

# EVALUATION REPORT

Inspector General's Assessment of the  
Most Serious Management and Performance  
Challenges Facing NRC

OIG-12-A-01 October 3, 2011



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**UNITED STATES**  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

**OFFICE OF THE  
INSPECTOR GENERAL**

October 3, 2011

MEMORANDUM TO: Chairman Jaczko

FROM: Hubert T. Bell */RA/*  
Inspector General

SUBJECT: INSPECTOR GENERAL'S ASSESSMENT OF THE MOST  
SERIOUS MANAGEMENT AND PERFORMANCE  
CHALLENGES FACING NRC (OIG-12-A-01)

The *Reports Consolidation Act of 2000* requires the Inspector General of each Federal agency to annually summarize what he or she considers to be the most serious management and performance challenges facing the agency and to assess the agency's progress in addressing those challenges. In accordance with the act, I identified seven management and performance challenges confronting the Nuclear Regulatory Commission that I consider to be the most serious.

We appreciate the cooperation extended to us during this evaluation. The agency provided comments on this report, which have been incorporated as appropriate. If you have any questions, please contact Stephen D. Dingbaum, Assistant Inspector General for Audits, at 415-5915 or me at 415-5930.

Attachment: As stated

## **EXECUTIVE SUMMARY**

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### **BACKGROUND**

The *Reports Consolidation Act of 2000* requires the Inspector General (IG) of each Federal agency to annually summarize what he or she considers to be the most serious management and performance challenges facing the agency and to assess the agency's progress in addressing those challenges.

### **OBJECTIVE**

In accordance with the act, the IG at the U.S. Nuclear Regulatory Commission (NRC) updated what he considers to be the most serious management and performance challenges facing NRC. The IG considered the overall work of the Office of the Inspector General (OIG), the OIG staff's general knowledge of agency operations, and other relevant information to develop and update his list of management and performance challenges. In addition, OIG staff sought input from NRC's Chairman, Commissioners, and management to obtain their views on what challenges the agency is facing and what efforts the agency has taken or are underway or planned to address previously identified management and performance challenges.

### **RESULTS IN BRIEF**

The IG identified seven challenges that he considers the most serious management and performance challenges facing NRC. The challenges identify critical areas or difficult tasks that warrant high-level management attention.

The 2011 list of challenges reflects two changes from the 2010 list. Prior Challenge 1, *Protection of nuclear material used for civilian purposes*, was reworded to *Oversight of nuclear material used for civilian purposes*. This change was made to more accurately describe NRC's regulatory oversight role relative to nuclear material as NRC does not directly protect nuclear material, but provides oversight of licensees who are charged to protect the material. Prior Challenge 3, *Ability to modify regulatory processes to meet a changing environment, to include the licensing of new nuclear facilities*, was reworded to

reflect changing economic conditions for new facility construction, as well as ongoing efforts to evaluate post-Fukushima Dai-ichi lessons learned for NRC's oversight of currently operating facilities. Current Challenge now 3 reads *Ability to modify regulatory processes to meet a changing environment in the oversight of nuclear facilities.*

The following chart provides an overview of the seven most serious management and performance challenges as of October 1, 2011.

<b>Most Serious Management and Performance Challenges Facing the Nuclear Regulatory Commission as of October 1, 2011*</b> <i>(as identified by the Inspector General)</i>	
<b>Challenge 1</b>	<i>Oversight of nuclear material used for civilian purposes.</i>
<b>Challenge 2</b>	<i>Managing information to balance security with openness and accountability.</i>
<b>Challenge 3</b>	<i>Ability to modify regulatory processes to meet a changing environment in the oversight of nuclear facilities.</i>
<b>Challenge 4</b>	<i>Oversight of radiological waste.</i>
<b>Challenge 5</b>	<i>Implementation of information technology and information security measures.</i>
<b>Challenge 6</b>	<i>Administration of all aspects of financial management and procurement.</i>
<b>Challenge 7</b>	<i>Managing human capital.</i>
<b><i>*The most serious management and performance challenges are not ranked in any order of importance.</i></b>	

## **CONCLUSION**

The seven challenges contained in this report are distinct, yet interdependent relative to the accomplishment of NRC's mission. For example, the challenge of managing human capital affects all other management and performance challenges.

The agency's continued progress in taking actions to address the challenges presented should facilitate achieving the agency's mission and goals.

## **ABBREVIATIONS AND ACRONYMS**

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ADSA	Associate Directorate for Strategic Acquisition
ASLB	Atomic Safety Licensing Board
CUI	controlled unclassified information
DOE	U.S. Department of Energy
FAIMIS	Financial Accounting and Integrated Management Information System
GALL	Generic Aging Lessons Learned
IG	Inspector General
ITAAC	inspections, tests, analyses, and acceptance criteria
NRC	U.S. Nuclear Regulatory Commission
OIG	Office of the Inspector General
3WFN	Three White Flint North

## TABLE OF CONTENTS

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EXECUTIVE SUMMARY .....	i
ABBREVIATIONS AND ACRONYMS .....	iv
I. BACKGROUND .....	1
II. OBJECTIVE .....	1
III. EVALUATION RESULTS .....	2
<b>Challenge 1</b> Oversight of nuclear material used for civilian purposes.....	5
<b>Challenge 2</b> Managing information to balance security with openness and accountability .....	10
<b>Challenge 3</b> Ability to modify regulatory processes to meet a changing environment in the oversight of nuclear facilities .....	13
<b>Challenge 4</b> Oversight of radiological waste.....	19
<b>Challenge 5</b> Implementation of information technology and information security measures.....	22
<b>Challenge 6</b> Administration of all aspects of financial management and procurement .....	25
<b>Challenge 7</b> Managing human capital .....	31
IV. CONCLUSION .....	34
 <b><u>APPENDIX</u></b>	
SCOPE AND METHODOLOGY .....	35

## **I. BACKGROUND**

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On January 24, 2000, Congress enacted the *Reports Consolidation Act of 2000* (Reports Act), requiring Federal agencies to provide financial and performance management information in a more meaningful and useful format for Congress, the President, and the public. The Reports Act requires the Inspector General (IG) of each Federal agency to annually summarize what he or she considers to be the most serious management and performance challenges facing the agency and to assess the agency's progress in addressing those challenges.

## **II. OBJECTIVE**

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In accordance with the Reports Act's provisions, the U.S. Nuclear Regulatory Commission (NRC) IG updated what he considers to be the most serious management and performance challenges facing the agency. The IG considered the overall work of the Office of the Inspector General (OIG), the OIG staff's general knowledge of agency operations, and other relevant information to develop and update his list of management and performance challenges.

In addition, OIG staff sought input from NRC's Chairman, Commissioners, and management to obtain their views on what challenges the agency is facing and what efforts the agency has taken or are underway or planned to address previously identified management and performance challenges.



### III. EVALUATION RESULTS

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The NRC's mission is to license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. Like other Federal agencies, NRC faces management and performance challenges in carrying out its mission.

#### **Determination of Management and Performance Challenges**

Congress left the determination and threshold of what constitutes a most serious management and performance challenge to the discretion of the IGs. As a result, the IG applied the following definition in identifying challenges:

Serious management and performance challenges are mission critical areas or programs that have the potential for a perennial weakness or vulnerability that, without substantial management attention, would seriously impact agency operations or strategic goals.

Based on this definition, in 2011, the IG assessed the most serious management and performance challenges facing NRC and identified seven challenges that he considered most serious. The challenges identify critical areas or difficult tasks that warrant high-level management attention. The 2011 list of challenges reflects two changes from the 2010 list:

- Prior Challenge 1, *Protection of nuclear material used for civilian purposes*, was reworded to *Oversight of nuclear material used for civilian purposes*. This change was made to more accurately describe NRC's regulatory oversight role relative to nuclear material as NRC does not directly protect nuclear material, but provides oversight of licensees who are charged to protect the material.
- Prior Challenge 3, *Ability to modify regulatory processes to meet a changing environment, to include the licensing of new nuclear facilities*,

was reworded to reflect changing economic conditions for new facility construction, as well as ongoing efforts to evaluate post-Fukushima Dai-ichi lessons learned for NRC's oversight of currently operating facilities. Current Challenge 3 now reads *Ability to modify regulatory processes to meet a changing environment in the oversight of nuclear facilities*.

The following chart provides an overview of the seven challenges identified as most serious. The sections that follow the chart provide more detailed descriptions of the challenges, descriptive examples related to the challenges, and examples of efforts that the agency has taken or are underway or planned to address the challenges.

<b>Most Serious Management and Performance Challenges Facing the Nuclear Regulatory Commission as of October 1, 2011*</b> <i>(as identified by the Inspector General)</i>	
<b>Challenge 1</b>	<i>Oversight of nuclear material used for civilian purposes.</i>
<b>Challenge 2</b>	<i>Managing information to balance security with openness and accountability.</i>
<b>Challenge 3</b>	<i>Ability to modify regulatory processes to meet a changing environment in the oversight of nuclear facilities.</i>
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## CHALLENGE 1

### *Oversight of nuclear material used for civilian purposes.*

NRC is authorized to grant licenses for the possession and use of radioactive materials and establish regulations to govern the possession and use of those materials.

NRC's regulations require that certain material licensees have extensive material control and accounting programs as a condition of their licenses. All other license applicants (including those requesting authorization to possess small quantities of special nuclear materials) must develop and implement plans that demonstrate a commitment to accurately control and account for radioactive materials.

NRC may relinquish to States, upon their request, its authority to regulate certain radioactive materials and limited quantities of special nuclear material. After these States demonstrate that their regulatory programs are adequate to protect public health and safety and compatible with NRC's program, the States enter into an agreement assuming this regulatory authority from NRC and are called Agreement States.

The issues related to this challenge and the agency's actions to address each issue include the following:

**Issue:** Implement the National Source Tracking System, Web Based Licensing, and the Licensing Verification System to ensure the accurate tracking and control of byproduct material, especially those materials with the greatest potential to impact public health and safety.



NSTS logo. Source: NRC

**Action:** Since the National Source Tracking System became operational in December 2008, NRC has continued implementation of and improvements to the system. Version 2.0 was deployed in May 2011. Revisions included functionality improvements designed to broaden system capabilities for all users. NRC is also continuing development of Web-Based Licensing and the License Verification System. Further, NRC is working to integrate these

systems with the National Source Tracking System to license and track source materials under one management mechanism.

**Issue:** Ensure that radioactive material is adequately protected to preclude its use for malicious purposes.

**Action:** Although NRC initiated a rulemaking to expand the materials tracked in the National Source Tracking System, the decision and potential implementation of that rulemaking was not approved by the Commission. As a result, the system is available to licensees to report transactions involving Code of Conduct<sup>1</sup> materials in only categories 1 and 2. NRC has provided licensees with multiple ways of reporting such transactions. About 60 percent of transactions are submitted electronically and about 40 percent are submitted via facsimile machine, U.S. Postal Service, or e-mail. NRC continues to work on getting more licensees to use the online system and contracted with a local marketing firm to help improve the online use of the system.



Code of Conduct.  
Source:  
[www.iaea.org](http://www.iaea.org)

In addition to collecting information in the National Source Tracking System, NRC launched a pilot inspection program to collect information on self-shielded irradiators and other irradiators. The purpose of the pilot is to assess the need to modify the current inspection program to determine if more frequent inspections would result in greater compliance with security requirements. One radioactive compound used in irradiators that is of particular concern for malicious use is cesium-chloride. The U.S. National Academy of Sciences issued a report emphasizing that replacement technologies be considered for cesium-chloride, a highly dispersible chemical form of the radioactive isotope of Cesium, Cs-137. Cesium-chloride is very soluble in water and

<sup>1</sup> In January 2004, the International Atomic Energy Agency published the Code of Conduct on the Safety and Security of Radioactive Sources as the standard the international community uses to govern the safety and security of radioactive materials based on the categorization system. While the International Atomic Energy Agency classifies sources into five categories, it notes that sources in categories one through three are designated as varying degrees of dangerous.

easily dispersed in the air and is highly toxic if ingested. Cesium-chloride, used in nuclear medicine, research, and industry, is typically double sealed and contained in a stainless steel capsule for safety reasons. In light of the views on alternative technologies as a replacement, NRC convened public workshops to seek input from various stakeholders. NRC also commissioned a study by its *Advisory Committee on the Medical Uses of Isotopes*. After carefully considering all these inputs, as well as the NRC's own internal analysis, the agency concluded that near-term replacement of cesium-chloride devices was not practicable, and would be detrimental to the delivery of medical care and research. As a result, NRC updated its policy statement, which still allows for the safe and secure use of cesium chloride and further states that the development and use of alternative forms of the material are prudent but not required.

**Issue:** Ensure the appropriate oversight of uranium recovery facilities.

**Action:** NRC maintains a regulatory oversight program with respect to licensing and inspection of uranium recovery facilities to ensure that licensees conduct activities safely and in an environmentally protective manner. NRC regulates six in situ<sup>2</sup> recovery facilities,<sup>3</sup> one conventional mill, and 11 mill sites undergoing decommissioning in the Western States.



**Crow Butte In Situ Recovery Facility.**  
Source: NRC Web site

Additionally, NRC works with the Department of Energy (DOE) regarding abandoned uranium mill tailing sites that are covered by Title I of the Uranium Mill tailings Radiation Control Act of 1978.

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<sup>2</sup> In situ recovery is one of the two primary extraction methods that are currently used to obtain uranium from underground. These facilities recover uranium from low-grade ores where other mining and milling methods may be too expensive or environmentally disruptive.

<sup>3</sup> One of the five in situ recovery facilities has been in litigation for 10 years and there has been no construction at that site; therefore, NRC's regulatory oversight is minimal.

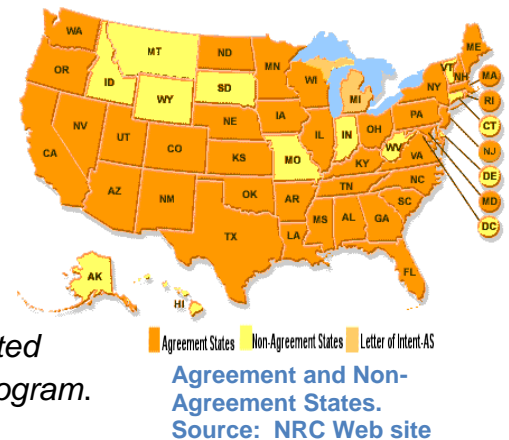
Under a general license from NRC, DOE is responsible for cleanup and remediation of these sites.

**Issue:** Ensure reliable accounting of special nuclear materials in the NRC and DOE jointly managed Nuclear Materials Management and Safeguards System.

**Action:** NRC has been working for over 8 years to resolve issues of material control and accounting in response to OIG's 2003 report, OIG-03-A-15, *Audit of NRC's Regulatory Oversight of Special Nuclear Materials*. On February 7, 2008, NRC approved a final rule that amended its regulations to improve the accuracy of material inventory information maintained in the Nuclear Materials Management and Safeguards System. The amendments, effective January 1, 2009, lower the threshold of reportable quantities of special nuclear materials and certain source materials to the Nuclear Materials Management and Safeguards System, modify the types and timing of submittals to the system, and require licensees to reconcile any material inventory discrepancies that NRC identifies in the system database. NRC reports that it has implemented the rule change requiring improved reporting and reconciliation for licensees reporting to the Nuclear Materials Management and Safeguards System, and continues to verify the adequacy of material control and accounting of special nuclear material at NRC licensed facilities. Additionally, the Commission has directed the NRC staff to revise and consolidate current material control and accounting regulations into Title 10, Code of Federal Regulations, Part 74. The proposed rule is scheduled to be published for public comment in late 2011. The final rule and associated guidance is scheduled to be completed by August 30, 2012.

**Issue:** Ensure that Agreement State programs are adequate to protect public health and safety and the environment, and are compatible with NRC's program.

**Action:** NRC conducts 8 to 10 reviews per year of Agreement State radioactive materials programs and NRC's regional programs under the agency's *Integrated Materials Performance Evaluation Program*. Furthermore, NRC completed a self-assessment of the program in July 2010. NRC management endorsed the self-assessment report and the agency initiated actions to address the report's 15 recommendations.



**Issue:** Ensure appropriate oversight of nuclear materials used in medicine.

**Action:** The agency is holding a series of public workshops to address concerns regarding the continued disagreement in the medical community about the correct approach for a definition of a medical event. During the workshops, NRC will solicit stakeholder input on topics associated with the medical event definition, including sections involving reporting and notifications of medical events for permanent implant brachytherapy and other medical issues that are currently being considered for rulemaking.

NRC is engaged in several activities to address concerns about doses given to members of the public from patients who have been treated with radioactive isotopes. For example, the agency expanded its guidance requirement for doctors to include advice that patients are strongly discouraged from checking into hotels immediately following treatment. Additionally, NRC staff are examining whether there are gaps in the available data regarding doses being received by members of the public due to the release of patients treated with medical isotopes, as well as how the agency could go about collecting additional data, if needed.



## **CHALLENGE 2**

### ***Managing information to balance security with openness and accountability.***

NRC employees create and work with a significant amount of sensitive information that needs to be protected. Such information includes sensitive unclassified information and classified national security information contained in written documents and various electronic databases.

Based on continuing national security threats, NRC continually reexamines its information management policies and procedures. NRC faces the challenge of attempting to balance the need to protect sensitive information from inappropriate disclosure with the agency's goal of openness in its regulatory processes. Over the past year, NRC has made various efforts to improve public access to information while protecting sensitive information, including security-related information, from inappropriate disclosure.

The issues related to this challenge and the agency's actions to address each issue include the following:

**Issue:** Respond to requests for information and provide external stakeholders with clear and accurate information about regulatory programs and facilitate public participation in the regulatory process to ensure openness and accountability.

**Action:** NRC has published datasets of regulatory information (e.g., inspection reports, event reports) on the Data.Gov Web site per the Administration's Open Government initiative. This initiative is intended to increase public knowledge and promote transparency by providing the public with access to machine-readable Government information for use in research and analysis.

**Issue:** Manage information in accordance with new Federal Government policies for designating, marking, safeguarding, and disseminating controlled unclassified information (CUI).

**Action:** The agency participated in working groups with the National Archives and Records Administration's CUI Office to develop a CUI Executive Order and Implementing Directive. NRC has submitted its catalog of proposed CUI categories, subcategories, and markings to the National Archives and Records Administration.

**Issue:** Ensure that sensitive information is handled in accordance with agency policies and procedures for public disclosure.

**Action:** NRC ensured that Privacy Act compliance activities were completed, such as Privacy Impact Assessments, requirements of the Office of Management and Budget Circular A-130, and Office of Management and Budget requirements for personal identifiable information.

**Action:** In response to recommendations in OIG's *Audit of the Shared S Drive* (OIG-11-A-15), the agency will revise its Personally Identifiable Information and information security training, provide agency information technology coordinators with role-based training, develop CUI policies and guidance for storing and protecting CUI in agency shared drives, and implement procedures for quality assurance checks following network upgrades to ensure that access controls are preserved in shared network drives that process documents containing CUI.

**Issue:** Review and strengthen programs to protect licensee, vendor, and Government-owned assets (e.g., facility designs, technology descriptions, dual use material and components, classified information) from compromise by foreign sources and industrial espionage and increase awareness of the relationship of these assets to the Nation's economic and industrial base and energy infrastructure.

**Action:** NRC has recognized the need to ensure technological data involving licensee, vendor, and Government-owned assets is fully protected against potential loss to adversaries. NRC has promulgated orders that provide additional security measures for the protection of these assets.

NRC employees and contractors are required to have a baseline level of security awareness upon entry on duty and a security clearance. Some, depending on their job and involvement in the creation and use of protected information, are provided various additional "role based" training programs, such as classifier's training, training for administrative personnel, declassification training, Secret Internet Protocol Router Network users training, and Sensitive Compartmented Information access training. The training is layered, targeted, and recurring for those with specific responsibilities for various types of protected information.

In addition, NRC has increased its information security awareness by issuing various agencywide announcements informing staff of methods used to target NRC information systems and the corresponding need for employees to heighten their computer security information protection posture.

**Issue:** Technologies and materials, which NRC regulates, have potential intelligence value to foreign states and non-state actors from either an intelligence or a counterproliferation, counterterrorism, or economic espionage perspective and should be protected from potential compromise. Further, there is the potential that NRC employees have knowledge and access to information that may be of interest to foreign powers and non-state actors.

**Action:** NRC has begun the process of developing programmatic efforts aimed at identifying potential threats and vulnerabilities that exist in its programs and operations. Such efforts should continue and receive senior leadership support.

### **CHALLENGE 3**

#### ***Ability to modify regulatory processes to meet a changing environment in the oversight of nuclear facilities.***

NRC faces the challenge of maintaining its core regulatory programs while adapting to changes in its regulatory environment. NRC must address a steady interest in licensing and constructing new nuclear power plants to meet the Nation's increasing demands for energy production. As of May 2011, NRC had received 18 Combined Operating License applications, 12 of which NRC was actively reviewing. Moreover, the agency is reviewing three standard design certifications and two certification amendments, and expects to receive five new advanced design certification applications through 2013.

While responding to the emerging demands associated with licensing and regulating new reactors, NRC must maintain focus and effectively carry out its current regulatory responsibilities, such as inspections of the current fleet of operating nuclear reactors and fuel cycle facilities. NRC intends to increase its safety focus on licensing and oversight activities through risk-informed and performance-based regulation.

The issues related to this challenge and the agency's actions to address each issue include the following:

#### **New Facilities**

**Issue:** Implement the new Construction Inspection Program.

- Risk-inform Construction Inspection Program activities to ensure the safe operation of newly constructed nuclear facilities.
- Ensure that the NRC staff has the necessary knowledge and skill to successfully implement the program.

**Action:** NRC has developed a Construction Inspection Program in accordance with Title 10, Code of Federal Regulations, Part 52. New inspections, tests, analyses, and acceptance criteria (ITAAC) have been integrated into the Part 52 licensing process to create a "design-specific, pre-approved set of performance standards that

the licensee must meet to the NRC's satisfaction." While the agency is still developing ITAAC review processes and procedures, it has conducted an ITAAC demonstration project to simulate and test numerous aspects of the ITAAC inspection, closure, and verification process. The agency also created the Center for Construction Inspection in Region II. The Center's mission is to provide assurance in the safety of future operations at new nuclear facilities by ensuring that licensees and applicants construct the facilities according to approved design criteria, using appropriate practices and quality materials.



**NRC Conducts Inspections.**  
Source: NRC Web site

NRC continues to make improvements to its construction inspection and quality assurance practices consistent with OIG recommendations. For example, during Fiscal Year 2011, the agency completed revisions to NRO-REG-112, "New Reactor Construction Experience Program," to improve the screening of construction operating experience for the purposes of documenting lessons learned.

**Issue:** As the public's demand for new energy sources continues, NRC must ensure that the process for reviewing applications for new facilities focuses on safety and effectiveness.

**Action:** NRC's review of Combined Operating License applications has been complicated because some applicants are revising the reactor design currently under review. The agency staff is working with applicants to resolve issues related to design, siting, and schedule modifications using a variety of interactions. These include pre-application audits, site visits, reviews of topical/technical reports, public meetings, and Design-Centered Working Group meetings.

NRC is also undertaking pre-application interactions with vendors of advanced and small modular reactor designs. To facilitate the licensing of new reactor designs that differ from the current generation of large light water reactor facilities, the NRC staff seeks to resolve key safety and licensing issues and develop a regulatory infrastructure to support licensing review of these unique reactor designs. The staff has identified several potential policy and technical issues associated with licensing small light water reactor and non-light water reactor designs.

**Issue:** As the sources of manufactured reactor components become more globalized, NRC must ensure its regulations and oversight activities appropriately address the challenges associated with licensees procuring components from suppliers located outside of the United States.

**Action:** NRC continues to make improvements to its vendor oversight activities consistent with OIG recommendations. In late December 2010, the NRC staff began developing an agencywide approach to address the threat of counterfeit and fraudulent components. Furthermore, in Fiscal Year 2011, NRC updated vendor inspection procedures to establish expectations that translators and interpreters will be used as necessary to ensure that the use of foreign-language documents or communication with foreign-language speakers does not degrade the quality of the inspection. NRC also participates in the Multinational Design Evaluation Program, which is a multinational initiative taken by national safety authorities to develop approaches to leverage the resources and knowledge of the national regulatory authorities who will be tasked with the review of new reactor power plant designs.

### **Existing Fleet**

**Issue:** Ensure NRC maintains the ability to effectively review licensee applications for license renewals and power uprates submitted by industry in response to the Nation's increasing demands for energy production.

**Action:** For planning purposes, NRC continues to work with plant licensees to develop a schedule of anticipated license amendment requests for license renewals and power uprates. The agency has

also implemented a number of recommendations to improve the license renewal review and power uprate processes to include closer management oversight of report-writing standards and technical reviewer and project manager training.

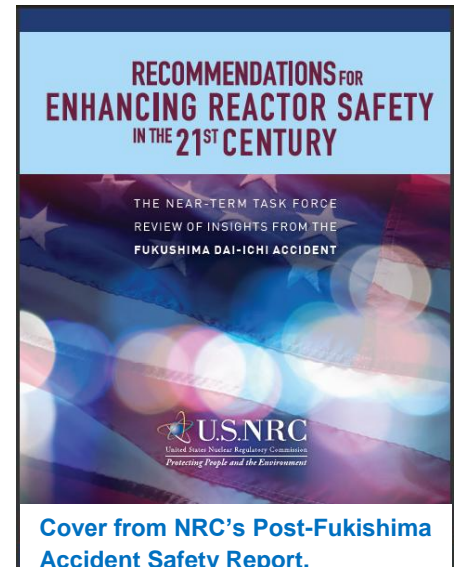
As NRC has gained experience with Inspection Procedure 71003, "Post-Approval Site Inspection for License Renewal," during recent years, the staff provided an updated "Frequently Asked Questions" document on the NRC Web site in March 2011. Furthermore, the staff updated a major license renewal document, NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," in December 2010.

**Issue:** Respond to a heightened public focus on license renewals resulting in contested hearings.

**Action:** NRC has open dialogs with the industry, licensees, and stakeholders. The public, in general, is also encouraged to participate in the process through public meetings, and public comment periods on rules, renewal guidance, and other documents. For example, NRC routinely requests public comment on supplements of NUREG-1437, "License Renewal Generic Environmental Impact Statement." In addition, the public has an opportunity to request a formal adjudicatory hearing if that party would be adversely affected by the renewal.

**Issue:** Ensure the ability to identify emerging operating and safety issues at all plants, including issues associated with license renewal and power uprate; consistently apply regulatory and review changes in response to these emerging issues across the existing fleet of reactors.

**Action:** NRC continues to evaluate the need to make changes to its regulatory programs based on emerging operational and safety issues related to license renewal and power uprate. For example, after the June 2010 Groundwater Contamination Task Force report was issued with recommendations for the agency to strengthen its response to groundwater incidents, the staff initiated, and plans to continue, efforts to work with consensus standards organizations to have certain provisions related to inspecting and maintaining buried piping incorporated into applicable industry standards.



Cover from NRC's Post-Fukishima Accident Safety Report.  
Source: NRC Web site

In March 2011, after an earthquake and tsunami struck Japan affecting several reactors at the Fukushima Dai-ichi site, NRC activated its 24-hour Emergency Operations Center to monitor and analyze events at the nuclear plants in Japan. Soon thereafter, NRC established the senior-level "Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident" to conduct a methodical and systematic review of the NRC's processes and regulations to determine whether the agency should make additional improvements to its regulatory system and to make recommendations to the Commission for its policy direction. In 2011, the Task Force delivered a report to the Commission with 12 recommendations for both short- and long-term changes to NRC's oversight of nuclear reactors. These recommendations focused on issues such as loss of electrical power, spent fuel pools, natural disaster preparedness and recovery, and NRC's overall regulatory approach to oversight. NRC's next steps are to determine how best to implement the Task Force recommendations, continue to evaluate new information coming from Fukushima Dai-ichi, and identify, review, and address lessons learned regarding the agency's and the Federal Government's response regarding the



Fukushima Dai-ichi event, and balance these emerging efforts against ongoing work.

**Issue:** Establish and maintain effective, stable, and predictable regulatory programs or policies for all programs.

**Action:** NRC continues to interface with stakeholders, develop regulatory policy, update rules and technical guidance, provide technical lead and management for the Reactor Oversight Process, and support the development of programmatic changes when needed. Additionally, the Reactor Oversight Process features an annual assessment process which is used to revise the program as necessary.

#### **CHALLENGE 4**

##### ***Oversight of radiological waste.***

NRC regulates spent nuclear fuel generated from commercial nuclear power reactors, referred to as high-level radioactive waste. NRC faces significant issues involving the uncertainty of Yucca Mountain as the Nation's repository for storing high-level radioactive waste. Other challenges in the high-level waste area include the interim storage of spent nuclear fuel, certification of storage and transportation casks, and the oversight of decommissioned reactors and other nuclear sites.

Additionally, the amount of low-level waste continues to grow; however, no new disposal facilities have been built since the 1980s, and unresolved issues will increase as access to disposal facilities becomes more limited given facility closures and restricted accessibility.

The issues related to this challenge and the agency's actions to address each issue include the following:

**Issue:** Address issues regarding DOE's March 3, 2010, motion to withdraw its license application to construct a high-level radioactive waste repository at Yucca Mountain.

**Action:** NRC stopped its review of DOE's high-level radioactive waste repository application despite a June 2010 determination by the NRC's Atomic Safety and Licensing Board (ASLB) that denied DOE's motion to withdraw the application. The ASLB grounded its decision in its interpretation of the Nuclear Waste Policy Act, reasoning that Congress directed DOE to file the application and NRC to consider the application and issue a decision based on its technical merits. On September 9, 2011, the Commission issued an Order to the ASLB stating that it was evenly split on whether to uphold or overturn the ASLB's decision. The Order also directed the ASLB to "Complete all adjudicatory activities by the end of the fiscal year [September 30, 2011]."

Going forward, the agency will continue to implement oversight programs in regard to radiological waste at sites across the Nation.

**Issue:** Maintaining flexibility to address regulatory challenges related to the management of spent nuclear fuel and high-level waste.

**Action:** NRC developed a *Plan for Integrating Spent Nuclear Fuel Regulatory Activities* to address future regulatory challenges related to the management of spent nuclear fuel and high-level waste.

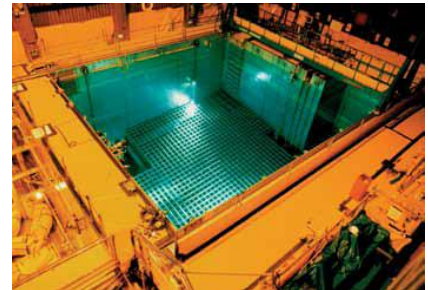
This plan is intended to assist NRC in addressing ongoing revisions to the national strategy for ensuring public health and safety and the environment in managing spent nuclear fuel and high-level waste. By coordinating the approach for regulation of spent nuclear fuel and high-level waste storage, potential reprocessing, transportation, and disposal, NRC can improve the efficiency and effectiveness of NRC regulatory processes and provide stability and predictability for stakeholders in a dynamic environment.



Yucca Mountain Crest – North View. Source: Bing Images

**Issue:** Address increasing quantities of high-level radiological waste requiring interim storage or permanent disposal.

**Action:** To provide technically based safety reviews of license amendment requests to allow credit for the reduction of reactivity due to reactor exposure in spent nuclear fuel, the NRC is conducting a study on the application of burnup credit in light water reactors. The study will address storage in both spent fuel pools and casks, as well as transportation considerations. The results of the study should provide NRC with an independent methodology for the application of burnup credit in spent fuel criticality applications.



Commercial Spent Fuel Pool. Source: NRC NUREG-1925, Rev 1

NRC also developed and implemented a decisionmaking tool for adopting a graded approach in terms of the depth and rigor of review of applications for certificates of compliance for dry cask waste storage systems. NRC used staff experience and risk

insights resulting from a pilot probabilistic risk analysis for dry cask storage systems to build the decisionmaking tool.

**Issue:** Oversight of low-level waste storage and disposal, including low-level radioactive waste disposal sites. All current low-level waste disposal sites are regulated by Agreement States.

**Action:** NRC is working to improve the regulatory framework for low-level waste, used by both NRC and Agreements States.

Following are examples of NRC activities:

- NRC completed the Regulatory Basis and most of the proposed rulemaking for requiring a site-specific performance assessment for low level waste disposal sites to demonstrate compliance with the performance objectives in the Code of Federal Regulations.
- NRC also held public meetings on issues related to low-level waste.
- NRC issued a summary of existing guidance to Agreement States for reviewing large-scale low-level radioactive waste blending proposals. The summary of current NRC policy and guidance should assist the Agreement States in making informed decisions until formal rulemaking and guidance is completed.



Low-Level Waste Containers. Source: Bing Images

**Issue:** Oversight of nuclear waste issues associated with the decommissioning and cleanup of nuclear reactor sites and other facilities.

**Action:** NRC oversees 10 power reactors, 2 early demonstration reactors, and 12 research and test reactors in safe storage or currently undergoing decommissioning. NRC's regional offices conduct periodic inspections to include reviews of decommissioning nuclear waste management.

## **CHALLENGE 5**

### ***Implementation of information technology and information security measures.***

NRC needs to continue upgrading and modernizing its information technology and security capabilities both for employees and for public access to the regulatory process. Recognizing the need to modernize, the Office of Information Services established goals to improve the productivity, efficiency, and effectiveness of agency programs and operations, and enhance the use of information for all users inside and outside the agency. NRC also needs to ensure that system security controls are in place to protect the agency's information systems against misuse.

The issues related to this challenge and the agency's actions to address each issue include the following:

**Issue:** Upgrade and manage information technology activities to improve the productivity, efficiency, and effectiveness of agency programs and operations.

**Action:** NRC continued to work with its business system owners on analysis of legacy applications for future technology modernization, including development of a funding strategy.

**Action:** The agency awarded a new Information Technology Infrastructure and Support Services contract that will replace the current contract and vendor. The agency expects this will provide a more flexible vehicle for providing information technology services.

**Action:** An agencywide Virtual Meeting capability was put into place contractually for Fiscal Year 2012.

**Action:** All users received the full version of Adobe Acrobat Professional. This added cost and management efficiencies by consolidating support and licensing of the application.

**Action:** NRC coordinated its planning for the new Three White Flint North (3WFN) headquarters building to ensure efficient, cost-effective, and future-thinking information technology infrastructure requirements are understood and included.

**Issue:** Provide laptop computers with enhanced functionality, security, and support.

**Action:** NRC completed the implementation of the base laptop program, which provides several enabling technologies for mobile users and supports the capability to “work from anywhere.” This included the implementation and/or enhancement of the following services: mobile desktops, loaner laptops, loaner broadband cards, and Blackberry tethering.

**Issue:** Ensure that information systems and assets are protected.

**Action:** NRC has begun to identify and explore additional options (e.g., mobile devices, smart phones, and tablets) to provide agency staff with secure, remote access to agency resources.

**Action:** NRC has continued to make improvements to the Security Operations Center adding tools for centralized logging and continuous monitoring.

**Action:** Although NRC established an agencywide cyber security situational awareness capability to enhance visibility of and response to emerging threats to NRC information resources, the agency has yet to fully deploy purchased cyber tools that could strengthen its ability to identify, mitigate, and reduce threats against its information systems infrastructure. Effective implementation and coordination among cognizant NRC offices with internal and external response responsibilities to potential network intrusion attacks provide NRC with enhanced capabilities to respond to such threats.

**Action:** The agency has issued Homeland Security Presidential Directive-12 identification cards to NRC staff and contractors, and Homeland Security Presidential Directive-12 compliant security equipment has been installed in all NRC facilities.

**Issue:** Ensure that plans for a cyber security inspection program are developed and implemented.

**Action:** The staff plans to develop an inspection procedure for conducting cyber security inspections at nuclear power plants and hold training for NRC cyber security inspectors. The inspections are planned to be conducted between calendar years 2012 and 2016.

## **CHALLENGE 6**

### ***Administration of all aspects of financial management and procurement.***

NRC management is responsible for meeting the objectives of several statutes, including the Federal Managers' Financial Integrity Act. This act mandates that NRC establish controls that reasonably ensure that (1) obligations and costs comply with applicable law; (2) assets are safeguarded against waste, loss, unauthorized use, or misappropriation; and (3) revenues and expenditures are properly recorded and accounted for. This act encompasses program operational, and administrative areas, as well as accounting and financial management.

NRC's procurement of goods and services must be made with an aim to achieve the best value for the agency's dollars in a timely manner. Agency policy provides that NRC's procurement of goods and services supports the agency's mission; be planned, awarded, and administered efficiently and effectively; and be consistent with sound business practices and contracting principles. Agency efforts are currently focused on the goals of achieving (1) a 21<sup>st</sup> century acquisition program that uses state-of-the-art acquisition methodologies for acquisition planning, execution, management, and closeout; and (2) an acquisition program that fully integrates with agencywide program and financial planning and execution. The issues related to this challenge and the agency's actions to address each issue are as follows:

#### **Financial Management**

**Issue:** Improve the performance and functionality of the agency's new core financial system.

**Action:** The agency deployed the Financial Accounting and Integrated Management Information System (FAIMIS) on October 1, 2010. FAIMIS replaced five core financial systems with a single Web-based commercial-off-the-shelf software system. While the agency deployed the system as scheduled, there have been a number of performance and functionality issues.



Specifically:

- Delays in issuing license fee bills.
- Frequent system outages prevent staff from entering data into the system in a timely manner.
- Reports used by agency staff to reconcile budget and accounting information are untimely and difficult to interpret.

NRC anticipated initial operational challenges characteristic of new enterprise-wide system deployments. NRC has employed change management and organizational communication strategies to try to reduce the impact of these challenges. For example, the agency has created workgroups to address user concerns, monitored issues through its help desk, and provided additional system training to staff.

**Issue:** Find a new service provider to host FAIMIS.

**Action:** The Department of Interior National Business Center, the current host, notified the agency that after September 30, 2012, it would no longer host FAIMIS. The agency is working to find a new service provider before the beginning of Fiscal Year 2013.

**Issue:** Upgrade the Time and Labor system to a modern, Web-based, user-friendly system.

**Action:** The agency delayed implementation of plans to upgrade the Time and Labor system in July 2010 because of performance issues identified during production testing. In September 2010, the agency created an Integrated Project Team to perform a technical evaluation and develop a plan for launching a reliable system. The upgrade would provide a modern, Web-enabled version of the existing PeopleSoft Time and Labor software. While this is an upgrade in versions, there are significant differences between the two versions that make the effort similar to a new implementation. The upgraded system will provide increased security, is employee managed, paperless and allows for electronic workflow and electronic signature approval.

**Action:** The Integrated Project Team took a three-phased approach to implement the new module.

**Phase One:** Included analyzing and testing application recommendations, and rebuilding the infrastructure in all environments.

**Phase Two:** Included testing the system for functionality and performance in the rebuilt infrastructure.

**Phase Three:** Includes user acceptance testing and employee training.

Instructor-led and Web-based training is scheduled to be available for NRC employees in September 2011. The agency developed a SharePoint site to provide a central location for sharing information with NRC employees on progress and for addressing employee questions or issues. The Office of the Chief Financial Officer provided periodic updates on the modernization progress. Present plans call for implementation of the new system on October 23, 2011, in time for processing pay period number 23.

**Issue:** Respond to the flat or declining budget environment.

**Action:** As with many other Federal agencies, NRC has had to meet its mission in the face of substantial budget cuts that have flattened the agency's budget. NRC reorganized its budget structure in an effort to improve transparency and target areas of inefficiencies. NRC also established a Transforming Assets into Business Solutions Task Force to analyze and assess NRC business practices and develop cost effective, and cost conscious solutions to manage overhead costs. The task force developed recommendations, which included streamlining the budget formulation process, centralizing human resource management functions, improving contract management, and standardizing information technology solutions.

## **Procurement**

**Issue:** Respond to Commission direction to implement a 21<sup>st</sup> century acquisition program that will consider broader agency programmatic requirements with a more integrated and informed acquisition planning approach that leverages agency resources, programmatic requirements, and contract dollars.

**Action:** In March 2011, the agency established the Associate Directorate for Strategic Acquisition (ADSA) within the Office of Administration to develop and implement a strategic acquisition program for the agency to address identified process, automation, and workforce skill issues.

**Action:** ADSA is responsible for procuring and implementing an acquisition module that is compatible with FAIMIS. The acquisition module will standardize and centralize acquisition processes agencywide and automate lifecycle procurement activities for commercial contracts, DOE laboratory agreements, interagency agreements, financial assistance awards, and purchase card transactions within a single business application solution. The agency plans to implement the acquisition module in two phases. However, due to budget constraints and Commission concern over NRC's recent experience with deployment of the FAIMIS Core Financial system, the agency has been unable to finalize an implementation schedule for the acquisition module.

**Action:** ADSA staff completed a plan of action designed to economize, streamline, and standardize the NRC procurement process through the application of enterprise spend management principles.

**Action:** NRC recently completed its first comprehensive spend-analysis and identified 10 major portfolio categories as candidates for savings through enterprise sourcing efforts. An ongoing OIG evaluation is assessing NRC's contract award process.

**Issue:** Implement improvements in the agency's procedures for awarding, negotiating, and managing agreements with DOE laboratories.

**Action:** In response to an OIG audit,<sup>4</sup> NRC is in the process of updating Management Directive 11.7, *NRC Procedures for Placement and Monitoring of Work with the U.S. Department of Energy*. Staff has also issued interim guidance for enhanced oversight of the process for placing work with DOE. The interim guidance:

1. Addresses the need for offices to consider the use of commercial sources through market research as part of the decisionmaking process in choosing to use a laboratory and fully document the results/conclusions in DOE laboratory agreement files.
2. Provides clarification for offices regarding the requirement to fully document the rationale and basis for using a DOE laboratory.
3. Addresses the requirement for when offices shall submit Source Selection Justifications to the Division of Contracts for independent review to ensure that commercial sources are fully considered.
4. Identifies milestones for more robust market research requirements prior to awarding DOE laboratory agreements.

Issuance of this interim guidance provides an opportunity for offices to work with the Office of Administration to collaborate on updating and incorporating revisions to Management Directive 11.7.

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<sup>4</sup> OIG-10-A-12, *Audit of NRC's Management of Agreements with Department of Energy Laboratories* (April 23, 2010)

**Issue:** Manage the agency's expanded grant program to ensure that grants are awarded in a timely manner and NRC personnel who award and administer grants are provided appropriate training.

**Action:** In response to recommendations from an OIG audit report,<sup>5</sup> the staff established requirements for the content and organization of NRC grant files. Staff also developed a grants SharePoint site, developed a grants training plan, awarded a contract for off-the-shelf grants training for the Division of Contracts and program office staff, and implemented an internal quality control process to assure regulatory compliance.

**Action:** The staff updated Management Directive 11.6, *Financial Assistance Program*, which was approved by the Executive Director for Operations on September 16, 2011. The staff is also preparing a *Grants Specialist Desk Guide* for NRC Division of Contracts and program office staff. The purpose of the desk guide is to ensure consistency in the grants process.

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<sup>5</sup> "OIG-09-A-16, *Audit of NRC's Grant Management Program* (September 29, 2009)

## CHALLENGE 7

### *Managing human capital.*

For several years, NRC experienced significant growth resulting from an increased interest in nuclear power. As of July 25, 2011, NRC's workforce is 3,961 staff and it is unlikely that NRC will see any growth over the next several years. Going forward, NRC will need to support increasing mandates within a zero-growth or declining budget environment. NRC must institutionalize an approach that focuses on its mission of protecting the public health and safety while remaining mindful of staff needs. To manage human capital effectively, while continuing to accomplish the agency's mission, NRC must continue to implement initiatives in the following areas:

- Reducing inefficiencies and overhead by centralizing and streamlining processes while maintaining or improving the level of customer service.
- Space planning.

The issues related to this challenge and the agency's actions to address each issue include the following:

**Issue:** NRC must respond to the flat or declining budget environment.

**Action:** As NRC transitions from a period of aggressive growth to a nearly flat budget, it is critical that the agency has the most effective organizational structure possible. Despite the current budget pressures on the agency's staffing levels, NRC must continue to look toward the future. Salaries and benefits are a significant driver of the budget and influence how much resources the agency has available for such items as fixed costs, contract support, and travel. To help the agency reshape the workforce, NRC plans to ask the Office of Personnel Management and the Office of Management and Budget for authority to offer some eligible employees in specific situations an opportunity to request voluntary "buy outs" and early retirements. Some of these options

are being offered because of changes in technology and the way the agency does business. If approved, these options would be offered some time in the first quarter of Fiscal Year 2012. In addition, the agency has refocused its efforts to manage salaries and benefits costs as well as full-time equivalents.

**Issue:** NRC must adapt training and development programs to the changing needs of agency staff.

**Action:** NRC is focusing on a competency-based approach to training to ensure a line-of-sight alignment between employees' learning experiences and the agency's mission. The agency plans to explore and exploit training technologies such as online and distance learning to deliver quality learning opportunities at best cost, when and where they are needed.

**Issue:** NRC must address knowledge management in light of the high number of senior experts and managers who are or will be eligible to retire.

**Action:** The agency has in place a variety of human capital strategies to maintain and bolster knowledge and skills during a

period when a large number of experienced staff members are becoming eligible to retire and current and new NRC employees need the benefit of their knowledge. The agency continues to expand and enhance its Knowledge Management program by actively capturing lessons learned from subject matter experts, improving access to lessons-learned and training programs, and building an agencywide Knowledge Center.

**Issue:** NRC needs to facilitate continuation of its space planning efforts. The first phase of construction of 3WFN, a 14-story building with a 4-level underground parking garage, continues on schedule. Completion of the first phase along with the second phase build out of the interior office space and interior design, is expected by August 2012. When completed, 3WFN will provide office space for approximately 1,400 NRC staff members and allow the agency to reconsolidate headquarters staff who are now dispersed among four offsite locations. There is no funding in the

budget for either above ground or underground pedestrian access between One White Flint North and 3WFN. To access 3WFN, agency employees will have to cross Marinelli Road, which is a multi-lane road. NRC faces two challenges related to 3WFN. The agency must ensure that:

- Building requirements are met and within budget.
- Provisions are put in place to ensure safe pedestrian movement between the buildings.

**Action:** NRC will (1) review and approve the Construction Drawings for the 3WFN building and the construction bid pricing; (2) complete the interior fit-out of the building; (3) develop

specifications, procure and install workstations, and (4) relocate approximately 1,400 staff and contractors as well as the Professional Development Center, Data Center, and Headquarters Operations Center to the building. The target date to complete relocation into the 3WFN building remains December 2012. The goal is to provide a quality working environment for NRC employees within the established budget.

**Action:** The Montgomery County Department of Transportation and NRC are continuing to work together to maximize pedestrian safety around the White Flint complex. As part of the effort, the Montgomery County Department of Transportation removed a temporary crosswalk on Marinelli Road east of the median wall and constructed a new crossing area near the entrance to White Flint Complex. NRC installed sidewalk barriers along the south side of Marinelli Road to direct pedestrians to the new crossing and to discourage jay walking between the temporary One White Flint North entrance on the south side of Marinelli Road and the Metrorail parking garage on the north side while lobby construction was underway.



## **IV. CONCLUSION**

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The seven challenges contained in this report are distinct, yet are interdependent to accomplishing NRC's mission. For example, the challenge of managing human capital affects all other management and performance challenges.

The agency's continued progress in taking actions to address the challenges presented should facilitate achieving the agency's mission and goals.

## **SCOPE AND METHODOLOGY**

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### **SCOPE**

This evaluation focused on the IG's annual assessment of the most serious management and performance challenges facing the NRC. The challenges represent critical areas or difficult tasks that warrant high level management attention. To accomplish this work, the OIG focused on determining (1) current challenges, (2) the agency's efforts to address the challenges during Fiscal Year 2011, and (3) future agency efforts to address the challenges.

### **METHODOLOGY**

OIG reviewed and analyzed pertinent laws and authoritative guidance, agency documents, and OIG reports, and sought input from NRC officials concerning agency accomplishments relative to the challenge areas and suggestions they had for updating the challenges. Specifically, because challenges affect mission critical areas or programs that have the potential to impact agency operations or strategic goals, NRC Commission members, offices that report to the Commission, the Executive Director for Operations, and the Chief Financial Officer were afforded the opportunity to share any information and insights on this subject.

OIG staff conducted this evaluation from May through August 2011 at NRC headquarters.