March 12, 2007

The Honorable Thomas R. Carper
Chairman, Subcommittee on Clean Air
and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am pleased to provide a summary of actions taken by the NRC in response to recommendations contained in various United States Government Accountability Office (GAO) reports that address NRC activities. The enclosed summary describes the progress made in addressing recommendations remaining open as of, or not included in, our last summary report of April 12, 2006.

Sincerely,

/RA/

Dale E. Klein

Enclosure:
Summary of NRC Actions

cc: Senator George V. Voinovich

Identical letter sent to:

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

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

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

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

The Honorable Peter J. Visclosky
Chairman, Subcommittee on Energy and Water
Committee on Appropriations
United States House of Representatives
Washington, D.C. 20515
cc: Representative David L. Hobson

The Honorable Byron Dorgan
Chairman, Subcommittee on Energy
and Water Development
Committee on Appropriations
United States Senate
Washington, D.C. 20510
cc: Senator Pete V. Domenici

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

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

The Honorable David M. Walker
Comptroller General of the United States
U.S. Government Accountability Office
441 G Street, NW
Washington, D.C. 20548
cc: James E. Wells, Jr.

The Honorable Rob Portman
Director, Office of Management and Budget
725 17th Street, NW
Washington, D.C. 20503

SUMMARY OF NRC ACTIONS

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Enclosure

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

The U.S. Government Accountability Office (GAO), in its report "Nuclear Regulation: Strategy Needed to Regulate Safety Using Information on Risk," made a recommendation to help ensure the safe operation of plants and the continued protection of public health and safety in a competitive environment. The recommendation that remained open as of the NRC's last report and a report of progress during 2006 are provided below.

Recommendation

To help ensure the safe operation of plants and the continued protection of public health and safety in a competitive environment, the GAO recommended that the Commissioners of the 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.

Status:

The NRC agrees on the need for a comprehensive strategy. In response to Commission direction, the staff developed an approach for risk-informing its regulatory activities, and significant progress has been made in this area.

The NRC developed a strategy and a plan (SECY-00-0213, "Risk-Informed Regulation Implementation Plan," dated October 26, 2000). The purpose of the plan is to integrate the Commission's risk-informed 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 NRC'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, 2003, 2004, 2005, and 2006, each of which described the NRC's actions designed to risk-inform its regulatory activities. In June 2006, the Commission directed the staff to improve the risk-informed regulation implementation plan (RIRIP) so that it is an integrated master plan for activities designed to help the NRC achieve the Commission's goal of a holistic, risk-informed and performance-based regulatory structure. Progress on improving the RIRIP continues with a focus on improving the up-front planning process and the addition of an effectiveness review process.

The most recent updates of the RIRIP (SECY-06-0089, "Update of the Risk-Informed Regulation Implementation Plan," dated April 18, 2006, and SECY-06-0217, "Improvement to and Update of the Risk-informed Regulation Implementation Plan," dated October 25, 2006) include activities which support the NRC's Strategic Plan (FY 2004 - FY 2009). Among the accomplishments for 2006, some of which are listed in the most recent RIRIP updates, are the following:

- continued development of a proposed rulemaking to allow the voluntary use of risk information in refining requirements for how nuclear power plants handle loss-of-coolant accidents of various sizes. Public workshops and meetings were held throughout 2006 to discuss comments received on the proposed rule, which was published for comment in November 2005. The draft final rule language was initially posted on the NRC's rule forum Web site in July 2006. In October 2006, updated final rule language was posted to the rule forum Web site. In a letter dated November 16, 2006, the NRC's Advisory Committee on Reactor Safeguards identified several issues with the proposed rulemaking, which the NRC staff is currently evaluating to determine how to proceed.

- issuance for public comment of draft NUREG-1829, "Estimating Loss-of-Coolant Accident (LOCA) Frequencies Through the Elicitation Process." This report provides preliminary LOCA frequency estimates, which have been developed using an expert elicitation process to consolidate service history data and insights from probabilistic fracture mechanics studies with the knowledge of plant design, operation, and material performance. The NRC staff has evaluated public comments received on NUREG-1829 and expects to issue a final draft version of the NUREG in early 2007.

- completion of several activities under the risk management of the technical specifications program. The purpose of these activities is to (1) provide flexibility in the time frame during which equipment can be repaired, (2) develop a risk-informed process that would establish surveillance intervals based on risk insights, and equipment availability and reliability, and (3) establish a risk-informed time period for when equipment must be declared inoperable due to loss of a support function.

- issuance of an Advance Notice of Proposed Rulemaking for a risk-informed and performance-based revision to 10 CFR Part 50 in May 2006. The NRC conducted several meetings with stakeholders to solicit feedback on the potential rulemaking and is evaluating comments received. The comment period expired on December 29, 2006.

- implementation of a new performance indicator, called the Mitigating Systems Performance Index (MSPI), as part of the reactor oversight process. The MSPI replaces the previous Safety System Unavailability Performance Indicator and monitors risks associated with changes in performance of selected mitigating systems and accounts for plant-specific design and performance data. The MSPI is one of 15 performance indicators that the NRC uses in the reactor oversight process.

- issuance of Regulatory Guide 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants." This regulatory guide supports implementation of 10 CFR 50.48(c), which endorses the National Fire Protection Association (NFPA) standard NFPA 805, "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants."

- issuance of draft NUREG-1824, "Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications," for public comment. This report documents the verification and validation of five fire models that are commonly used in nuclear power plant applications and is supportive of the efforts to transition to a risk-informed and performance-based fire protection program.

- issuance of NUREG-1842, “Evaluation of Human Reliability Analysis Methods Against Good Practices.” This report documents the evaluation of various commonly used human reliability analysis methods against established good practices. This evaluation supports efforts to define an acceptable level of quality in probabilistic risk assessment (PRA) applications.

- issuance of NUREG/CR-6903, “Human Event Repository and Analysis (HERA) System Overview.” This report documents the development of a database of human events, which will be used for performing human reliability analysis assessments.

- issuance of a draft report, “A Pilot Probabilistic Risk Assessment for a Dry Cask Storage System at a Nuclear Power Plant.” The report provides a methodology for assessing the potential risk from the storage of spent fuel in a dry cask storage system.

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

- further improvements to the RIRIP to help the NRC achieve the Commission’s goal of a holistic risk-informed and performance-based regulatory structure.

- continued development of the human event repository and analysis database. This project is designed to support risk-informed decision making through the development of improved data for performing human reliability analysis.

- continued progress on various activities under the Risk Management of Technical Specifications project, such as modification of technical specifications to reflect a configuration risk management approach that is more consistent with the NRC’s maintenance rule (10 CFR 50.65) and modification of limiting conditions for operation and associated completion times.

- continued development of PRA quality standards and supporting guidance in close cooperation with national standards organizations. The increased use of PRAs in the NRC’s regulatory decision-making process requires consistency in the quality, scope, methodology, and data used in such analyses. To achieve this objective, professional societies, standards organizations, and the NRC staff have undertaken various initiatives to establish consensus standards and guidance on the use of PRA in regulatory decision making.

- continued development of plant-specific PRAs (known as SPAR models) that model accident sequence progression, plant systems and components, and plant operator actions. These models are easy-to-use tools that enable the NRC staff to perform risk-informed regulatory activities by independently assessing the risk of events or degraded conditions at operating nuclear power plants.

- continued progress on the State-of-the-Art Reactor Consequence Analyses. The purpose of this project is to develop a best estimate of the risk to public health and safety in the unlikely event of a severe accident at a nuclear power plant. Analyses will be performed for representative operating nuclear power plants using a set of risk-informed scenarios. The project will take advantage of vastly improved methods and

models that have been developed from research and analysis over the past 25 years, and will reflect current nuclear power plant designs and operations.

- evaluation and updating of the NRC's risk-informed training program for staff and management. The purpose of this project is to update the NRC's training program to reflect current PRA methods, practices, and tools, and how they are used in NRC decision making.

During the last few years, the NRC has made significant progress toward risk-informing its regulatory activities by incorporating risk-informed analysis and decision making into its regulatory processes. The NRC has developed a strategy to transition to risk-informed regulations, which has been incorporated into the RIRIP; has made progress toward the strategic plan goals of safety and effectiveness as applied to reactors, materials, and waste; and continues to make improvements in PRA quality, risk analysis, and risk assessment.

While NRC efforts to institutionalize risk-informed regulatory practices for nuclear power plants are continuing, based on progress to date, the NRC considers this recommendation to be closed.

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

The U.S. Government Accountability Office (GAO), in its report "Nuclear Security: Federal and State Action Needed to Improve Security of Sealed Radioactive Sources," made specific recommendations to strengthen the NRC's security inspection program. The recommendation that remained open as of the NRC's last report and a report of progress during 2006 are provided below.

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.

Status:

Using a risk-informed, graded approach, the NRC and Agreement States have regulated sources and devices in accordance with the Atomic Energy Act of 1954, as amended, by issuing specific licenses, providing provisions in its regulations for general licenses, and providing provisions in its regulations for exemption from licensing (e.g., smoke detectors). The NRC and Agreement States have identified and cataloged the sources of greatest concern; i.e., high-risk sources defined by the International Atomic Energy Agency's (IAEA's) Code of Conduct as Category 1 and Category 2. While some generally licensed devices may include radionuclides defined in the Code of Conduct, the quantities are typically orders of magnitude less than the Category 1 and Category 2 threshold quantities. A one-time inventory of radioactive sources above one-fourth of the Category 3 threshold was begun in 2006 and will be completed in August 2007.

In a December 2000 rulemaking regarding registration of generally licensed devices (10 CFR Parts 30, 31, and 32), the NRC decided not to convert certain general licensees to a new category of specific licensees. Instead, the revisions that were made in the rule were designed to improve control and accountability devices used under the general license provisions, especially for certain devices that are required to be registered. Devices used under the general license are designed to be inherently safe to use so that a license application process to evaluate the prospective licensee would not be necessary. Making all general licensees, which number over 100,000 Nationwide, become specifically licensed would be a major change in the requirements for this group of licensees and would require the significant expenditure of resources by both the NRC, Agreement States, and the licensees. The safety and security risks posed by most devices used under the general license would not warrant such an expenditure of resources.

However, NRC plans to initiate a rulemaking in FY 2007 to examine the delineation between general licensing and specific licensing for byproduct materials. As part of the rulemaking, the NRC will determine the appropriateness of the criteria under which the NRC approves devices to be distributed under a general license, including better assurance that larger source

quantities will not be approved for generally licensed devices, with particular attention paid to the radionuclides identified in the Code of Conduct. The rulemaking process would include consultation with stakeholders, including Agreement States.

After 9/11 and the issuance of the Code of Conduct, the NRC performed a review of its Sealed Source and Device (SSD) Registry and determined that all IAEA Category 1 sources are already specifically licensed by the NRC and Agreement States. Additionally, with the exception of one type of generally licensed device, all Category 2 source devices are also specifically licensed. The NRC and the Agreement States have identified all devices of this type currently in use under a general license. On a case-by-case basis, the security of these devices is being evaluated and controlled. As the rulemaking discussed above proceeds, the NRC will work with the general licensees and the holders of the SSD certificates.

Furthermore, NRC regulations also require a specific license for all distributors of devices to general licensees. Additionally, NRC regulations under 10 CFR 31.5 require that any person who acquires, receives, possesses, uses, or transfers a generally licensed device must maintain the records of compliance with these requirements; notify the manufacturer and the NRC or Agreement State of any device failure, damage, loss, or theft; not abandon or export the device; and transfer the device only in accordance with specific restriction. The NRC continues to work with the Agreement States to identify sources of concern.

This GAO recommendation remains open.

GAO Report - Information Technology Management:
Governmentwide Strategic Planning, Performance Measurement,
and Investment Management Can Be Further Improved
February 2004
(GAO-04-49)

The U.S. Government Accountability Office (GAO), in its report, "Information Technology Management: Governmentwide Strategic Planning, Performance Measurement, and Investment Management Can Be Further Improved," made several recommendations with respect to improving the NRC's Information Technology (IT) strategic planning and performance measurement processes. The recommendations that remained open as of the NRC's last report and a report of progress during 2006 are provided below.

Recommendation 1

To improve the agency's IT strategic planning/performance measurement processes, the GAO recommends that the Commissioners of the Nuclear Regulatory Commission:

a. document the agency's roles and responsibilities for its IT strategic management processes and how IT planning is integrated with its budget and human resources planning;

   Status:

   The NRC's roles and responsibilities for its IT strategic management processes and how IT planning is integrated with the NRC's budget and human resources planning are documented in Section 5 of the Information Technology/Information Management (IT/IM) Strategic Plan FY 2008 - 2012. The IT/IM Strategic Plan is posted on the NRC's Web site at: http://www.nrc.gov/who-we-are/it-im-strategic-plan.pdf.

   The NRC considers this recommendation to be closed.

c. develop a documented process to assign roles and responsibilities for achieving its enterprisewide IT goals;

   Status:

   The process NRC has established for assignment of roles and responsibilities for achieving NRC's enterprisewide IT goals is documented in Section 5 of the Information Technology/Information Management (IT/IM) Strategic Plan FY 2008 - 2012. The IT/IM Strategic Plan is posted on the NRC's Web site at: http://www.nrc.gov/who-we-are/it-im-strategic-plan.pdf.

   The NRC considers this GAO recommendation to be closed.

d. develop performance measures related to the effectiveness of controls to prevent software piracy;

Status:

Since January 2003, the NRC has been conducting monthly software monitoring to ensure ongoing compliance with licensing requirements. A performance measure to assess the effectiveness of controls to prevent software piracy has been added to the Operating Plan for NRC's Office of Information Services. This performance measure supports Goal 4 (Provide an IT/IM infrastructure that is secure, robust, reliable, and responsive to changing business needs) in the NRC's IT/IM Strategic Plan.

The NRC considers this GAO recommendation to be closed.

e. develop performance measures for the agency's enterprise goals in its IRM plan, and track actual-versus-expected performance for these measures.

Status:

At the NRC, the IT/IM Strategic Plan and the IRM plan are synonymous. Performance measures for the NRC's enterprise goals are contained in the IT/IM Strategic Plan. The IT/IM Strategic Plan is posted on the NRC's Web site at: http://www.nrc.gov/who-we-are/it-im-strategic-plan.pdf.

The NRC considers this GAO recommendation to be closed.

Recommendation 2

To improve the agency's IT investment management processes, the GAO recommended that the Commissioners of the Nuclear Regulatory Commission:

a. include a description of the relationship between the IT investment management process and the department's other organizational plans and processes and its enterprise architecture, and identify external and environmental factors that influence the process in the agency's IT capital planning and investment control policy;

Status:

The NRC's Planning, Budgeting, and Performance Management Process (PBPM) addresses how the IT investment management process and the NRC's other organizational plans and processes are related. Specifically, PBPM integrates the NRC's strategic planning, budgeting, and performance management processes. PBPM links four individual components: (1) setting the NRC's strategic direction, (2) determining activities and performance targets of component offices and related resources, (3) executing the budget, and monitoring performance targets and taking corrective actions, if needed, to achieve those targets, and (4) assessing the NRC's progress toward achieving its goals. IT investments proposed through the PBPM process are then managed through the NRC's Project Management Methodology (PMM), which requires compliance with the NRC's

capital planning and investment control (CPIC) and information technology architecture requirements.

The relationship between the IT investment management process and the NRC's other organizational plans and processes and its enterprise architecture is addressed through NRC Management Directive 2.8, "Project Management Methodology," which provides an integrated approach to capital planning and investment control, enterprise architecture, project management, and business process improvement, culminating in a full project life cycle methodology. An interim version of Management Directive 2.8 was issued by the NRC's Executive Director for Operations on July 31, 2007, for NRC staff use pending approval of the directive by the Chairman for publication.

The NRC's IT capital planning and investment control policy, formerly in Management Directive 2.2, "Capital Planning and Investment Control," is now contained in Management Directive 2.8.

Supporting processes and documentation for the CPIC policy address the various internal and external factors that influence the IT investment management process. For example, the Vision Statement, a required document for a Tier 1 business case, includes a requirement to address how the investment supports the NRC Strategic Plan, which includes a number of internal and external factors, such as how the investment protects public health and safety and the environment. Also, the IT investment management process itself is influenced by external factors such as new guidance from the Office of Management and Budget and from the National Institute of Standards and Technology. Finally, the IT investment management process is closely linked with the NRC's enterprise architecture. The enterprise architecture is influenced by the Federal Enterprise Architecture and specific investment decisions are influenced by the various Federal Lines of Business.

The NRC will consider this GAO recommendation to be closed on publication of final Management Directive 2.8.

b. develop work processes and procedures for the agency's investment management boards;

Status:

Work processes and procedures for the NRC's investment management boards are contained in the Project Management Methodology (PMM). The PMM documents the NRC's processes for aligning and coordinating NRC IT investment decision making and the roles and responsibilities of the NRC's investment management boards. Within PMM, the NRC has documented the Agency Information Technology Governance Framework, which provides a high-level outline of the NRC's board processes. The Agency IT Governance Framework is a four-tiered approach to planning and managing the NRC's IT investments.

The NRC considers this GAO recommendation to be closed.

d. develop a structured IT investment management selection process that includes project selection criteria, a scoring model, and prioritization of proposed investments;

Status:

The NRC's Project Management Methodology provides an integrated approach to capital planning and investment control, enterprise architecture, and project management, and is described in NRC Management Directive 2.8, "Project Management Methodology." The capital planning and investment control component of the PMM includes a structured IT investment management selection process that includes project selection criteria based on a three-tier investment model.

Tier 3 investments are approved by the sponsoring office director and consist of those IT investments that fall below the life cycle cost threshold of $500,000, do not affect the IT infrastructure, and use only the approved tools/technologies as defined in the NRC Technical Reference Model. Tier 2 investments are approved by the CIO and consist of those IT investments that meet or exceed a life cycle cost threshold of $500,000 (but below the Tier 1 threshold) that require some level of management control and oversight to effectively deal with special security, architecture, coordination, staffing, or other concerns with these investments. Tier 1 investments are approved by the Executive Director for Operations and consist of those major IT investments that meet or exceed a life cycle cost threshold of $1,500,000 (or $500,000 for financial management systems) or have other characteristics that are of particular interest to NRC management or to the Office of Management and Budget.

The NRC has also been using Prosight (TM) as its IT investment portfolio management tool since FY 2005. Prosight utilizes criteria and an investment scoring model. The NRC also uses Decision Lens (TM) to rate and prioritize investments with documented criteria.

The NRC will consider this recommendation to be closed on publication of final Management Directive 2.8.

e. document the role, responsibility, and authority of its IT investment management boards, including work processes and control, and evaluate processes that address the oversight of IT investments, such as what is outlined in practices 2.15, 2.16, 2.17, and 2.18.

Status:

The NRC has developed a streamlined and integrated set of instructions for managing the design, development, operation, maintenance, and decommissioning of information technology investments. The process is called "Project Management Methodology" (PMM), and it provides a framework for improving the NRC's IT investment management processes. The PMM addresses policies and procedures heretofore separately covered in NRC policies and procedures for capital planning and investment control, enterprise architecture, security, infrastructure development process model, and systems development life cycle management methodology. Both the PMM and the IT investment portfolio management program provide the foundation and information necessary to provide better managerial oversight of IT investments. The NRC is continuing work to establish and document the Agency IT Governance Framework that delineates roles and responsibilities.

As this new integrated set of instructions and improved policies are implemented, the NRC intends to adopt the most applicable IT investment management best practices made available through GAO/AIMD-10.1.23, *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, as well as other sources to continually update NRC processes. Best practices that fit the NRC will be utilized in conjunction with the existing Planning, Budgeting, and Performance Management process to enhance the oversight of IT investments, consistent with practices 2.15, 2.16, 2.17, and 2.18. The new PMM instructions fully address information technology investments throughout the life cycle with appropriate evaluations taking place at each stage. The portfolio management program provides a much improved oversight mechanism that will better enable managerial decision making, corrective actions, verification and validation of projects, and other activities. The first phase of the improved IT investment management policies and processes became operational during FY 2005.

The NRC's Project Management Methodology, which is described in Management Directive 2.8, includes a section on Roles. This section describes the roles, responsibilities, and authorities of the IT investment management boards, which include the Enterprise Architecture Review Board (EARB), the Information Technology Business Council (ITBC), the Information Technology Senior Advisory Committee (ITSAC), and the Program Review Committee (PRC). These entities evaluate processes that address the oversight of IT investments. For example, the EARB concurs on significant changes to the NRC's enterprise architecture and makes recommendations to the ITBC on the investments needed for the target architecture. The ITSAC sets the IT investment strategy for the NRC, assuring a balance of programmatic and infrastructure IT support; reviews, concurs, and prioritizes the IT investment portfolio provided by the ITBC and submits it to the Chief Information Officer; and, when requested by the Chief Information Officer, serves as the executive review function for significant issues in the management control and evaluation phases of the capital planning and investment control. The ITBC and the ITSAC also have charters in place.

The NRC considers this GAO recommendation to be closed.

GAO Report - Nuclear Regulation: NRC Needs to More Aggressively and Comprehensively Resolve Issues Related to the Davis-Besse Nuclear Power Plant's Shutdown
May 2004
(GAO-04-415)

The U.S. Government Accountability Office (GAO), in its report "Nuclear Regulation: NRC Needs to More Aggressively and Comprehensively Resolve Issues Related to the Davis-Besse Nuclear Power Plant's Shutdown," made several recommendations for addressing problems that contributed to the Davis-Besse vessel head degradation and that could occur at nuclear power plants in the future. The recommendations that remained open as of the NRC's last report and a report of progress during 2006 are provided below.

Recommendation 3

Develop a methodology to assess licensees' safety culture that includes indicators of and inspection information on patterns of licensee performance as well as on licensees' organization and processes. The NRC should collect and analyze this data either during the course of the agency's routine inspection program or during separate targeted assessments, or during both routine and targeted inspections and assessments, to provide an early warning of deteriorating or declining performance and future safety problems.

Status:

The GAO stated in its final report that its recommendation is "aimed at NRC monitoring trends in licensees' safety culture as an early warning of declining performance and safety problems." The NRC agrees with aspects of the GAO's recommendation, as clarified in the final report. Detecting early warning signs of declining performance and safety problems is a key aim of the NRC's reactor oversight process (ROP). The NRC is committed to licensee development and maintenance of a strong safety culture, including commitment to safety, technical expertise, and good management, and has made significant progress integrating assessment of nuclear power plant licensees' safety culture into the ROP.

On October 19, 2005, the NRC submitted SECY-05-0187, "Status of Safety Culture Initiatives and Schedule for Near Term Deliverables" to the Commission. This paper updated the Commission on plans and activities to enhance the NRC's oversight of operating reactors to address safety culture more fully. The Commission provided direction to the staff in a staff requirements memorandum on December 21, 2005, which included the following:

- Continue to interact with external stakeholders and build from enhancements already made to the reactor oversight process (ROP) in response to the Davis-Besse Lessons-Learned Task Force.

- Develop a process for determining if an evaluation of safety culture is warranted when a plant falls into the degraded cornerstone column of the ROP action matrix.

- Document significant changes to the ROP addressing safety culture in the ROP guidance documents and/or basis documentation.

- Ensure that the resulting modifications to the ROP are consistent with the regulatory principles that guided the development of the ROP so that the process remains transparent, understandable, objective, predictable, risk-informed, and performance-based.

Following receipt of the Commission's guidance, the staff held a number of public meetings with external stakeholders and, with the full participation of these stakeholders, developed an approach to enhance the ROP to address safety culture more fully. This resulted in modifications to selected NRC inspection manual chapters (IMCs) and inspection procedures (IPs).

On May 24, 2006, the staff submitted SECY-06-0122, "Safety Culture Initiative Activities to Enhance the Reactor Oversight Process and Outcomes of the Initiative" to the Commission, which provided a status of plans and activities to enhance the ROP to address safety culture more fully. The NRC subsequently issued Regulatory Issue Summary 2006-13, "Information on the Changes Made to the Reactor Oversight process to More Fully Address Safety Culture" on July 31, 2006, to inform nuclear power reactor licensees of the major safety culture enhancements that were made to the ROP. As modified, the ROP continues to provide a graded approach to plant performance issues such that the range of regulatory actions increases as licensee performance degrades and licensees move to the right in the ROP action matrix. The key features of the revised ROP include the following:

- Inspector development of findings and the assessment of performance deficiencies for crosscutting aspects that are consistent with current practice.

- The existing crosscutting areas of human performance, problem identification and resolution, and safety-conscious work environment were revised to incorporate components that are important to safety culture.

- IMC 0612, "Power Reactor Inspection Reports," was revised to reference IMC 0305, "Operating Reactor Assessment Program," to ensure that when the NRC identifies findings with crosscutting aspects, NRC inspectors use language that parallels the descriptions of the crosscutting area components in IMC 0305. IMC 0612 also provides inspectors additional guidance on inspecting and documenting performance deficiencies that appear to have a safety-conscious work environment aspect as a contributor.

- The NRC revised the event response procedures in IP 71153, "Event Follow-up," IP 93812, "Special Inspection," and IP 93800, "Augmented Inspection Team," to direct inspection teams to consider, as part of their efforts to understand fully the circumstances surrounding an event and its probable causes, the contributing causes related to the safety culture components.

- The NRC revised the assessment process and the expected the NRC and licensee actions provided in the ROP action matrix in response to inspection and performance indicator results as follows:

- For the third consecutive assessment letter identifying the same substantive crosscutting issue with the same crosscutting theme, the IMC 0305, "Operating Reactor Assessment Program," was modified to provide an option for the NRC to request that the licensee perform an assessment of safety culture.

- For licensees in the licensee response column of the action matrix, the NRC performs the baseline inspection program. Baseline IP 71152, "Identification and Resolution of Problems," was revised to clarify the guidance for inspectors to assess the effectiveness of the corrective action program, the use of operating experience information, and the results of independent and self-assessments. The revised procedure specifies that inspectors review the results of a licensee self-assessment of safety culture, if performed, and directs inspectors to be aware of safety culture components when selecting samples. Also revised were the suggested inspector questions in the IP to improve assessment of the licensee's safety-conscious work environment.

- For licensees in the regulatory response column, IP 95001, "Supplemental Inspection for One or Two White Inputs in a Strategic Performance Area," was modified to verify that the licensee's root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture components as described in IMC 0305.

- For licensees in the degraded cornerstone column, IP 95002, "Supplemental Inspection Procedure for One Degraded Cornerstone or Any Three White Inputs in a Strategic Performance Area," was modified to require inspectors to determine independently whether any safety culture components caused or significantly contributed to individual or collective (multiple white inputs) risk-significant performance issues. If the NRC determines that the licensee did not recognize that safety culture components caused or significantly contributed to the risk-significant performance issues, the NRC may request the licensee to complete an independent assessment of safety culture in accordance with IMC 0305.

- For licensees in the multiple/repetitive degraded cornerstone column of the action matrix, IMC 0305 provides the expectation that the licensee will perform an independent assessment of its safety culture. In such cases, the NRC will use IP 95003, "Supplemental Inspection for Repetitive Degraded Cornerstone or Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," to (1) assess the licensee's third-party evaluation of its safety culture and (2) independently perform an assessment of the licensee's safety culture, in addition to the traditional aspects of IP 95003 inspections. The IP 95003 inspection team will include inspectors and safety culture assessors.

The ROP safety culture enhancements for the baseline inspection program became effective on July 1, 2006. The final supplemental IP (IP 95003) enhanced as part of the safety culture initiative was issued on October 26, 2006. The revised ROP guidance is being monitored and assessed during an initial 18-month implementation period, and the staff will identify any changes that need to be made based on the lessons learned. NRC inspector training on safety culture in general and on the changes to the ROP to address safety culture more fully was provided through computer-based training and during regional inspector counterpart meetings.

The enhanced ROP provides mechanisms to identify safety culture-related problems earlier and to prevent further degradation in licensee performance.

The NRC considers this GAO recommendation to be closed, based on development of a methodology to assess safety culture and collection and analysis of the associated data. The effectiveness of this methodology and the need, if any, for any additional methods or processes, will be tracked under related GAO recommendation 1.a. of report number -06-1029.

Recommendation 5

Improve the NRC's use of probabilistic risk assessment estimates in decision making by (1) ensuring that the risk estimates, uncertainties, and assumptions made in developing the estimates are fully defined, documented, and communicated to the NRC decision makers and (2) providing guidance to decision makers on how to consider the relative importance, validity, and reliability of quantitative risk estimates in conjunction with other qualitative safety-related factors.

Status:

The NRC has advanced the use of probabilistic risk assessment (PRA) estimates in decision making and remains committed to continuous improvement in this field. The development and use of Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Bases," has improved the NRC's ability to focus on safety while becoming more efficient, effective, and open. There is an ongoing initiative to endorse PRA standards developed by the American Society of Mechanical Engineers and the American Nuclear Society in Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." This regulatory guide provides guidance for determining whether the quality of a PRA is sufficient to support a regulatory application.

In addition, the NRC has a number of ongoing activities focused on the development of improved methods for calculating risk in support of risk-informed regulatory decision making. These activities include improved methods and practices for implementing human reliability analysis and developing methods and tools for quantifying and assessing uncertainties in a complex engineering assessment.

These activities will provide improvement in the long-term. In the near-term, as indicated in the GAO's recommendation, there is a need to improve the decision-making process to clearly address the uncertainties in the risk analysis. In response to the GAO's recommendation, in February 2005, the NRC formed a cross-office team that met on a periodic basis to develop guidelines for making and documenting risk-informed decisions for those issues that are not addressed by current NRC processes, providing specific guidelines for taking regulatory actions (i.e., immediately effective orders), and emphasizing the need to document and communicate the results from analyses performed as part of this process, including any uncertainties in the analyses, to support fully informed and timely management decisions. This work resulted in the issuance on October 31, 2005, of Office of Nuclear Reactor Regulation office instruction LIC-504, "Integrated Risk-Informed Decision-Making Process for Emergent Issues." This office instruction outlines a process for development and documentation of risk-informed decisions and provides guidance specifically developed for risk-informed decisions that are not already

covered by established processes. Portions of the guidance can also be used for any risk-informed decisions to the extent needed. Revision 1 to the office instruction was issued on December 20, 2005, to clarify guidance on regulatory actions. Revision 2 to the office instruction, which was finalized on February 12, 2007, issues the instruction for use (vice trial use) and incorporates lessons learned from a table top exercise conducted in 2006 to make the guidance more user-friendly.

The NRC considers this GAO recommendation to be closed.

GAO Report - Nuclear Regulatory Commission: NRC Needs to Do More to Ensure That Power Plants Are Effectively Controlling Spent Nuclear Fuel
April 2005
(GAO-05-339)

The U.S. Government Accountability Office (GAO), in its report "Nuclear Regulatory Commission: NRC Needs to Do More to Ensure That Power Plants Are Effectively Controlling Spent Nuclear Fuel," made two recommendations to improve the effectiveness of nuclear reactor licensees' material control and accounting programs for spent nuclear fuel. The recommendations that remained open as of the NRC's last report and a report of progress during 2006 are provided below.

Recommendation 1

Establish specific requirements for the control and accounting of loose spent fuel rods and rod segments and nuclear reactor licensees' conduct of their physical inventories.

Status:

As stated in the NRC's comments on the draft GAO report, the NRC believes the regulations related to material control and accounting (MC&A) are clear and do not need revision to address this specific recommendation, although the regulations regarding MC&A are being revised to address other issues. Under 10 CFR 74.19, each licensee is required to keep records of receipt, shipment, disposal, and inventory (including location) of all special nuclear material in its possession and to perform annual physical inventories of all special nuclear material. In this context, all special nuclear material includes irradiated nuclear fuel in all forms and includes rods and pieces. This regulation was the basis for a Severity Level II violation and a civil penalty assessed against the licensee for the Millstone Unit 1 for the missing fuel rods incident.

In response to the issues at Millstone Unit 1, the NRC issued Temporary Instruction (TI) 2515/154, "Spent Fuel Material Control and Accounting at Nuclear Power Plants," and conducted detailed inspections of MC&A programs at one decommissioning and 12 operating nuclear power plants. The NRC staff analyzed the results of the inspections conducted in 2005 and issued a report to the Commission in April 2006. Based on the results of the 13 inspections, the staff recommended that inspections of facilities' MC&A programs be conducted at all nuclear power plants and wet storage facilities. During 2006, NRC inspectors completed inspections of MC&A programs at 5 more operating nuclear power plants, 1 more decommissioning nuclear power plant, and 2 wet storage facilities, bringing the total number of MC&A inspections at power plants and wet storage sites to 21. The initial staff recommendation called for completion of the inspections at the remaining sites within 3 to 5 years. In July 2006, the NRC decided to accelerate the inspection program and committed to complete the remaining inspections by FY 2007. Inspections are scheduled at 48 more operating power plants, 1 more decommissioning nuclear power plant, and 2 more wet storage facilities.

The NRC agrees that licensees need more specific guidance in the control and accounting of rods and pieces and the conduct of physical inventory. In January 2007, the NRC sponsored a workshop with industry representatives to inform the industry of the inspection results and the path forward for the remaining inspections to be conducted in FY 2007. The workshop included presentations by industry and the NRC on lessons learned from the TI inspections conducted in 2005 and 2006. The lessons learned included a discussion of findings identified in the inspections.

The NRC plans to revise its guidance to emphasize that the regulations apply to rods and pieces that have been separated from their parent assemblies. The NRC will revise the guidance documents for MC&A at nuclear power plants, including Regulatory Guide 5.29, "Nuclear Material Control Systems for Nuclear Power Plants," and Regulatory Guide 5.49, "Internal Transfers of Special Nuclear Material," following completion of the current effort to complete inspections at all facilities during FY 2007.

The NRC staff has assumed responsibility for leading an American National Standards Institute (ANSI) committee to revise its standard N15.8, "Nuclear Material Control Systems for Nuclear Power Plants." The scope of the standard is to establish guidelines for the control and accounting of special nuclear material at nuclear power plants. Meetings of the writing committee, which is comprised of the NRC, Department of Energy, and industry representatives, were held in March, September, October, and December 2006. The draft standard was presented at the workshop held in January 2007, and additional comments were received from industry at that time. A follow-up meeting of the writing committee is planned for spring 2007 to incorporate the comments and finalize the draft standard for approval by ANSI. The existing standard N15.8-1974 was endorsed by the NRC in Regulatory Guide 5.29. If the revised standard is approved, the NRC plans to review the standard for endorsement in the revised Regulatory Guide 5.29.

This GAO recommendation remains open.

Recommendation 2

Develop and implement appropriate inspection procedures to verify compliance and assess the effectiveness of licensees' material control and accounting programs for spent fuel.

Status:

The NRC is in the process of developing inspection procedures to assess the effectiveness of licensees' MC&A programs, including control and accounting of separated fuel rods and rod pieces. Because inspections of all power reactor sites under TI 2515/154 are being accelerated during FY 2007, the NRC has postponed implementing the revision of Inspection Procedure (IP) 85102, "MC&A - Reactors." The revision, which NRC expects to implement by the end of 2007, will take into consideration the information from inspectors collected at all sites under TI 2515/154 and other information reported by licensees in response to NRC Bulletin 2005-01.

As stated above, the NRC has conducted 21 detailed inspections under the TI and has analyzed the inspection results. The NRC will include lessons learned from all inspections as it develops and implements appropriate inspection procedures to verify compliance and assess the effectiveness of licensees' MC&A programs for spent fuel.

This GAO recommendation remains open.

GAO Report - Internet Protocol Version 6: Federal Agencies Need to Plan for Transition and Manage Security Risks
May 2005
(GAO-05-471)

The U.S. Government Accountability Office (GAO), in its report, "Internet Protocol Version 6: Federal Agencies Need to Plan for Transition and Manage Security Risks," recommended that agency heads take action to address near-term security risks and initiate steps to ensure they can control and monitor Internet Protocol Version 6 (IPv6) traffic. The recommendation that remained open as of the NRC's last report and a report of progress during 2006 are provided below.

Recommendation for Agency Heads

Because of the immediate risk that poorly configured and unmanaged internet protocol version 6 (IPv6) capabilities present to Federal agency networks, the GAO recommended that agency heads take immediate actions to address the near-term security risks, including determining what IPv6 capabilities they may have, and initiate steps to ensure that they can control and monitor IPv6 traffic.

Status:

Prior to August 2005, the NRC had a three-phase approach to planning for and implementing IPv6 by September 2009. Based on the Office of Management and Budget's (OMB's) guidance memorandum dated August 2, 2005, regarding transition planning for IPv6, the NRC revised its approach to become aligned with OMB's requirements. The actions to be implemented were described in four phases, leading up to all agency infrastructures (network backbones) using PIv6 and all agency networks interfacing with this infrastructure by June 2008. As of June 2006, the NRC completed the OMB's Phases I, II, and III mandates and is currently in the early stages of developing IPv6 design and implementation plans in support of the Phase IV mandates.

To address near-term security risks of poorly configured and unmanaged IPv6 capabilities to NRC networks, the NRC has taken several actions. As of December 22, 2005, the NRC implemented an IPv6 use policy that currently disallows the use of IPv6 on production networks until government-wide assessment of associated vulnerabilities is completed and a decision is made about whether IPv6 can be securely deployed. The NRC is following guidance from the OMB, the Chief Information Officer's Council, the IPv6 Federal Working Group, the National Institute for Standards and Technology, and the information technology industry. Once these entities state that IPv6 can be secured, the NRC will assess the risks of deploying and leaving IPv6 up and running in the production environment. The NRC has limited IPv6 traffic through the internet firewall based on previously issued IPv6 vulnerability warnings. To identify IPv6 traffic, the NRC has deployed limited intrusion detection system signatures that have discovered and shut down some IPv6 clients. Additionally, the NRC is currently researching commercial offerings for IPv6 intrusion detection systems that will recognize IPv6 traffic and provide alerts if present. IPv6 requirements have been integrated into the NRC's planned network infrastructure refresh, which is scheduled to begin during the Summer of 2007. This will ensure that the NRC network backbone will be IPv6-capable in time to meet the June 2008

OMB mandate to deploy IPv6 on the network backbone. However, if IPv6 can not be deployed securely by June 2008, the NRC plans only to test the IPv6 capabilities in accordance with the OMB suggested tests and then shut down IPv6 on the production network.

The NRC considers this GAO recommendation to be closed.

GAO Report - Nuclear Security: DOE Needs Better Information to Guide Its Expanded Recovery of Sealed Radiological Sources
September 2005
(GAO-05-967)

The U.S. Government Accountability Office (GAO), in its report, "Nuclear Security: DOE Needs Better Information to Guide Its Expanded Recovery of Sealed Radiological Sources," made recommendations for ensuring the control and safe disposal of sealed radiological sources. The recommendation that remained open as of the NRC's last report and a report of progress during 2006 are provided below.

Recommendation

The Secretary of Energy and the Chairman of the U.S. Nuclear Regulatory Commission (NRC), in collaboration with the Task Force on Radiation Source Protection and Security, should evaluate and report on:

- the cost implications of a potential expansion of the Department of Energy's (DOE's) recovery and disposal of non-greater-than-Class-C (GTCC) waste from sealed radiological sources,
- options for DOE to recoup these costs from licensees that may have no commercial waste disposal options,
- the feasibility of disposing of this waste at DOE sites, and
- how a national source tracking system can be designed and implemented to improve DOE's ability to identify and track sealed radiological sources that may need DOE recovery and disposal.

Status:

Section 651 of the Energy Policy Act of 2005 directs the Task Force on Radiation Source Protection and Security to report to Congress and the President on recommendations for, among other matters,

> "(I) a list of additional radiation sources that should be required to be secured under this Act, based on the potential attractiveness of the sources to terrorists and the extent of the threat to public health and safety of the sources, taking into consideration–
> (I) radiation source radioactivity levels;
> (II) radioactive half-life of a radiation source;
> (III) dispersability;
> (IV) chemical and material form;
> (V) for radioactive materials with a medical use, the availability of the sources to physicians and patients for medical treatment; and
> (VI) any other factor that the Chairperson of the Commission determines to be appropriate;

(ii) the establishment of, or modifications to, a national system for recovery of lost or stolen radiation sources;
(iii) the storage of radiation sources that are not used in a safe and secure manner as of the date on which the report is submitted;
(iv) modifications to the national tracking system for radiation sources;
(v) the establishment of, or modifications to, a national system (including user fees and other methods) to provide for the proper disposal of radiation sources secured under this Act;..."

On August 15, 2006, the NRC forwarded to the President, Vice President, and various members of Congress the report required by the Energy Policy Act of 2005 documenting the efforts of the interagency Radiation Source Protection and Security Task Force headed by the NRC Chairman. The report includes the Task Force's evaluation of the national system for recovery of lost and stolen sources (Chapter 8), the national system to provide for the proper disposal of radioactive sources (Chapter 9), and the national source tracking system (Chapter 11). The Task Force did not make any recommendations related to the off-site recovery program; however, it recommended that the U.S. Government further evaluate waste disposal options. The NRC will form a working group to evaluate financial assurance necessary for sources defined by IAEA Code of Conduct as Category 1 and Category 2 sources. This effort is a medium priority and is not scheduled to begin until FY 2009.

The Task Force recommended that a comprehensive analysis be conducted on the inclusion of Category 3 in the national source tracking system, but did not recommend inclusion at this time. However, in a June 9, 2006, staff requirements memorandum, the Commission directed the NRC staff to conduct a one-time survey of licensees to obtain information on sources that contain more than one-tenth of the threshold amount for Category 3 sources and prepare a proposed rule to include Category 3 data in the tracking system. This survey is being conducted as part of the FY 2007 survey of licensees for the interim database. The proposed rule is due to the Commission in FY 2008.

This GAO recommendation remains open.

GAO Report - Financial Audit: Restatement to the Nuclear Regulatory Commission's Fiscal Year 2003 Financial Statements
October 2005
(GAO-06-30R)

The U.S. Government Accountability Office (GAO), in its report, "Financial Audit: Restatement to the Nuclear Regulatory Commission's Fiscal Year 2003 Financial Statements" (GAO-06-30R), made a recommendation directed toward the Chief Financial Officer (CFO) whose implementation it anticipates will help the NRC avoid the need for restatements to its future financial statements. The GAO also made a recommendation directed toward the NRC's Inspector General (IG) that he work with the NRC's independent auditor so that audit procedures to test for unrecorded and unbilled licensee fees and related internal controls are fully and effectively implemented. The recommendation to the CFO that remained open as of the NRC's last report and a report of progress during 2006 are provided below. The IG will report separately on the status of the GAO's recommendation on audit procedures.

Recommendation

The NRC's CFO should determine whether the new [fee billing] procedures, which the NRC represents as having been established, effectively ensure that all eligible licensee fees are properly recorded and billed.

Status:

The NRC conducted internal control assessments of the license fee billing processes and procedures during FY 2006 to ensure that all eligible license fees are properly recorded and billed and concluded that there were no material deficiencies. The auditor's report on the NRC's FY 2006 financial statements recognized the significant effort made by the NRC to address the internal control material weakness, but noted that improvements had not been in place long enough for them to be able to evaluate their effectiveness. As such, the auditors continued to report a material weakness on the effectiveness of internal controls for the License Fee Billing System.

This GAO recommendation remains open.

GAO Report - Nuclear Power Plants: Efforts Made to Upgrade Security, but the Nuclear Regulatory Commission's Design Basis Threat Process Should Be Improved
March 2006
(GAO-06-388)

The U.S. Government Accountability Office (GAO), in its report, "Nuclear Power Plants: Efforts Made to Upgrade Security, but the Nuclear Regulatory Commission's Design Basis Threat Process Should Be Improved" (GAO-06-388), made recommendations that the NRC improve its process for making changes to the design basis threat (DBT) and evaluate and implement measures to further strengthen its force-on-force inspection program. The recommendations and a report of progress during the remainder of 2006 are provided below.

Recommendation 1

To improve the process by which the NRC makes future revisions to the DBT for nuclear power plants, the NRC Commissioners should take the following two actions:

a. assign responsibility for obtaining feedback from the nuclear industry and other stakeholders on proposed changes to the DBT to an office within the NRC other than the Threat Assessment Section, so that the threat assessment staff is able to assess the terrorist threat to nuclear power plants without creating the potential for or appearance of industry influencing their analysis. The Commissioners, in turn, could consider both the staff's analysis of the terrorist threat and industry feedback to make the final determination as to whether and how to revise the DBT.

   Status:

   The NRC supported the GAO recommendation that the NRC's Threat Assessment Section (TAS), now the Intelligence Liaison and Threat Assessment Branch (ILTAB), not be responsible for obtaining feedback from stakeholders, including the nuclear industry, regarding a proposed design basis threat (DBT) revision until ILTAB has provided an initial assessment to senior management. Threat assessments completed by ILTAB will rely on information received from the intelligence and law enforcement communities. Feedback from other stakeholders on proposed revisions to a DBT will be initially evaluated by another branch within the NRC's Office of Nuclear Security and Incident Response (NSIR). This maintains an objective assessment while ensuring that all stakeholders' views are responsibly considered. The NRC has implemented this recommendation by transferring the responsibility for accepting stakeholder feedback to other branches within NSIR on an issue-specific basis.

   The NRC considers this GAO recommendation to be closed.

b. develop explicit criteria to guide the Commissioners in their deliberations to approve changes to the DBT. These criteria should include setting out the specific factors and how they will be weighed in deciding what characteristics of an attack on a nuclear power plant would constitute an enemy of the United States, or otherwise would not be reasonable for a private security force to defend against.

Status:

In the report, the GAO recommended that the Commission develop specific criteria to guide its deliberations to approve changes to the DBT. As indicated in the NRC's Executive Director for Operation's February 23, 2006 correspondence to the GAO on the draft report, the NRC takes exception to this specific recommendation. In testimony before the House Committee on Government Reform, Subcommittee on National Security, Emerging Threats and International Relations during the April 4, 2006 hearing, the NRC also provided rationale for differing with this recommendation. In summary, the Commission is bound by the Atomic Energy Act and its existing regulations. The Commission has a tested history of experience regarding the DBT revision process. The Commission's statutory decision-making authority does not require, and in fact could be unduly restricted by, detailed prescriptive criteria.

The NRC considers this GAO recommendation to be closed.

Recommendation 2

The NRC Commissioners should continue to evaluate and implement measures to further strengthen the force-on-force (FoF) inspection program. For example, the NRC may be able to identify and reduce artificialities associated with the inspections to better test how nuclear power plants would respond to an actual terrorist attack.

Status:

The NRC endorsed the GAO recommendation that the NRC continue to evaluate and implement measures to strengthen the FoF inspection program. The FoF inspection program is designed to verify and assess the ability of licensees' physical protection systems and security organizations to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security, and do not constitute unreasonable risk to public health and safety. The FoF inspection program evaluates a full range of procedural and technological enhancements for potential inclusion.

The Commission continues to evaluate and implement measures to strengthen the FoF inspection program. A significant portion of such measures are linked to efforts to minimize artificialities associated with the inspection's exercise protocols. For example, the role of the "controllers" in each exercise is critical to the process of ensuring a safe exercise environment and the NRC's assessment of a site's ability to defend against an attack. The in-process "Controller Responsibilities Guideline" will provide sites and controllers with a comprehensive set of instructions to define more clearly command and control, rules of engagement, and controller training requirements.

The NRC has an ongoing effort to expand the use of Multiple Integrated Laser Engagement System (MILES) weapons to include shoulder weapons and handguns. This expansion would permit greater flexibility for the Composite Adversary Force (CAF), while simultaneously minimizing the artificiality associated with CAF tactics. The NRC has endorsed the integration of Joint Conflict and Tactical Simulation (JCATS) technology to add realism to tabletop

exercises conducted as part of the FoF. The technology employs three-dimensional modeling to ensure better assessment of the outcomes of CAF and site-security tactics by minimizing the artificialities associated with most tabletop exercises.

There is no specific action plan for minimizing artificialities; rather, it is woven into the FoF and remains an integral part of planning and research. For the FoF to continue to be successful as a performance-based inspection activity, the NRC must ensure that the program emphasizes and leverages technology and human capital. Since the enhanced FoF began in 2004, the Commission has supported integrating a variety of enhancements that help minimize artificialities without sacrificing the margin of personnel safety, which remains the foremost consideration. The evaluation and implementation of measures to enhance further the FoF program is a continual process, to which the NRC remains committed.

The NRC considers this GAO recommendation to be closed.

GAO Report - Combating Nuclear Smuggling: DHS Has Made Progress Deploying Radiation Detection Equipment at U.S. Ports-of-Entry, but Concerns Remain
March 2006
(GAO-06-389)

The U.S. Government Accountability Office (GAO), in its report, "Combating Nuclear Smuggling: DHS Has Made Progress Deploying Radiation Detection Equipment at U.S. Ports-of-Entry, but Concerns Remain" (GAO-06-389), recommended that the Secretary of Homeland Security work with other agencies, as necessary, to improve radiation detection programs.

Recommendation 6 (to the Secretary of Homeland Security):

To increase the chances that U.S. Customs and Border Protection (CBP) officers identify illicit radiological material shipments through ports-of-entry to the U.S., the GAO recommended that the Secretary of Homeland Security work with the Chairman of the NRC to develop a way for CBP officers to determine whether radiological shipments have the necessary NRC licenses and to verify the authenticity of NRC licenses that accompany such shipments.

Status:

In 2006, to improve the ability of CBP officers, licensees, and others to determine whether documents authorizing the possession of materials are legitimate, the NRC began assisting CBP in fulfilling its congressional mandate to verify the legitimacy of shipments of radioactive material entering the U.S. through established ports-of-entry. The NRC periodically provides to CBP radioactive materials licensing and import/export licensing information. In addition, the NRC established processes to provide 24/7 support through its Headquarters Operations Officers and Source Data team. The NRC has also coordinated with the Agreement States to provide similar support to CBP. The NRC will continue to work with CBP staff to improve upon existing procedures and to meet future needs. CBP designated its Laboratories and Scientific Services (LSS) staff to retain the information and resolve concerns. LSS is creating a standard operating procedure for its staff to follow when they receive an inquiry from a CBP field officer about a shipment at the border. The NRC staff provided standard wording to be included in the procedure so that the NRC and Agreement States can appropriately verify, direct, and answer phone call inquiries from LSS.

The NRC considers this recommendation to be closed.

GAO Report - Enterprise Architecture: Leadership Remains Key to Establishing and Leveraging Architectures for Organizational Transformation
August 2006
(GAO-06-831)

The U.S. Government Accountability Office (GAO), in its report, "Enterprise Architecture: Leadership Remains Key to Establishing and Leveraging Architectures for Organizational Transformation" (GAO-06-831), recommended that several government entities, including the NRC, ensure that their respective enterprise architecture (EA) programs develop and implement plans for fully satisfying each of the conditions in the GAO's enterprise architecture management maturity framework (EAMMF). A report of progress during the remainder of 2006 is provided below.

Status:

The NRC has taken and continues to take actions to ensure that the NRC's EA program is developing and implementing plans to satisfy the conditions in the GAO's EAMMF. Since the GAO completed its assessment, the NRC has made significant progress in satisfying the core elements of Stage 2, Building the EA management foundation, and Stage 3, Developing EA products.

With respect to Stage 2 (Building the EA management foundation), the NRC created and dedicated staff to an Enterprise Architecture Program Organization that has the authority and responsibility to develop and maintain its EA. The NRC also chartered an Enterprise Architecture Review Board, comprised of program representatives, that provides direction and approval for transitioning between the "as-is" and "to-be" environments. Additionally, the NRC hired a Chief Enterprise Architect to provide leadership and management of the NRC's EA Program. The NRC has also implemented an automated EA tool to support the use and management of the NRC's EA Program artifacts. The NRC's current EA plan reflects that the NRC will be fully compliant with Stage 2 of the GAO's EAMMF by the fourth quarter of FY 2007.

With respect to Stage 3 (Developing the EA), the NRC has adopted and implemented policies related to EA management. The NRC codified and formally approved the processes and procedures associated with these policies in internal policy documents. Furthermore, the NRC defined the "as-is" Business Reference Model, Service Reference Model, Performance Reference Model, Data Reference Model, and Technical Reference Model. All of these models are stored in a central repository and have configuration controls established. The NRC continues to elaborate on the "to-be" architectures related to each of these models, and the NRC's current EA plan reflects that the NRC will achieve Stage 3 of the GAO's EAMMF by the fourth quarter of FY 2007.

The NRC's current EA Program plan provides that all elements of the GAO's EAMMF Stage 4 (Completing EA projects) criteria will be satisfied in FY 2009 and all Stage 5 (Leveraging the EA for managing change) criteria will be fulfilled in FY 2010.

The NRC appreciates the GAO's constructive review of its EA Program and remains dedicated to establishing and utilizing an effective EA Program to improve its information technology (IT) management practices. The NRC understands the importance of utilizing EA to improve

business processes and to ensure that IT investments support the NRC's goals and mission. To realize these benefits, the NRC is committed to addressing the GAO-identified deficiencies and further developing its EA Program.

This GAO recommendation remains open.

GAO Report - Nuclear Regulatory Commission: Oversight of Nuclear Power Plant Safety Has Improved but Refinements Are Needed
September 2006
(GAO-06-1029)

In its report, "Nuclear Regulatory Commission: Oversight of Nuclear Power Plant Safety Has Improved, but Refinements Are Needed" (GAO-06-1029), the U.S. Government Accountability Office (GAO) made recommendations for improving the U.S. Nuclear Regulatory Commission's (NRC's) ability to identify declining safety performance at nuclear power plants before significant safety problems develop. The recommendations and a report of progress during the remainder of 2006 are provided below.

Recommendation 1

Given its importance to improving the NRC's ability to identify declining safety performance at nuclear power plants before significant safety problems develop, the GAO recommended that the NRC Commissioners:

a. aggressively monitor; evaluate; and, if needed, implement additional methods or processes to increase the effectiveness of its efforts under the reactor oversight process (ROP) to assess safety culture at plants.

   Status:

   As noted in the GAO's report, the NRC has taken significant actions to incorporate safety culture into the ROP. These efforts have included (1) revising ROP guidance documents and inspection procedures to define key safety culture aspects further and prescribe when an independent assessment of a licensee's safety culture is warranted based on licensee performance; (2) interacting with external stakeholders during the development phase, including the opportunity to provide comments on the draft ROP documents that incorporated the safety culture changes; (3) conducting training for inspectors on the safety culture ROP changes; and (4) implementing a multi-office ROP safety culture focus team to monitor the implementation of the safety culture enhancements, to resolve implementation issues, to interface with internal and external stakeholders, and to evaluate and act on lessons learned.

   An 18-month initial implementation period is under way, during which time the NRC is monitoring and evaluating the effectiveness of the enhancements using performance metrics through its self-assessment process. The need to implement additional methods or processes to increase the effectiveness of the ROP based on the lessons learned will be determined during this initial implementation phase.

   This GAO recommendation remains open.

b. in addition to periodically evaluating the effectiveness of its safety culture efforts, the NRC may also be able, through its performance indicator program, to develop specific indicators to measure important aspects of plants' safety culture. Trends in these performance indicators could be useful feedback to the NRC on its safety culture activities. The indicators

could also provide useful information to the public and other NRC stakeholders on the safety culture at plants.

Status:

The NRC believes that the annual ROP self-assessment process and performance metric report, rather than the ROP performance indicator program, are the better tools to gather and assess feedback on the safety culture enhancements. The NRC will use these feedback processes to provide useful information to internal and external stakeholders and make the ROP more efficient and effective in identifying declining licensee performance. As a first step in the process, the NRC has added a Web page that presents consolidated and comprehensive data on the plants that have substantive, open cross-cutting issues. See also the status for Recommendation 2.

The NRC has revised Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program," to add a specific measure to determine the effectiveness of this important initiative. In support of this effort, specific questions are being added to the internal and external ROP surveys, which have been administered recently, in order to solicit feedback on the safety culture effort. The survey responses are being consolidated and analyzed, and the results will be presented in the annual performance metric report and discussed in the annual ROP self-assessment, which is reviewed by the Commission.

After completion of the initial 18-month implementation period and subsequent staff evaluation of lessons learned, the NRC plans to add additional performance metrics in this area to IMC 0307 in an effort to effectively monitor and trend licensee performance in this area.

This GAO recommendation remains open.

Recommendation 2

In the absence of performance indicators or other performance metrics for plants' safety culture, make publicly available, through the ROP Web site, consolidated and comprehensive data on the plants that have substantive, open crosscutting issues to provide a more comprehensive picture of plant performance and provide insights into aspects of the plants' safety culture that otherwise are not readily available on the Web site.

Status:

As recommended by the GAO, a Web page that presents consolidated and comprehensive data on the plants that have open, substantive crosscutting issues has been added to the ROP Web site. The NRC also modified the plant summary Web page to highlight more prominently plants that have substantive crosscutting issues and provided links to the associated plant assessment letters.

The NRC considers this GAO recommendation to be closed.