitive environment. The recommendations and NRC's response and report of progress are provided below.

GAO Recommendation

To help ensure the safe operation of plants and the continued protection of public health and safety in a competitive environment, we recommend that the Commissioners of NRC direct the staff to develop a comprehensive strategy that includes but is not limited to objectives, goals, activities, and time frames for the transition to risk-informed regulation; specifies how the Commission expects to define the scope and implementation of risk-informed regulation; and identifies the manner in which it expects to continue the free exchange of operational information necessary to improve the quality and reliability of risk assessments.

NRC Response

NRC agrees that there is a need for a comprehensive strategy. In response to Commission direction, the staff developed an approach for risk-informing the agency's regulatory activities, and progress has been made in this area.

The NRC developed a strategy and a plan (Risk-Informed Regulation Implementation Plan, SECY-00-0213 dated October 26, 2000). The purpose of the plan is to integrate the Commission's risk-informing activities by identifying requirements and practices that need to be risk-informed and the data, methods, guidance, and training needed to meet these goals. This plan also explains the agency's risk-informed regulation policy to the public and the nuclear industry. After the first complete version of the plan was issued in October 2000, an update was issued in December 2001 and two updates each in calendar years 2002 and 2003, each of which described agency actions designed to risk-inform its regulatory activities. The Risk-Informed Regulation Implementation Plan (RIRIP) is scheduled to be updated twice a year and, thus, will continue to incorporate information gathered from the application of risk-informed regulation and plans for additional implementation activities.

The most recent update of the RIRIP (SECY-03-0181 dated October 27, 2003) includes additional activities in the reactor safety area and in the materials safety and waste safety areas. Among the accomplishments listed in the most recent RIRIP are the following:

- completion of a detailed technical review that provides the basis for proposed risk-informed changes to the rule for combustible gas control systems (hydrogen control) in 10 CFR 50.44.

- preparation of a draft regulatory guide, DG-1122, “An Approach to Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-informed Activities,” to provide guidance to licensees on the quality needed for probabilistic risk assessment (PRA) information used in risk-informed applications.

- completion of a revised draft pilot PRA with integrated risk results for a dry cask storage system.

- establishment of training courses to advance the use of risk assessment and risk management in the operations of NRC’s Office of Nuclear Material Safety and Safeguards (NMSS).

- development of a formalized expert elicitation process for determining probability distributions for human failure events.

Among the activities indicated as planned for the next six months are the following:

- publication of a final rule on an alternative performance-based and risk-informed fire protection standard for nuclear power plants. (The NRC staff worked with the National Fire Protection Association to develop this standard.)

- publication of a data handbook for probabilistic risk assessments. (This document was published in September 2003 as NUREG/CR-6823, “Handbook of Parameter Estimation for Probabilistic Risk Assessment.”)

- continuation of the development of PRA methods and quantification of the risk of dry storage of spent nuclear fuel.

- completion of the final report documenting the High-Level Waste Risk Insights Initiative, providing an overall perspective for evaluating the risk significance of repository issues and systems down to the subsystem level.

- initiation of a feasibility/scoping study to identify and develop simple methods of incorporating human factors and estimating human reliability for the wide range of situations and activities encountered and performed by NMSS licensees.

NRC is in the process of revising its Strategic Plan, which addresses the use of risk in regulatory decisions. NRC has sought broad stakeholder input to the updated Strategic Plan, which will be completed in the coming months. During the last few years, the NRC has made noticeable progress toward risk-informing its regulatory activities. Although progress has been made, work remains to be accomplished on specific risk-informed initiatives.

This GAO recommendation remains open.

GAO Report - Nuclear Regulation
NRC's Assurances of Decommissioning Funding
During Utility Restructuring Could Be Improved
December 2001
(GAO-02-48)

The General Accounting Office (GAO), in its report, "Nuclear Regulation - NRC's Assurances of Decommissioning Funding During Utility Restructuring Could Be Improved," made specific recommendations with respect to financial assurance and other aspects of the NRC's power reactor decommissioning program. These recommendations and the NRC's responses and report of progress are provided below.

Recommendation 2

We recommend that the Chairman, NRC, in the Commission's ongoing consideration of modifications to radiological criteria for terminating licenses and alternative decommissioning approaches, address:

- how the burial or entombment of low-level radioactive waste at nuclear plant sites, leading to a potentially large number of contaminated sites scattered around the country, affects the Federal policy under the Low-Level Radioactive Waste Policy Act to manage radioactive waste on a regional basis; and

- concerns about whether these decommissioning approaches are technically compatible with provisions of the Low-Level Radioactive Waste Policy Act, the interstate compact agreements that implement the act, and NRC's technical regulations on licensing disposal facilities for low-level radioactive waste.

NRC Response

NRC has determined that there are insufficient technical bases to support an entombment license rule at this time. NRC has identified a number of areas, such as source term development, backfill and infill characterization, and flow and transport characterization of radionuclide dispersal into the environment where additional research would be needed to develop entombed facility performance criteria. NRC has discontinued funding for entombment research in FY 2005. Although utilities and industry stated that they would like to have entombment available as a decommissioning option, no licensee is unequivocally committed to using the entombment option in its decommissioning process. Therefore, given that the use of this approach for decommissioning is highly uncertain, the Commission has decided to defer NRC activities in this area. If in the future more compelling reasons are developed in favor of the entombment option, NRC will request funding to perform the basic research in support of performance criteria.

We consider this GAO recommendation closed.

GAO Report - Nuclear Regulatory Commission
Oversight of Security at
Commercial Nuclear Power Plants
Needs to be Strengthened
September 2003
(GAO-03-752)

The General Accounting Office (GAO), in its report "Nuclear Regulatory Commission - Oversight of Security at Commercial Nuclear Power Plants Needs to be Strengthened," made specific recommendations to strengthen NRC's security inspection program. The recommendations and the NRC's responses and report of progress are provided below.

Recommendation 1

Ensure that NRC's revised security inspection program and force-on-force exercise program are restored promptly and require that NRC regional inspectors conduct follow-up visits to verify that corrective actions have been taken when security violations, including non-cited violations, have been identified.

NRC Response

The force-on-force exercise program has been restored. Prior to September 11, 2001, Operational Safeguards Response Evaluations (OSRE) were conducted once every 8 years at the Nation's nuclear power plants. These security exercises were suspended after the September 2001 attacks in order to maintain the level of vigilance of plant security forces. In July 2002, the NRC reinstated the tabletop component of force-on-force (FOF) exercises and initiated an expanded FOF exercise pilot program in February 2003. This pilot program is being used to test new approaches to conducting exercises and is an important step in identifying artificialities and other issues to increase realism before implementation of a new formal program. This pilot program is also being used to examine the impact of the new design basis threat (DBT) and to indicate whether any additional security enhancements are required. Because the revised DBT will become effective on October 29, 2004, the NRC anticipates that the FOF program will be fully implemented at that time. NRC has decided to increase the frequency of the FOF exercises conducted by NRC from once every 8 years to once every 3 years.

NRC continues to conduct its revised security inspection program initiated after the terrorist attacks on September 11, 2001, and to verify that effective corrective actions are being taken by licensees, as appropriate. The NRC's follow-up inspections remain an essential part of ensuring that the licensees have made the necessary upgrades in their security programs. In addition, as part of the Reactor Oversight Program, the NRC's baseline inspection program remains an important element of NRC's regulation of the nuclear industry, including verification of effective corrective actions taken by licensees. The NRC requires power reactor licensees to enter the inspection findings, including violations and non-cited violations, in their corrective action program; furthermore, the NRC's process requires that a sampling of those corrective actions are reviewed by NRC inspectors during subsequent inspections to ensure that the process is being properly implemented.

We consider this GAO recommendation closed.

Recommendation 2

Ensure that NRC routinely collects, analyzes, and disseminates information on security problems, solutions, and lessons learned and shares this information with all NRC regions and licensees.

NRC Response

The NRC maintains several systems that effectively integrate these functions. Due to the subject matter, these sources often contain sensitive and/or classified information and, therefore, require special handling so that the process of sharing and analyzing information does not permit unauthorized disclosure. These findings represent a range of licensees and are often processed by diverse subject matter experts within the NRC. Information collected on one type of licensee may not be relevant to other types of licensees.

The information collected and analyzed by the NRC is gathered through the inspection process, licensees' periodic reports, licensee representatives and member organizations, and other sources, such as Federal agencies; Federal, State, and local law enforcement organizations; and international organizations. This information is carefully analyzed and prioritized for appropriate internal and external dissemination. Generic communications pertaining to lessons learned are developed and issued to licensees, as appropriate. To ensure that appropriate NRC staff is kept informed of issues, multiple means of discussing and disseminating this information within the NRC are utilized, including weekly NRC senior management meetings, frequent conference calls between headquarters and security staffs in NRC regional offices, annual security counterpart conferences, and working group meetings dealing with specific security issues. To ensure that licensees and other external stakeholders are kept aware of the issues, the NRC uses various generic communications to licensees, e.g., Bulletins, Information Notices, Regulatory Issues Summaries and, when necessary, Orders. Furthermore, the NRC makes use of industry workshops, industry conferences, a protected web server, and meetings such as the annual Regulatory Information Conference to disseminate guidance and information.

We consider this GAO recommendation closed.

Recommendation 3.1

Make force-on-force exercises required activities and strengthen them by conducting the exercises more frequently at each plant.

NRC Response

Prior to the GAO report, NRC had already decided to increase the frequency of the force-on-force exercises conducted by NRC from once every 8 years to once every 3 years (see also response to Recommendation 1). In addition, NRC issued a security Order requiring licensees to periodically conduct their own exercises to improve qualifications and readiness.

We consider this GAO recommendation closed.

Recommendation 3.2

Make force-on-force exercises required activities and strengthen them by using laser equipment to ensure accurate accounts of shots fired.

NRC Response

Recent force-on-force exercises have been utilizing Multiple Integrated Laser Engagement System (MILES) equipment to enhance the realism of the exercises. MILES gear is a ground combat training system used by the Department of Defense, the Department of Energy, and other agencies using modified weapons fitted with laser transmitters that add realism to exercises by simulating combat between protective and adversary forces. It is also a good tool for evaluating licensees' performance.

The NRC is currently considering requiring the use of laser equipment in force-on-force exercises. The NRC will determine whether to require the use of MILES equipment based on the pilot program. The NRC expects to make this determination by June 2004.

This GAO recommendation remains open.

Recommendation 3.3

Make force-on-force exercises required activities and strengthen them by requiring the exercises to make use of the full terrorist capabilities stated in the design basis threat, including the use of an adversary force that has been trained in terrorist tactics.

NRC Response

The NRC initiated the force-on-force pilot program in January 2003 specifically to enhance the realism and value of the tabletop drills and exercises and reduce some artificialities. In the pilot exercises, the mock adversary forces are composed of trained security force members provided by licensees, who are advised by knowledgeable NRC contractors with extensive experience in tactics. Further, the NRC is considering the use of industry-provided, trained adversary forces that meet NRC standards in the future.

These adversaries represent a more complete range of enhanced adversary characteristics based on the revised design basis threat, which becomes effective on October 29, 2004. These characteristics represent the full capabilities of the design basis threat that are suitable for inclusion in the exercises. The NRC staff continues to improve both the mock adversary forces and the exercise controllers based on lessons learned from the pilot exercises.

The NRC anticipates the closure of this recommendation based on the results of the pilot program by June 2004.

This GAO recommendation remains open.

Recommendation 3.4

Make force-on-force exercises required activities and strengthen them by continuing the practice, begun in 2000, of prohibiting licensees from temporarily increasing the number of guards defending the plant and enhancing plant defenses for force-on-force exercises, or requiring that any temporary security enhancements be officially incorporated into the licensees' security plans.

NRC Response

NRC has disallowed supplementation of security forces during exercises. With respect to enhancing licensee security plans, in April 2003, NRC required that security plans, contingency plans, and training and qualification plans for power reactors be upgraded to provide protection against the revised design basis threat.

We consider this GAO recommendation closed.

Recommendation 3.5

Make force-on-force exercises required activities and strengthen them by enforcing NRC's requirement that force-on-force exercise reports be issued within 30 to 45 days after the end of the exercise to ensure prompt correction of the problems noted.

NRC Response

The NRC strives to have all inspection reports meet the timeliness goals. However, the licensees are always clearly and consistently informed of all findings, problems, vulnerabilities, and opportunities for enhancement several times during the conduct of the exercises. At the conclusion of the exercise and before NRC inspectors leave the facility, the NRC ensures that corrective actions are completed or adequate compensatory measures are in place before the long-term corrective actions are completed. Therefore, the issuance of the report is not a critical factor in the prompt correction of the identified problems.

We consider this GAO recommendation closed.

GAO Report - Nuclear Security
Federal and State Action
Needed to Improve Security of
Sealed Radioactive Sources
August 2003
(GAO-03-804)

The General Accounting Office (GAO), in its report "Nuclear Security - Federal and State Action Needed to Improve Security of Sealed Radioactive Sources," made specific recommendations to strengthen NRC's security inspection program. The recommendations and the NRC's responses and report of progress are provided below.

Recommendation 1

The report recommends that to determine the sealed sources of greatest concern, the Chairman of the NRC collaborate with the Agreement States to identify the types, amounts, and availability of the highest risk sealed sources and the associated health and economic consequences of their malicious use. In addition, it recommends that NRC and the Agreement States determine how to effectively mitigate the psychological effects of their use in a terrorist attack.

NRC Response

The NRC agrees with the benefits of working in collaboration with the Agreement States. The NRC has been working more closely with the States since October 2002 to enhance security of radioactive sources. In March 2003, prompt and effective coordination between NRC and the States was essential in supporting U.S. efforts to secure the Nation against potential retaliatory attacks associated with the commencement of the liberation of Iraq (Operation Liberty Shield). In July 2003, the NRC, Organization of Agreement States (OAS), and the Conference of Radiation Control Program Directors (CRCPD) commenced the Materials Security Working Group (MSWG) and Materials Security Steering Committee. These efforts have been productive in achieving a common understanding of the types, amounts, availability, vulnerabilities, and security enhancements for high-risk radioactive sources. As the NRC indicated in our June 26, 2003, comments on the draft report, the NRC, together with the U.S. Department of Energy (DOE), designated the radionuclides of concern and action levels for those isotopes. The NRC has also sought to reconcile the DOE/NRC designation of high-risk radioactive sources with the designation developed by the International Atomic Energy Agency (IAEA) in its draft TECDOC-1344. Since June 2003, international consensus has been reached on TECDOC-1344. In July 2003, consensus was reached on a revised IAEA Code of Conduct on the Safety and Security of Sources. The revised Code of Conduct was endorsed at the IAEA General Conference in September 2003. The U.S. representative to the IAEA made a U.S. commitment to implement the Code of Conduct in October 2003. The MSWG ensures close coordination in the development of additional security measures for those licensees possessing category 1 or category 2 quantities of radionuclides of concern as defined in the revised IAEA Code of Conduct and other materials security issues. The NRC met with the leadership of the OAS and CRCPD on June 6, 2003, to encourage a collaborative approach.

The Materials Security Working Group developed additional security measures for manufacturers and distributors of certain high-risk radioactive sources, and the NRC issued Orders implementing these measures on January 12, 2004. The MSWG is currently developing protective measures for other categories of licensees possessing high-risk radioactive sources (as defined in the Code of Conduct) with completion expected in 2004.

With respect to the second part of the recommendation, it is important to recognize that the NRC's mission is to regulate the Nation's civilian use of byproduct, source, and special nuclear material. The NRC performs its mission through scientific and engineering evaluations of licensed activities that use radioactive materials in order to protect public health and safety and the environment, and to promote the common defense and security. As a part of the mission, the NRC performs incident response planning and preparation, which includes anticipated communications with the public and which accurately characterizes any incident and its potential significance. The NRC can best address the mitigation of the psychological effects potentially caused by malevolent use of radioactive materials by communicating openly and accurately and by continuing to address inaccurate information which finds its way into the public domain.

We consider this GAO recommendation closed.

Recommendation 2

Determine, in consultation with the Agreement States, the costs and benefits of requiring owners of devices that are now generally licensed to apply for specific licenses and whether the costs are commensurate with the risks these devices present.

NRC Response

Prior to focusing on generally licensed devices, the NRC believes that it needs to focus its efforts on cradle-to-grave controls, including export and import controls, for high-risk radioactive sources, as defined by the revised IAEA Code of Conduct. We are currently conducting an initial national inventory of over 2,500 NRC and Agreement State licensees that may possess high-risk sources to determine the number and nature of the sources in their possession. In addition, NRC is developing a system to track the roughly 200 to 250 imports and exports per year of such sources.

Not all types of radioactive material are of concern from an RDD perspective. Most generally licensed sources contain radioactive material that either 1) does not involve radionuclides of concern, such as tritium in exit signs, or 2) is orders of magnitude below the IAEA thresholds of concern. The NRC currently requires the registration of some generally licensed devices. For example, a device is registered if its sources contain 10 millicuries of cesium-137, 0.1 millicurie of strontium-90, 1 millicurie of cobalt-60 or 1 millicurie of americium-241 or any other transuranics (10 CFR 31.5(c)(13)). These levels are, respectively, a factor of 3000; 3,000,000; 8,000; and 20,000 below the Code of Conduct thresholds for these radionuclides. At the lower end of the spectrum, these registered, generally licensed devices would pose little threat of even modest disruption, if used malevolently. There may be some limited number of registered, generally licensed devices that deserve to be brought under a specific license regime. The NRC agrees with the GAO recommendation that it is worth considering the specific licensing of

this limited number of generally licensed devices and that cost/benefit analysis will be useful in making a judgment on that. But this will not involve as stated in the report, "potentially thousands of licensees and devices." A very simple analysis can eliminate all but a very small number of current generally licensed devices from consideration for the additional burden of specific licensing. The NRC will coordinate any effort to expand specific licensing of sources involving radionuclides of concern, or to expand the registration of generally licensed sources, with the States through the MSWG.

This GAO recommendation remains open.

Recommendation 3

Modify NRC's process of issuing specific licenses to ensure that sealed sources cannot be purchased before NRC's verification–through inspection or other means–that the materials will be used as intended.

NRC Response

NRC agrees with the objective of this recommendation and is establishing measures to verify trustworthiness of licensees prior to authorizing receipt of high-risk radioactive sources and other measures. These measures are being coordinated with States through the Materials Security Working Group. The measures will be completed in FY 2004.

This GAO recommendation remains open.

Recommendation 4

Determine how officials in Agreement and non-Agreement States can participate in the development and implementation of additional security measures.

NRC Response

The NRC has established a Materials Security Working Group (MSWG) and Materials Security Steering Committee involving both the Organization of Agreement States and the Conference of Radiation Control Program Directors (CRCPD) to ensure close coordination in the development of additional security Orders.

Since June 2003, the MSWG has diligently worked to develop additional security measures and guidance for high-risk groups of materials licensees. The NRC also coordinated these security measures with the Agreement States at the annual meeting of the Organization of Agreement States in October 2003. Copies of the draft security measures have been provided to the States and the licensees for comment. NRC has also conducted a series of licensee workshops to receive comments. Orders implementing additional security measures for manufacturers and distributors of sources were issued in January 2004. Orders were previously issued to licensees possessing large irradiators in June 2003. The NRC is now addressing other lower-risk classes of licensees who possess high-risk radioactive sources.

NRC is implementing the additional security measures and guidance in Agreement and non-Agreement States using NRC's common defense and security authority under the Atomic Energy Act of 1954, as amended (AEA). NRC has developed a draft agreement under the provisions of section 274i of the AEA (274i Agreement) and associated temporary instruction (TI) to provide for inspections of Agreement State materials licensees in order to verify licensee compliance with NRC Orders. The draft 274i Agreement and associated TI outlines how the NRC and the State will cooperate and will apply to those Agreement States desiring to participate in the inspection of these additional security measures. NRC will conduct inspections in non-Agreement States and in those Agreement States electing not to enter into a 274i Agreement. Focused security training will be provided to both NRC and State inspectors, and inspection effectiveness will be maintained through NRC oversight.

The activity of the MSWG and Materials Security Steering Committee provides an ongoing forum for the Agreement States and non-Agreement States to participate in the development and implementation of additional security measures envisioned by the GAO recommendation. This forum is expected to remain in use through completion of the development of additional security measures for radioactive sources of concern.

We consider this GAO recommendation closed.

Recommendation 5

Include criteria and performance measures of the NRC's and the Agreement States' implementation of additional security measures in NRC's periodic evaluations of its and Agreement States' effectiveness.

NRC Response

We agree with the recommendation to include criteria and performance measures in our periodic evaluations of Agreement State effectiveness. The NRC staff is considering a range of alternatives for how best to ensure the effectiveness of NRC and State efforts to enhance the security of radioactive sources under NRC's common defense and security authority. The NRC will initiate an evaluation program of the additional security measure implementations for the oversight of the NRC Regions and the Agreement States who choose to participate under a 274i Agreement. Work on the criteria and performance measures for performing this evaluation has started and will be coordinated with the Agreement States through the Materials Security Working Group in early 2004. Measures for assessing the effectiveness of the implementation of the additional security measures will likely be finalized in 2005 following completion of the inspection of additional security measures implementation at panoramic and underwater irradiator facilities, scheduled for late 2004.

This GAO recommendation remains open.