April 12, 2006

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 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, which is required by Section 236 of Public Law 91-510, the "Legislative Reorganization Act of 1970," describes the progress made in addressing recommendations remaining open as of, or not included in, our last summary report of April 27, 2005.

Sincerely,

/RA/

Nils J. Diaz

Enclosure:
Summary of NRC Actions

cc: Senator Thomas R. Carper

Identical letter sent to:

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

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

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

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

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

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

The Honorable Joshua B. Bolten
Director, Office of Management and Budget
725 17th Street, NW
Washington, D.C. 20503

SUMMARY OF NRC ACTIONS

RESPONSE TO GAO REPORTS

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 at the end of calendar year 2004, NRC's response, and a report of progress during 2005 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, 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 and Status:

NRC agrees on the need for a comprehensive strategy. In response to Commission direction, the staff developed an approach for risk-informing the agency's 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-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, 2003, 2004, and 2005, each of which described agency actions designed to risk-inform its regulatory activities. The Risk-Informed Regulation Implementation Plan (RIRIP) is 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 updates of the RIRIP (SECY-05-0068 dated April 22, 2005, and SECY-05-0199 dated October 28, 2005, both entitled "Update of the Risk-Informed Regulation Implementation Plan") include activities which support the NRC's Strategic Plan (FY 2004 - FY 2009). Among the accomplishments for 2005, some of which are listed in the most recent RIRIP updates, are the following:

- development of a proposed rulemaking to allow the voluntary use of risk information in refining requirements for how nuclear power plants should safely handle loss-of-coolant accidents of various sizes. The proposed rule was published for comment in November 2005.

- development and 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.

- continued development and refinement of a regulatory structure for licensing new nuclear power plants in a risk-informed and performance-based manner. This effort may provide the technical basis for a risk-informed and performance-based alternative to 10 CFR Part 50 that is technology-neutral.

- development and pilot testing of a new performance indicator, called the Mitigating Systems Performance Index (MSPI), to support the reactor oversight process. The MSPI monitors risks associated with changes in performance of selected mitigating systems, accounting for plant-specific design and performance data. Public workshops supporting MSPI implementation were held monthly in 2005.

- development of part of the technical basis for implementing the risk-informed and performance-based fire protection rule endorsing National Fire Protection Association (NFPA) Standard 805. This includes issuance of NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," which documents state-of-the-art methods, tools, and data for the conduct of a fire probabilistic risk assessment.

- issuance of the final report, NUREG-1792, "Good Practices for Implementing Human Reliability Analysis (HRA)." The HRA good practices were developed as part of the NRC's activities to address probabilistic risk assessment (PRA) quality issues and to provide guidance for implementing Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." Additionally, NRC worked with domestic and international developers and users of HRA methods to evaluate existing HRA methods against the good practices specified in NUREG-1792.

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

- development of a program plan and advance notice of proposed rulemaking to develop a risk-informed and performance-based alternative to the entire suite of reactor regulations in 10 CFR Part 50. This effort will consider the spectrum of issues relating to risk-informing the reactor requirements and will integrate safety, security, and preparedness in a coherent manner.

- continued work with stakeholders to develop implementing guidance in support of plants transitioning to the alternative performance-based and risk-informed fire protection standard (NFPA Standard 805) endorsed via 10 CFR 50.48(c). The NRC plans to endorse the implementing guidance in a regulatory guide.

- issuance of draft NUREG-1824, "Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications," for public comment. This report will support risk-informed and performance-based fire protection regulation by providing verified and validated fire models that can reliably predict the consequences of fires.

- issuance of a draft report documenting a pilot probabilistic risk assessment for a dry cask storage system used at a reactor site. The report will provide methods to quantify the risk of dry cask storage of spent nuclear fuel. The report will also provide insights into decision making and improving regulatory activities associated with dry cask storage.

- continued development of the human event repository and analysis (HERA) database, and issuance of a NUREG report on the HERA framework. The HERA project is designed to support risk-informed decision making through the development of improved data for performing human reliability analysis.

During the last few years, the NRC has made noticeable progress toward risk-informing its regulatory activities by incorporating risk-informed analysis and decision making into the agency's regulatory processes. The NRC has developed a strategy to transition to risk-informed regulations, which has been incorporated in 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. NRC efforts to meet GAO's recommendations are continuing.

This GAO recommendation remains open.

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 NRC's security inspection program. The recommendations that remained open at the end of calendar year 2004, the NRC's responses, and report of progress during 2005 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.

NRC Response and 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). Recently, 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 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.

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 of generally licensed devices, especially for certain devices that are required to be registered. The devices 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 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 and the licensees. The safety and security risks posed by most generally licensed devices would not warrant such an expenditure of resources.

However, NRC is planning to initiate a rulemaking in FY 2006. This rulemaking will examine the delineation between general licensing and specific licensing for byproduct materials. As part of the rulemaking, 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. 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. NRC is working with the Agreement States to identify any of these devices currently in use under a general license. On a case-by-case basis, the security of these devices will be evaluated and controlled. As the rulemaking discussed above proceeds, NRC will work with the owners of these devices and the owner of the SSD certificate to bring them into alignment with the planned rule.

The NRC regulations also require a specific license for all distributors of generally licensed devices. 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, including generally licensed devices.

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 and Status:

NRC agrees with the objective of this recommendation. An NRC-Agreement State working group has developed a process to ensure that high-risk radioactive sources cannot be obtained before verification -- through inspection or other means -- that the materials will be used as intended. The working group delivered a recommended approach to NRC senior management in December 2005. In 2006, the approach will be utilized by NRC and Agreement States during initial implementation. This approach includes a three-step process: (1) identification of radioactive materials and quantities requested, (2) screening criteria that the license reviewer must complete, and (3) notification of NRC headquarters if additional action is required. The working group is expected to resolve any issues and appropriately revise the process as needed.

NRC considers this recommendation to be 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 and Status:

The NRC has made considerable progress in enhancing oversight of materials security activities required of radioactive materials licensees authorized to possess radioactive materials in quantities of concern. The quantities and amounts of concern are based on the International Atomic Energy Agency's Categorization of Sources and, thus, are supported by the international community and approved by the Commission.

NRC has worked expeditiously to ensure enhanced oversight for the implementation of the increased controls over radioactive sources imposed following the events of 9/11 through the Integrated Materials Performance Evaluation Program (IMPEP) process. NRC staff has developed program review criteria and performance measures to evaluate the effectiveness of NRC's and the Agreement States' oversight of the implementation of the increased controls. NRC staff developed a temporary procedure to incorporate increased controls into the review of NRC Regional and Agreement State materials programs. In addition, a temporary instruction for IMPEP team members was developed to provide further guidance to reviewers for performing IMPEP reviews. The approach used in these two documents incorporated evaluation of the NRC Regional and Agreement State materials programs' oversight of the implementation of increased controls into existing IMPEP performance indicators that were developed on a health and safety basis. The draft temporary procedure and temporary instruction were used by the NRC and Agreement States as interim guidance, and lessons learned during the interim use were incorporated into the final versions of the temporary procedure and temporary instruction, which were finalized in March 2006. These documents will be used during the initial implementation and inspection phases of the increased controls. Following the initial implementation and inspection phases of the increased controls, the guidance in the procedure and instruction will be incorporated into existing NRC Office of State and Tribal Programs (STP) and IMPEP procedures.

NRC considers this GAO recommendation to be closed.

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 at the end of calendar year 2004, the NRC's responses, and report of progress during 2005 are provided below.

Recommendation 1

To improve the agency's IT strategic planning/performance measurement processes, we recommend 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;

   NRC Response and Status:

   The NRC has developed a process for establishing an NRC Strategic Plan for IT, which is on a 5-year cycle. The Commissioners are actively engaged in the development of the Strategic Plan, including the development of strategic goals and objectives. In response to the strategic plan goals and performance objectives, offices develop their individual plans for IT investments that support their goals and performance objectives.

   The Chief Information Officer (CIO) has the responsibility to develop the agency IT strategic plan in conjunction with the NRC program offices and to document that plan. The NRC's Office of Information Services (OIS) has published management directives which establish the IT investment planning and decision making policies and processes, including roles and responsibilities at the agency. NRC Management Directive 2.8, "Program Management Methodology," is presently in the review and approval process and expected to be released in FY 2006. Management Directive 2.8 integrates NRC's requirements for capital planning and investment control (CPIC), enterprise architecture, and system development life cycle methodology (SDLCM) into a single directive that describes the process, roles, and responsibilities for justification and approval of IT investments.

   The NRC has also established special governance committees, councils, and groups with specific roles and responsibilities in the CPIC and SDLCM processes -- the NRC IT Governance Framework. The Agency IT Governance Framework is a four-tiered approach to planning and managing agency IT investments. The framework documents the roles, responsibilities, and authorities of its IT investment management boards. The first tier, the Enterprise Architecture Review Board, draws its membership from program and support offices and is chaired by an OIS manager. This group is responsible for developing and implementing action plans that support the IT strategic goals and identifying areas where technology can be used to solve business problems and more effectively and efficiently

accomplish business objectives. The second tier, the agencywide IT Business Council (ITBC), consisting of division-level managers, is focused on the business needs of the agency. It is chaired by a group member. The ITBC provides input on the alignment of new IT investments with current applications, practices, and business needs. The third tier, the IT Senior Advisory Council, consisting of office director-level membership and chaired by the CIO, provides strategic direction on major IT initiatives and prioritizes the agency IT investments to manage the agency IT investment portfolio more effectively. The top tier, the Program Review Committee (PRC), reviews office budget submissions for consistency with agency performance goals, measures, policy guidance, and planning assumptions. The CIO is a voting member of the PRC and briefs the PRC on the agencywide IT budget.

The CPIC process, in conjunction with the Enterprise Architecture Blueprint, is used to establish a portfolio of approved major IT investments. The CPIC process requires identification of the NRC strategic goal(s) addressed by each major investment and the human resource requirements. The CIO reviews each investment submitted through CPIC to ensure that it is aligned with the NRC Strategic Plan goals and objectives and consistent with the agency's IT Strategic Plan and Enterprise Architecture Blueprint. OIS maintains the enterprise view of the IT investments. The PRC reviews the agencywide IT budget as part of the overall budget approval process. The IT budget is approved by the Commission as a part of the overall budget approval process.

Human resource planning is integrated with IT planning through the agency's Human Resources (HR) organization's Strategic Workforce Planning program using the Office of Personnel Management's five steps of workforce planning: (1) set strategic direction; (2) analyze the workforce and identify skill gaps; (3) develop an action plan; (4) implement the action plan; and (5) monitor, evaluate, and revise the action plan. In addition, the OIS has recruited a Senior Program Analyst (Educational Outreach) who will serve as a Human Capital expert for IT human resource needs. The role of the Human Capital expert will be to assist the OIS in continuing to analyze and address skill gaps between the agency's human resources and its planned IT investments.

This GAO recommendation remains open.

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

NRC Response and Status:

The NRC's IT Governance Framework describes the roles and responsibilities for approval of IT programs and projects. The roles and responsibilities are documented in NRC Management Directive 2.2, "Capital Planning and Investment Control," a revision of which was issued in January 2004 and draft Management Directive 2.5, "System Development Life Cycle Management Methodology." The agency is continuing to develop an Enterprise Architecture Blueprint and an IT Strategic Plan that describe enterprisewide IT goals. It is the role of OIS to ensure that IT programs that are approved are consistent with these goals. The review process for IT programs required by Management Directive 2.2 includes an Enterprise Architecture review by OIS to determine whether programs are aligned with the goals in the IT Strategic Plan and the Enterprise Architecture Blueprint prior to CIO approval.

Management Directive 2.2 and draft Management Directive 2.5 have been integrated into a single, new directive, Management Directive 2.8, "Program Management Methodology."* This new directive is presently in the review and approval process and is expected to be released in FY 2006, thereby providing a single reference that provides a documented process which assigns all the roles and responsibilities for approval of IT programs and projects.

This GAO recommendation remains open.

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

NRC Response and Status:

As part of seat management implementation, NRC developed a baseline of licensed software installed on agency computers. This baseline is updated as system configurations change. In January 2003, the NRC began monthly software monitoring to ensure ongoing compliance with licensing requirements. On a monthly basis, the software found on randomly selected computers is compared to the database of software licensed for each computer, and any unlicenced software is removed. Performance measures related to the effectiveness of controls to prevent software piracy will be included in the NRC IT Strategic Plan, the issuance of which has been delayed to the end of FY 2006 due to resource constraints.

In addition, the agency computer security awareness training and educational program includes special training to all new employees, and an annual on-line awareness course for all employees and contractors covers piracy, bootlegging, and copyright protection of software. This information is further stressed in our continuous agencywide poster campaign and in annual activities for computer security awareness day.

This GAO recommendation remains open.

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

NRC Response and Status:

Due to resource constraints during FY 2005, development, approval, and alignment of the NRC's enterprisewide IT Strategic Plan with the agency's enterprise goals has been delayed until the end of FY 2006. The IT Strategic Plan will identify the IT strategies that will be implemented to contribute to achieving the performance measures and the targets for the agency's enterprise goals. Cost, schedule, and performance goals will be included for major systems requiring an OMB Exhibit 300. OIS includes in its operating plan the requirement to monitor the progress of those systems and report remediation to the CIO on major IT investments that deviate from cost, schedule, or performance goals.

This GAO recommendation remains open.

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* This new management directive also incorporates Management Directive 2.1, "Information Technology Architecture."

Recommendation 2

To improve the agency's IT investment management processes, we recommend 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;

   NRC Response and Status:

   The IT investment management process uses information derived from NRC's Planning, Budgeting, and Performance Management Process and the agency's strategic planning process. Performance measures that support the information technology and investment management goals in the NRC Strategic Plan have been developed and are used internally for both focused program evaluations and ongoing organizational monitoring. Specific metrics address the factors most appropriate to each program and investment. The IT investment management process employs broad overall "value" performance measures. Investment value measures relate to strategic alignment, financial management goals, productivity and efficiency, quality, enterprise architecture and security, timeliness, and customer or programmatic benefit. Investment project managers perform a risk analysis for each potential major IT investment. Specific risk concerns that cut across all IT investments, such as level of definitional risk, external or environmental risk, and use of iterative project development procedures, are beginning to be addressed through a standardized methodology. NRC has acquired and installed Prosight as the tool to support its portfolio management program that will be utilized for all IT investments. It became operational in FY 2005. NRC is also supplementing existing practices by using the Federal Enterprise Architecture (FEA) Performance Reference Model metrics to help measure the performance of major IT initiatives and assess their contribution to NRC program performance. NRC conducts annual performance reviews and performance evaluations and assessments and summarizes results in the annual Budget/Performance Plan.

   NRC Management Directive 2.2, "Capital Planning and Investment Control," requires that all IT investments comply with the NRC enterprise architecture. Compliance with the NRC enterprise architecture is also mandated in Management Directive 2.1, "Information Technology Architecture." Management Directive 2.2 and draft Management Directive 2.1 have been integrated into a single, new directive, Management Directive 2.8, "Program Management Methodology."** This new directive is presently in the review and approval process and is expected to be released in FY 2006.

   External and environmental factors, such as new legislation, may impact the IT investment management process by requiring the addition of new controls or compliance checks. The integrated program management methodology (PMM) allows for the rapid change to the investment management process by documenting those processes as standard operating procedures (SOPs) and providing the PMM Configuration Control Board (CCB) the authority to change the SOPs.

** This new management directive also incorporates draft Management Directive 2.5, "System Development Life Cycle Management Methodology."

This GAO recommendation remains open.

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

NRC Response and Status:

The NRC is in the process of developing work processes and procedures for investment management boards and will continue to refine roles and responsibilities for IT strategic management processes as more experience is gained. Specific details of these procedures will be defined in conjunction with the board members as NRC develops its proposed PMM, which will integrate capital planning and investment control, enterprise architecture, security, the infrastructure development process, and the systems development life cycle management methodology in a single management directive. The PMM will be completed during FY 2006 and will serve as a new, integrated policy, with an accompanying handbook and supplemented by web-based SOPs, which will document our processes for aligning and coordinating NRC IT investment decision making.

To date, the NRC has developed the Agency Information Technology Governance Framework, which provides a high-level outline of our board processes. The Agency IT Governance Framework is a four-tiered approach to planning and managing agency IT investments. The framework is described in our response to Recommendation 1a.

This GAO recommendation remains open.

c. implement a standard, documented procedure to maintain its IT asset inventory, and develop a mechanism to use the inventory as part of managerial decision making;

NRC Response and Status:

The NRC has developed a standard, documented procedure to ensure the update and maintenance of its IT asset inventory. The procedure to be followed will be documented in the PMM standard operating procedures, which will delineate specific processes to be followed to ensure that timely and repeatable updates occur. The NRC currently has a baseline IT applications inventory that has been migrated to the System Architect tool set. The agency has made selected asset inventory reports available on the Intranet and currently maintains an on-line inventory database of IT infrastructure hardware and commercial off-the-shelf software. This database will feed into the System Architect tool that maintains the applications layer of our enterprise architecture. The information in our IT asset inventory is now used in IT investment decision making. The NRC uses this information within its portfolio management program, which became operational during FY 2005, thus establishing better linkage to managerial decision making. The NRC plans to utilize reports from this tool set to enhance IT investment duplication checks and to increase support for managerial selection of IT investments.

NRC considers this 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;

NRC Response and Status:

The January 2004 update to NRC Management Directive 2.2 on CPIC established 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 (less than $500,000). Tier 2 investments are approved by the CIO ($500,000 to $1,500,000). Tier 1 investments are approved by the Executive Director for Operations (greater than $1,500,000). The NRC has developed criteria and related processes to include an investment scoring model using Prosight as the portfolio management tool (which became operational in FY 2005), which addresses each stage of the life cycle. As NRC moves forward and completes its PMM during FY 2006 and further implements the IT investment portfolio management program, the agency will have developed an IT selection and prioritization process, integrated with financial and program management processes, that provides insight into investments throughout their life cycle.

This GAO recommendation remains open.

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.

NRC Response and 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 agency IT investment management processes. PMM addresses policies and procedures heretofore separately covered in agency 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 will provide the foundation and information necessary to provide better managerial oversight of IT investments. The NRC is continuing work to fully 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 our processes. Best practices that best fit the agency 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.

This GAO recommendation remains open.

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 GAO recommendations which remained open at the end of calendar year 2004, the NRC's responses, and report of progress during 2005 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. 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.

NRC Response and Status:

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." NRC agrees with aspects of GAO's recommendation, as clarified in the final report. Detecting early warning signs of declining performance and safety problems is a key aim of 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. Through the years, the Commission has taken a number of actions in the area of safety culture, including the issuance of the Policy Statement entitled "Conduct of Nuclear Power Operations" (54 FR 3424, January 24, 1989). The Commission issued the policy statement to help foster the development and maintenance of a safety culture at every facility licensed by the NRC. It also stated that:

> ...management has the duty and obligation to foster the development of a "safety culture" at each facility and to provide a professional working environment, in the control room and throughout the facility, that assures safe operations. Management must provide the leadership that nurtures and perpetuates the safety culture.

In a 1996 Policy Statement entitled "Freedom of Employees in the Nuclear Industry to Raise Safety Concerns Without Fear of Retaliation," the Commission stated that "...licensees and other employers subject to NRC authority will establish and maintain safety-conscious environments in which employees feel free to raise safety concerns, both to their management and to the NRC without fear of retaliation."

In SECY-04-0111, "Recommended Staff Actions Regarding Agency Guidance in the Areas of Safety Conscious Work Environment and Safety Culture" (dated July 1, 2004), the staff provided to the Commission the status of NRC's efforts to prepare a safety-conscious work environment (SCWE) "best practices" guidance document and provide options for enhancing NRC's oversight of SCWE and the broader area of safety culture. The Commission responded in a staff requirements memorandum on August 30, 2004, directing the staff to take actions in the SCWE and safety culture areas. Specifically, the Commission directed the staff to take the following actions:

- develop a guidance document for industry to help them understand and meet NRC's expectations with regard to SCWE,

- continue to monitor industry efforts to assess safety culture,

- enhance the ROP treatment of crosscutting issues to more fully address safety culture,

- develop a process for determining the need for an evaluation of licensees' safety culture (for those plants in the degraded cornerstone columns of the ROP Action Matrix) and develop a process for conducting this evaluation, and

- continue to monitor developments by foreign regulators.

To implement the Commission's direction, the staff has:

- issued Regulatory Issue Summary RIS-05-018, "Guidance for Establishing and Maintaining a Safety Conscious Work Environment," which provides guidance to the industry on effective processes to address concerns, tools to assess safety-conscious work environment, contractor awareness of safety-conscious work environment expectations, and senior management involvement in detecting and preventing retaliation, and

- developed an approach, with involvement of internal and external stakeholders, to enhance the treatment of crosscutting areas in the ROP and related procedures to address safety culture more fully. The planned approach is within the ROP framework and is consistent with the ROP's basic regulatory principles (i.e., licensee performance assessments are transparent, understandable, objective, predictable, risk-informed, and performance-based). It will allow the inspectors, as they develop inspection findings in the baseline inspection program, to review the findings for crosscutting aspects that have been enhanced to more closely align with what is important to safety culture. Hence, the approach will provide an earlier opportunity to diagnose a potentially declining safety culture as it is reflected in the crosscutting areas of human performance, problem identification and resolution, and safety-conscious work environment. Further, the approach will provide a structured way of determining the need for a safety culture evaluation of plants in the Degraded Cornerstone Column of the Action Matrix, and provide a process for the NRC to independently evaluate the safety culture of plants in the Multiple/Repetitive Degraded Cornerstone Column of the Action Matrix.

NRC expects that the enhancements to the crosscutting areas and selected inspection procedures and manual chapters to address safety culture more fully will be in place by May 2006 and fully implemented by July 2006.

This GAO recommendation remains open.

Recommendation 4

Develop specific guidance and a well-defined process for deciding on when to shut down a nuclear power plant. The guidance should clearly set out the process to be used, the safety-related factors to be considered, the weight that should be assigned to each factor, and the standards for judging the quality of the evidence considered.

NRC Response and Status:

In response to NRC's comments on the draft GAO report, GAO agreed that existing NRC regulations provide a spectrum of conditions for plant shutdown "that could be interpreted as covering the vast majority of situations." However, GAO noted the following concerns: (1) the decision-making guidance used by NRC to shut down Davis-Besse does not provide direction on how NRC should weigh deterministic factors in relation to probabilistic factors in making shutdown decisions, and (2) the staff can arrive at very different decisions even on the basis of the same information or circumstances. Whether deterministic factors or probabilistic factors weigh more heavily in a decision is specific to the decision being made and the quality of the information available, whether deterministic and/or probabilistic. The additional risk-informed guidance will enhance consistency for future decisions.

In February 2005, the NRC formed a cross-office team consisting of staff from the Office of Nuclear Regulatory Research (RES), the Office of Nuclear Material Safety and Safeguards (NMSS), and the Office of Nuclear Reactor Regulation (NRR). The team met on a periodic basis to develop an appropriate response to GAO Recommendations 4 and 5.

Initially, the team assessed the most suitable mechanism for addressing these GAO recommendations. In addition, discussions were held to confirm that the appropriate technical disciplines needed for issue resolution were part of the team and to determine the appropriate scope of the guidance. As a result of this effort, a process was developed that provides guidelines for making and documenting risk-informed decisions for those issues that are not addressed by current NRC processes. In addition to providing specific guidelines for taking regulatory actions (i.e., immediately effective orders), the office instruction emphasizes 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. In September 2005, this process was released for trial use as an NRR Office Instruction LIC-504, "Integrated Risk-Informed Decision Making Process for Emergent Issues." Based on comments generated during the initial trial period, the process was revised to provide additional clarity and re-released as a final document in December 2005.

NRC considers this GAO recommendation to be closed.

Recommendation 5

Improve 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 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.

NRC Response and Status:

The 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. The NRC has advanced the use of probabilistic risk assessment estimates in decision making beyond that of many other regulatory agencies and remains committed to continuous improvement in this field. Therefore, the NRC intends to develop additional regulatory guidance to expand the application of risk-informed decision making. The guidance will also address the need to establish quality requirements for the risk information and will include specific instructions for documenting the decision process and conclusions.

In addition, there is an ongoing initiative to endorse probabilistic risk assessment (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 the quality of the PRAs.

NRC's program enhancements to support the use of PRA in decision making involve the integration of several ongoing, long-term risk initiatives. For example, NRC's Office of Nuclear Regulatory Research has issued, for trial use, a regulatory guide and associated Standard Review Plan chapter that provide an approach for assessing the adequacy of PRA results used in support of regulatory applications and decision making. Five licensing amendment requests were identified as pilot applications for the use of this approach. The staff has completed its review of the pilot applications and will revise the regulatory guide and Standard Review Plan chapter to utilize them for subsequent licensing activities involving risk. NRC has also developed and is implementing a phased approach to achieving appropriate PRA quality and completeness.

In addition, NRC has a number of ongoing activities focused on the development of improved methods for calculating risk in support of the risk-informed regulatory decision making. These activities include:

- developing and evaluating alternative formal methods for using risk information in decision making,

- improved methods and practices for implementing human reliability analysis, and

- developing methods and tools for quantifying and assessing uncertainties in a complex engineering assessment.

This work is scheduled to be completed by June 2007.

This GAO recommendation remains open.

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 GAO recommendations which remained open at the end of calendar year 2005, the NRC's responses, and report of progress during the remainder of 2005 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.

NRC Response and Status:

As stated in 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 (The NRC is revising its regulations regarding MC&A to address other issues, however). 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 the civil penalty assessed the licensee for the Millstone Unit 1 missing fuel rods incident.

The NRC agrees that licensees need more specific guidance in the control and accounting of rods and pieces and the conduct of physical inventory. 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."

During 2005, NRC inspectors conducted inspections of MC&A programs at 12 operating nuclear power plants. These inspections were conducted under NRC Temporary Instruction (TI) 2515/154, "Spent Fuel Material Control and Accounting at Nuclear Power Plants." NRC has also reviewed responses to Bulletin 2005-01, "Material Control and Accounting at Reactors and Wet Fuel Storage Facilities." Information gathered from the inspections conducted under the TI and the responses to the Bulletin increased NRC's understanding of the variety and extent of problems associated with MC&A, especially in relation to control of fuel rods and rod pieces. NRC is analyzing the inspection results and issued a report to the Commission on April 4, 2006.

The NRC has also taken responsibility for leading an American National Standards Institute (ANSI) committee to revise its standard N15.8, "Nuclear Material Control Systems for Nuclear Power Plants." Experts from government and industry have been asked to review the existing standard and to propose changes designed to improve MC&A programs at nuclear power

plants. A meeting of NRC and industry representatives is planned for spring 2006 at NRC headquarters to discuss proposed changes to the standard.

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.

NRC Response and Status:

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. NRC is preparing a revision of Inspection Procedure (IP) 85102, "MC&A - Reactors," which should be in final form by the end of the second quarter of FY 2006. The revision will take into consideration the information from inspectors collected under TI 2515/154 and other information reported by licensees in response to Bulletin 2005-01.

As stated above, NRC has conducted 12 detailed inspections under the TI and is analyzing inspection results. NRC is also analyzing licensee responses to Bulletin 2005-01 and reviewing long-term inspection requirements for ongoing oversight of licensees in this area. NRC will continue to evaluate and revise the MC&A inspection program at power reactors, as appropriate, as additional information indicates.

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 GAO recommendation, the NRC's response, and report of progress during the remainder of 2005 are provided below.

Recommendation for Agency Heads

Because of the immediate risk that poorly configured and unmanaged IPv6 capabilities present to Federal agency networks, we are recommending 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.

NRC Response and Status:

Prior to August 2005, NRC had a three-phase approach to planning for and implementing IPv6, with implementation expected to be completed in September 2009. Based on guidance from the Office of Management and Budget (OMB) in an August 2, 2005 memorandum regarding transition planning for internet protocol version 6 (IPv6), NRC has revised its approach to become aligned with the OMB requirements. These include the following four phases:

Phase I - Completed
- Assign an official to lead and coordinate agency planning.
- Complete an inventory of existing routers, switches, and hardware firewalls.
- Begin an inventory of all other existing IP-compliant devices and technologies not captured in the first inventory.
- Begin impact analysis to determine fiscal and operational impacts and risks of migrating to IPv6.

Phase II - Actions to be completed by March 2006
- Using the guidance issued by Chief Information Officers Council Architecture and Infrastructure Committee, address each of the elements in the agency's IPv6 transition plan and provide the completed IPv6 transition plan as part of the agency's Enterprise Architecture (EA) submission to OMB.
- Provide a progress report on the inventory and impact analysis, as part of the agency's Enterprise Architecture (EA) submission to OMB.

Phase III - Actions to be completed by June 2006
- Complete inventory of existing IP-compliant devices and technologies not captured in the first inventory.
- Complete impact analysis of fiscal and operational impacts and risks.

Phase IV - Actions to be completed by June 2008

- All agency infrastructures (network backbones) must be using IPv6 and agency networks must interface with this infrastructure. The agency will include progress reports on meeting this target date as part of its EA transition strategy.

NRC has also implemented an IPv6 use policy currently disallowing the use of IPv6 on production networks until assessment of associated vulnerabilities is completed. NRC has limited IPv6 traffic through the internet firewall based on previously issued IPv6 vulnerability warnings. Additionally, NRC is currently researching commercial offerings for IPv6 intrusion detection systems that will recognize IPv6 traffic and provide alerts if present.

This GAO recommendation remains open.

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

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 GAO recommendation, the NRC's response, and report of progress during the remainder of 2005 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.

NRC Response and Status:

The Energy Policy Act of 2005, section 170H, 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;..."

The GAO report was provided as a background document for the Task Force's consideration. The subgroups evaluating these topics will consider the GAO report along with other information in making their recommendations. It is expected that the recommendations developed by the Task Force will address the issues raised by the GAO recommendations. In parallel with this Task Force effort, these GAO issues will continue to be subjects of discussion between the NRC and DOE.

This GAO recommendation remains open.

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

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 hopes will help 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 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 GAO recommendation to the CFO and the NRC's response, which was provided to Congress on December 22, 2005, are provided below. The IG will respond separately to GAO's recommendation on audit procedures.

Recommendation

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

NRC Response:

The NRC agrees with the report's recommendation. The NRC's CFO will determine whether the new fee billing procedures that the NRC has established effectively ensure that all eligible license fees are recorded and billed. The NRC plans to complete this determination by September 2006. Additionally, the NRC has implemented several improvements to its fee billing process. These include revised quality assurance procedures for the 10 CFR Part 170 billing process to include a global reconciliation for each quarterly fee billing cycle; modification of the Fee Billing System to improve functionality of the system's interface; expanded acceptance testing for the Fee Billing System software modifications; independent verification and validation of the acceptance testing for the Fee Billing System software modifications; separate billing and reconciliation functions; strengthened internal controls over the billing process; and development of a statistical sampling plan to test that internal controls are functioning as intended.

This GAO recommendation remains open.