

# **Draft Strategic Plan: Fiscal Years 2012-2016**

## **Draft Report for Comment**

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## COMMENTS ON DRAFT REPORT

Any interested party may submit comments on this report for consideration by the NRC staff. Comments may be accompanied by additional relevant information or supporting data. Please specify the report number NUREG-1614, Vol. 5, draft, in your comments, and send them by November 2, 2011 to the following address:

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## **ABSTRACT**

The FY 2012-2016 Draft Strategic Plan describes the Nuclear Regulatory Commission's mission and established the Commission's strategic direction by defining the strategic goals and outcomes the agency intends to pursue.

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## **INTRODUCTION**

### **About the NRC**

The U.S. Nuclear Regulatory Commission (NRC or agency) is an independent agency that was established by the Energy Reorganization Act of 1974, and began operations in 1975. Congress established the NRC to regulate the Nation's civilian commercial, industrial, academic, and medical uses of nuclear materials in order to protect public health and safety, promote the common defense and security, and protect the environment. The NRC is headed by five Commissioners appointed by the President of the United States, with the advice and consent of the U.S. Senate, to serve staggered 5-year terms. The President designates one of the Commissioners to serve as Chairman.

The NRC's scope of responsibility includes the regulation of commercial nuclear power plants; research and test reactors; nuclear fuel cycle facilities; medical, academic, and industrial uses of radioactive materials; the decommissioning of these facilities and sites; and, the transport, storage, and disposal of radioactive materials and wastes. The NRC's regulations are designed to protect the public and occupational workers from radiation hazards resulting from regulated activities. The entities regulated by the NRC are responsible for the safety and security of radioactive materials.

The NRC issues licenses for civilian uses of radioactive materials, oversees the licensees, and certifies standard nuclear reactor designs and spent fuel storage casks and transportation packages. As of September 2011, currently operating facilities and licensees include 104 commercial nuclear power reactors; 31 research and test reactors; approximately 4,600 licensed reactor operators; 4 early site permits; 4 reactor design certifications; 40 uranium recovery sites; 16 major fuel cycle facilities; approximately 3,000 research, medical, industrial, government, and academic materials licensees; and 46 independent spent fuel storage installations. The NRC also provides consultation to the U.S. Department of Energy about disposal options for waste incidental to reprocessing and monitors the department's disposal actions for incidental waste.

In addition, 37 States, which administer approximately 19,600 licenses, have signed agreements with the NRC under which they assume regulatory responsibility over the use of certain quantities of radioactive materials for civilian purposes in their respective States. The NRC works closely with these Agreement States to ensure that they maintain an adequate and compatible regulatory framework.

The NRC also licenses the import and export of radioactive materials; participates in international nuclear activities, including multilateral and bilateral safety and security activities; and works closely with its international counterparts to enhance nuclear safety and security worldwide.

### **A Stable Regulator in a Dynamic Environment**

The review of applications to construct and operate new nuclear power plants including small modular reactors, while continuing to ensure the safe and secure operation of the existing licensed facilities, and addressing any national policy decisions related to the management of radioactive waste are major evolving challenges facing the NRC over the next several years.

To meet these challenges, the NRC must use its resources efficiently, revise the regulatory framework as appropriate to disposition existing or emerging issues, and provide adequate infrastructure to maintain staff competence and readiness. Even as the NRC works to address



these challenges, the agency's mission and values remain unchanged. The NRC's priority continues to be ensuring the adequate protection of public health and safety, and promoting the common defense and security. Safety and security remain the agency's core function upon which the goals and strategic outcomes of this Strategic Plan are based. This focus on safety and security ensures that the NRC remains a strong, independent, stable, and effective regulator.

In the next 4 years, the NRC expects:

- To receive additional applications for new uses of radioactive material as well as applications from entities that want to build and operate both small and large new nuclear power plants. In addition, the agency will develop the regulatory infrastructure to support the review of anticipated applications for small modular reactors.
- An increase in the quantities of spent nuclear fuel that will be held in interim storage at reactor sites or possibly transported to centralized interim storage sites awaiting permanent disposal.
- To coordinate with a wide array of Federal, State, local, and Tribal governments on matters related to nuclear material regulation, license renewal, new reactor licensing, homeland security, emergency planning, management of radioactive waste, decommissioning, and environmental protection.
- To make additional improvement in NRC's regulatory system based on lessons learned insights from the nuclear accident that began with the events on March 11, 2011, at the Fukushima Dai-ichi nuclear facility in Japan.
- To increase international engagement on safety and security of the use of nuclear material.

The NRC recognizes that the developments noted above will create an even greater need for effective and open communication with public stakeholders about a variety of issues. These include emergency preparedness and the safety and security of existing and proposed nuclear power plants, fuel cycle facilities, as well as medical, academic, and industrial uses of licensed materials.

The resolution of these complex regulatory issues also requires effective knowledge management to capture, retain, and leverage institutional knowledge. The agency will continue to attract staff with the skills to conduct complex safety reviews. The agency also realizes that in order to retain these highly skilled and educated professionals, it must provide them with effective leadership, the necessary resources to perform their jobs, and a workplace that promotes strong employee engagement. The NRC's resource management approach focuses on ensuring that each staff member is highly trained in the skills relating to his or her duties, the regulatory processes that govern agency actions, and the regulatory principles inherent in making the agency a strong, independent, stable, and predictable regulator.

Being a stable and predictable regulator means having effective and structured regulatory processes in place and ensuring that these processes are followed. The NRC will develop regulatory initiatives in a manner that is open to public review and involvement in accordance with these processes. The NRC is committed to considering and being responsive to stakeholder input before implementing new regulatory initiatives.

**Organization of the Strategic Plan**

This Plan describes the NRC's key strategic goals of safety and security. For each of these goals, the Plan describes their strategic outcomes, issues and significant observations, strategies, and the means to support the strategies during this strategic planning period. The Plan also describes the organizational excellence objectives (i.e., openness, effectiveness, and operational excellence) to support the strategic goals of safety and security. For each of the excellence objectives, the Plan discusses strategies and issues.

**Appendix A** discusses key external factors that could affect the agency's ability to effectively execute this Strategic Plan.

**Appendix B** provides the schedule of planned program evaluations that the agency will use to adjust and refine its performance.

**Appendix C** is a glossary of terms used in the plan.

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## THE PLAN

### Mission

The mission of the NRC is to license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials in order to ensure the adequate protection of public health and safety, promote the common defense and security, and protect the environment.

### NRC Organizational Values

The NRC organizational values ensure excellence in accomplishing the agency's mission:

- **integrity** in our working relationships, practices, and decisions
- **service** to the public and others who are affected by our work
- **openness** in communications and decision-making
- **commitment** to public health and safety, security, and the environment
- **cooperation** in the planning, management, and performance of agency work
- **excellence** in our individual and collective actions
- **respect** for individuals' diversity, roles, beliefs, viewpoints, and work/life balance

### Principles of Good Regulation

The safe and secure use of radioactive materials and nuclear fuels for beneficial civilian purposes is enabled by the agency's adherence to the following principles of good regulation: independence, openness, efficiency, clarity, and reliability. In addition, regulatory actions are effective, realistic, and timely.

### Strategic Goals

**Safety:** Ensure adequate protection of public health and safety and the environment.

**Security:** Ensure adequate protection in the secure use and management of radioactive materials.

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## **SAFETY**

**Safety Goal:** Ensure adequate protection of public health and safety and the environment.

### **Safety Goal Strategic Outcomes**

- Prevent the occurrence of nuclear reactor accidents.
- Prevent the occurrence of inadvertent criticality events.
- Prevent the occurrence of acute radiation exposures resulting in fatalities.
- Prevent the occurrence of releases of radioactive materials that result in significant radiation exposures.
- Prevent the occurrence of releases of radioactive materials that cause significant adverse environmental impacts.

### **Discussion**

A primary function of the NRC is to regulate the safe civilian uses of radioactive materials to ensure adequate protection of public health and safety and the environment. In responding to anticipated developments in the nuclear reactor safety arena over the next several years, including the review of a number of applications for new nuclear reactors, the NRC will continue to place significant emphasis on strengthening the relationship among safety, security, and emergency preparedness. In light of the events in Japan on March 11, 2011 that resulted in the nuclear accident at the Fukushima Dai-ichi nuclear power plant, the NRC assessed relevant NRC regulatory requirements, programs, and processes and their implementation to determine actions that may be necessary to improve safety and emergency preparedness at the operating nuclear power plants in the United States and for new reactors. Further, as lessons learned insights are identified from the Fukushima nuclear accident that are applicable to nuclear reactor designs and facilities in the U.S., the NRC will consider applying these insights to improve its regulatory system in an effective and efficient manner, while meeting the safety goal objective.

The NRC achieves its safety goal by licensing individuals and organizations to use radioactive materials for beneficial civilian purposes and then ensuring licensees perform at acceptable safety levels. In particular, the agency maintains vigilance over safety performance through licensing reviews, inspections, assessment, enforcement, investigations, expanded oversight (when needed), rulemaking, and incident response. In addition, the NRC continually seeks to promptly identify and resolve any potential safety issues, including those with generic implications for multiple reactors or licensees. When appropriate, the NRC uses enforcement actions to rectify deficiencies. These enforcement actions include issuing orders for corrective action, issuing shutdown orders, imposing civil penalties, seeking criminal prosecution, or suspending or revoking a license.

The agency conducts its activities using sound science, risk insights, the principle of defense-in-depth, and operating experience to ensure that licensed facilities have adequate safety margins. In carrying out its safety mission, the NRC takes appropriate actions to ensure that licensee performance does not fall below acceptable levels.

Important current and future considerations for the agency include challenges related to materials degradation at existing nuclear power plants; high-level waste storage, transport, and disposal; the use of new and evolving technologies, and analyzing domestic and international operating experience and other events of national interest for lessons learned and best practices. Other considerations include upgrading incident response systems, employing a

multifaceted regulatory approach, and cooperating and coordinating with other domestic agencies and government entities.

Virtually all of the operating nuclear power plants in the United States have either received 20-year extensions of their operating licenses, submitted an application that is under review, or formally indicated their intent to apply for license extensions in the future. In making license renewal decisions materials degradation is the primary consideration. The aim of the license renewal process is to evaluate how aging effects will be monitored, managed, and controlled such that safety is ensured during the renewal period. The NRC staff evaluates license renewal applications for nuclear reactors for the robustness, longevity, and continued performance of nuclear power plant components, such as electric cabling, piping, and containment structures.

Nuclear facility licensees are replacing analog instrumentation and control equipment with digital equipment because analog replacement parts are becoming more difficult to obtain. Digital systems also offer potentially better performance and features than analog systems. New reactors are anticipated to use advanced digital instrumentation and control systems and control room operator interfaces, presenting regulatory and licensing challenges for the agency and the nuclear industry.

The NRC is reviewing applications to construct and operate a new generation of nuclear plants. The agency conducts thorough and timely reviews of these applications while also ensuring that adequate resources are available to support the operational safety of the current fleet of reactors.

With the development of new reactor designs and other new facilities and technologies, the NRC is working closely with regulators in other countries interested in participating in the Multinational Design Evaluation Program, in which several nations jointly cooperate in sharing information regarding the review of new reactor designs. These next generation designs require detailed evaluation of their vulnerability to accidents, as well as development of inspections, tests, analyses, and acceptance criteria for their construction. First-of-a-kind construction, startup, and operation of several nuclear power plants designed in the United States will continue to occur in other countries. A significant percentage of the major components both for these initial plants and for plants that may eventually be built in the United States will be manufactured outside this country. In response, the NRC is actively engaged with its counterpart regulatory authorities in other countries, in enhancing the sharing of relevant information, experience, and expertise.

The Nation will require continued safe management of spent nuclear fuel and high-level waste. The NRC regulates various options for storage, transport, and disposal of spent nuclear fuel and high-level waste. To address potential future regulatory challenges associated with the development of a national strategy for the management of spent nuclear fuel and high-level waste, the staff has initiated an integrated review of the associated regulatory programs, including evaluation of extended storage of spent fuel and the potential development of a regulatory framework for recycling.

Industry interest in fuel cycle facilities is expected to continue and these projects will require NRC review. The agency is also reviewing applications for new uranium enrichment, deconversion, and uranium recovery facilities from corporations participating in the domestic and international uranium market to support the current and new generation of nuclear plants. Further, the NRC is reviewing a license application to operate a mixed-oxide fuel facility that would use plutonium salvaged from decommissioned nuclear weapons to fabricate fuel

assemblies for use in nuclear power plants, thus reducing the existing quantities of materials that could otherwise be used for weapons.

The NRC employs a multifaceted regulatory approach to meet the continuing challenge of ensuring that its licensees operate nuclear facilities and use radioactive materials safely. Additionally, close cooperation between the NRC and Federal, State, local, and Tribal governments will lead to even more effective regulation. Therefore, the NRC works with other Federal agencies, such as the U.S. Environmental Protection Agency, Occupational Safety and Health Administration, Food and Drug Administration, and U.S. Departments of State, Energy, Transportation, Justice, and Homeland Security, as well as State and local authorities and Tribal governments to ensure appropriate coordination for the accomplishment of the NRC's mission. States that have entered into agreements with the Commission carry out adequate and compatible programs for regulating nuclear materials within their borders.

The NRC maintains an infrastructure of data, tools, and methods that make it possible to independently evaluate and confirm the safety analyses presented by licensees. This infrastructure is also essential in providing a strong technical basis for rulemaking activities. As the state-of-the-art evolves and licensees employ increasingly advanced analytical techniques, the NRC updates the agency infrastructure to keep it on par with current developments. Furthermore, to deal with emergent challenges and novel technologies, the agency implements long-term research programs that prepare the staff for time-critical new applications.

Nuclear safety is a global issue and a continuing challenge. The NRC closely cooperates with its counterpart foreign regulatory bodies and international organizations, such as the International Atomic Energy Agency (IAEA) and the Organisation for Economic Co-operation and Development's Nuclear Energy Agency (NEA), to share information, best practices, and lessons learned from operating experience and to participate in the development of standards and guidance.

### **Safety Goal Strategies**

1. Develop, maintain, implement, and improve licensing and regulatory programs for existing and new reactors, fuel cycle facilities, materials users, transportation and management of spent fuel, uranium recovery, waste disposal, and decommissioning activities to ensure the adequate protection of public health and safety.
2. Oversee the safe and secure operation of existing facilities and uses of nuclear material.
3. Manage the review of construction of new power reactors.
4. Conduct NRC safety and security programs and emergency preparedness in an integrated manner.
5. Implement focused research programs to anticipate and support resolution of safety issues and address new technologies.
6. Use sound science and state-of-the-art methods to establish, where appropriate, risk-informed and performance-based regulations.
7. Promote awareness of the importance of a strong safety culture and individual accountability of those engaged in regulated activities.



8. Use domestic and international operating experience to inform decision-making.
9. Oversee licensee safety performance through inspections, investigations, enforcement, and performance assessment activities.
10. Respond to events at NRC-licensed facilities and other events of national and international interest, including maintaining and enhancing the NRC's emergency incident response and communication capabilities.
11. Respond to future National policy decisions regarding high level nuclear waste management strategies recommended or adopted as the Nation's policy, and assess issues associated with long-term storage of high-level waste and spent fuel.

### **Means to Support Safety Strategies**

The NRC conducts a number of programs and initiatives to ensure adequate protection of public health and safety and the environment. The major components of NRC programs include licensing, inspection, assessment, enforcement, rulemaking, incident response and emergency preparedness, research, domestic and international information exchange, and cooperation with the Agreement States. To support these efforts the NRC will conduct activities such as the following during this strategic planning period:

- Review licensing requests (e.g., new applications, amendments, power uprates, renewals, decommissioning and license termination) to confirm that they provide an adequate margin of safety consistent with the agency's rules and regulations. Conduct environmental reviews as appropriate to comply with the National Environmental Policy Act of 1969. [Supports Safety Strategies 1, 2, and 3]
- Implement, review, and refine the Reactor Oversight Process, the principal program for overseeing nuclear power plant operation, to better identify significant performance issues and to ensure that licensees take appropriate actions to maintain acceptable safety performance. [Supports Safety Strategies 6 and 9]
- Implement, review, and refine materials oversight, which mainly involves overseeing licensed users of radioactive material across the country, conducting inspections and investigations, monitoring the status of activities, and taking enforcement actions, when necessary, to ensure that radioactive materials are used safely. [Supports Safety Strategy 9]
- Maintain qualified inspectors at nuclear power reactor and certain fuel cycle sites (resident inspectors), in the NRC's four regional offices and at the agency's headquarters. [Supports Safety Strategies 1, 7, and 9]
- Maintain qualified license reviewers in the NRC's four regional offices and the agency's headquarters. [Supports Safety Strategies 1, 4, 6, 7, 9 and 10]
- Complete licensing decisions related to combined construction-operating and licenses (COL) in an effective and efficient manner. [Supports Safety Strategy 3]

- Apply lessons learned after completion of the initial COL reviews to enhance the effectiveness and efficiency of subsequent COL reviews. [Supports Safety Strategies 1 and 3]
- Maintain the readiness and capabilities of the NRC Headquarters Operations Center and regional response centers, which coordinate and monitor the agency's response to incidents and reportable conditions and licensees' actions to ensure safety at their facilities. [Supports Safety Strategies 4, 6, and 10]
- Participate in emergency preparedness exercises that involve a wide array of Federal, State, local, and Tribal governments and emergency response personnel, and use cooperative intergovernmental relationships to balance national response capabilities. [Supports Safety Strategies 4, 7, and 10]
- Monitor and resolve, based on sound science and engineering principles, generic issues on regulatory matters involving design, construction, operation, or decommissioning applicable to several, or a class of, NRC licensees, certificate holders, or other entities regulated by or subject to the regulatory jurisdiction of the NRC. [Supports Safety Strategies 2, 3, 4, and 5]
- Establish and maintain stable and predictable regulatory programs and policies especially for new regulatory initiatives. [Supports Safety Strategies 1, 2, 3, and 7]
- Maintain a safety framework of rules, and guidance documents that promotes licensee compliance with underlying safety principles and is consistent with the Principles of Good Regulation. [Supports Safety Strategy 9]
- Conduct research programs to identify and support resolution of longstanding and emergent safety issues, and engage in long-term research to understand the safety of novel technologies. Maintain an infrastructure of data, tools, methods, and expertise to support the NRC's independent decision-making process. [Supports Safety Strategies 1, 2, 3, 4, 5, and 6]
- Complete an integrated evaluation of the NRC strategies to manage the safe and secure disposition of spent fuel. Apply risk insights gained from experience gained to date and the spent fuel dry storage probabilistic risk assessment in these reviews and inspections in a manner consistent with the application of these insights in reactor regulation. [Supports Safety Strategies 1, 4, and 11]
- Conduct periodic reviews of Agreement State programs to ensure that they are adequate to protect public health and safety and the environment and that they are compatible with the NRC's program. [Supports Safety Strategies 2, 4, and 7]
- Work closely with the Agreement States to develop consistent, risk-informed processes to review event information and identify safety issues for materials licensees. [Supports Safety Strategies 2, 4, and 7]
- Address key issues affecting the safe management of civilian low-level radioactive waste storage and waste disposal. [Supports Safety Strategies 1 and 7]

- Evaluate lessons learned insights from the nuclear accident that began with the events on March 11, 2011, at the Fukushima Dai-ichi nuclear facility in Japan that are applicable to nuclear reactor designs and facilities in the United States to improve NRC's regulatory system programs. Advance regulatory programs to address the most risk-significant issues based on lessons learned insights derived from the Fukushima event. [Supports Safety Strategy 1]
- Evaluate domestic and international operating events and trends for risk significance and generic applicability. [Supports Safety Strategy 8]
- Participate in the development of consensus codes and standards to ensure that they are soundly based. [Supports Safety Strategies 1 and 8]
- Work with international counterparts to exchange information, expertise, operating experiences, and ongoing research to recognize and respond to emerging technical issues and to promote best practices. Participate in the development and evaluation of international standards to ensure that they have a sound basis and determine whether substantial safety improvements can be identified and incorporated domestically. [Supports Safety Strategies 5, 6, and 8]
- Implement and refine, as necessary, an enforcement framework that is risk-informed and emphasizes the importance of compliance with regulatory requirements and encourages prompt identification and comprehensive correction of licensee violations. [Supports Safety Strategy 9]
- Assure dissemination of the Safety Culture Policy Statement to all of the regulated community. [Supports Safety Strategy 7]
- Manage new reactor preapplication activities and the reviews of applications for design certification, early site permits, and combined licenses. [Supports Safety Strategies 1, 2, and 3]
- Develop the regulatory and programmatic support for the review of small and modular reactor design certification and license applications. [Supports Safety Strategies 1, 3, and 5]
- Continue to develop and maintain the necessary technical and programmatic support for new reactor licensing activities, guidance development, interaction with stakeholders on issues pertaining to new reactors, and issuance of design certifications and combined licenses. [Supports Safety Strategies 1, 2, and 3]
- Continue to develop, maintain, and implement the environmental and site safety regulatory infrastructure necessary to support the issuance of early site permits and combined licenses for new reactors. [Supports Safety Strategies 1, 2, and 3]
- Continue to develop and implement the construction inspection activities to support the regulation of reactors under construction. [Supports Safety Strategies 1, 2, and 3]
- Develop the regulatory tools, analyses, and data needed to evaluate and respond to future waste management strategies adopted as the Nation's policy, and assess issues

associated with the extended storage and transportation of spent nuclear fuel for more than 60 years beyond the licensed life for operation of a nuclear power plant. [Supports Safety Strategy 11]

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## SECURITY

**Security Goal:** Ensure adequate protection in the secure use and management of radioactive materials.

### Security Goal Strategic Outcomes

- Prevent instances where licensed radioactive materials are used domestically in a manner hostile to the United States.
- Prevent unauthorized public disclosures of classified or safeguards information through quality measures.

### Discussion

The NRC must remain vigilant of the security of nuclear facilities and materials. The agency achieves its goal to protect the common defense and security through licensing and oversight programs for new and existing reactors and other facilities and for users of nuclear material that are similar to those programs employed in achieving its safety goal. The aim is to allow licensees to realize the benefits of nuclear materials through their secure use while placing only necessary regulatory requirements on those licensees.

Ensuring regulatory stability and predictability in the security environment is a continuous challenge for the NRC. The nature of the threat is evolving, requiring the constant sharing of information, but the agency faces challenges with sharing sensitive and classified information, where appropriate. To address this, the NRC continues to reexamine and upgrade its infrastructure for protecting and sharing classified and safeguards information, and for sharing sensitive information, as appropriate, with licensees, members of the public, and other Federal, State, local and Tribal governments and international stakeholders.

The NRC also has completed the process of identifying potential vulnerabilities at licensed nuclear fuel cycle facilities and nuclear power plants and has developed strategies to mitigate those vulnerabilities. The agency is now working with licensees to implement those strategies. The Design Basis Threat for radiological sabotage, theft and diversion is used to establish the level of threat that nuclear power plants and certain fuel cycle facilities must realistically be expected to defend against with high assurance.

Another activity is determining how best to implement the authorities granted to the NRC in the Energy Policy Act of 2005 for enhancing the security of nuclear facilities and radioactive material through rulemaking. The NRC conducted rulemakings and other actions to enhance security, as well as other actions recommended by the multiagency Task Force on Radiation Source Protection and Security, which was established by this Act. In August 2010, the task force issued its second report containing recommendations for improving the security of radioactive sources, as well as reporting on the progress made since the last report published in August 2006. The task force will publish these reports no less than every 4 years.

The NRC's national registry of radioactive sources, the National Source Tracking System is used to maintain an inventory of risk-significant sources. Commercial users of risk-significant radioactive sources in the United States report their source inventories and transactions in accordance with the NRC's reporting requirements. This system helps ensure that the information regarding radioactive materials used by licensees are stored and maintained securely.

The NRC plays a role in international activities related to the security of radioactive materials and facilities, including (1) contributing to the formulation of foreign policy guidance, (2) providing international assistance in nuclear security, material control and accounting, and safeguards, (3) reviewing applications and issuing import and export licenses for nuclear materials and equipment, and (4) cooperating with IAEA on nuclear safeguards, nonproliferation, and international regulatory standards.

### **Security Goal Strategies**

1. Conduct oversight of licensee security performance.
2. Use relevant intelligence information and security assessments to maintain realistic and effective security requirements and mitigation measures.
3. Share security information with appropriate stakeholders and international partners.
4. Control the handling and storage of sensitive security information, and the communication of information to licensees and Federal, State, local and Tribal governments.
5. Support Federal response plans that employ an approach to the security of nuclear facilities and radioactive material that integrates the efforts of licensees and Federal, State, local, and Tribal governments.
6. Use risk-informed approaches to inform regulatory controls for security.
7. Maintain the programs for controlling the security of radioactive sources and strategic special nuclear material commensurate with their risk, including actions required by the Energy Policy Act of 2005.
8. Promote U.S. national security interests and nuclear nonproliferation policy objectives for NRC-licensed imports and exports of byproduct source and special nuclear materials and nuclear equipment.
9. Manage the risk to information and systems to ensure the integrity of cyber security at regulated facilities.
10. Prevent instances of significant unauthorized public disclosures of classified or safeguards information.

### **Means to Support Security Strategies**

To maintain the secure use and management of radioactive materials, the NRC conducts a number of programs and initiatives. The major components of NRC programs include licensing, oversight, rulemaking, incident response and emergency preparedness, research, domestic and international information exchange, and cooperation with the Agreement States. The NRC will conduct activities such as the following during this strategic planning period:

Assess the threat environment to maintain an adequate regulatory framework through cooperation and liaison with the intelligence and law enforcement communities and international partners. [Supports Security Strategies 2, 4, 5, 6, and 8]

- Conduct inspections to assess licensees' security performance. Conduct follow-up reviews, inspections, investigations, and enforcement, as needed, when security problems are identified. [Supports Security Strategies 1, 3, and 6]
- Conduct security performance evaluations at each applicable nuclear facility to assess each licensee's protective strategy capabilities and to evaluate support functions provided by Federal, State, and local law enforcement. On a 3-year cycle, the agency conducts a Force-on-Force inspection at each operating power reactor and Category 1 facility. [Supports Security Strategies 1, 2, 4, and 5]
- As necessary, conduct security assessments and determine the consequences of a range of threats against existing safety, safeguards, and security requirements. Share the agency's results with Federal partners to support an integrated national posture for the protection of the Nation's critical infrastructure. [Supports Security Strategies 2, 4, and 5]
- Work with the National Security Council, the U.S. Department of Homeland Security, and the intelligence community to define, develop, and implement integrated security response plans and the National Response Framework which incorporates Federal, State, local, and Tribal government assets. [Supports Security Strategies 4, 5, and 8]
- Work with Agreement States on security measures related to facilities and activities within their borders. [Supports Security Strategies 4 and 5]
- Use the National Source Tracking System, a national registry of radioactive sources, to inventory risk-significant radioactive sources in the United States. Integrate the system with Web-based licensing and the License Verification System into an integrated source management system that will include information on NRC and Agreement State licensees that have risk significant sources. Ensure that the controls on high-risk radioactive materials, required by the Energy Policy Act of 2005 and recommended by the Task Force on Radiation Source Protection and Security, continue to prevent their harmful use. [Supports Security Strategies 2, 4, 6, and 7]
- Continue to support and participate in international security activities, including IAEA nonproliferation initiatives and bilateral physical security initiatives undertaken with countries that receive special nuclear material and equipment from the United States. [Supports Security Strategies 3, 7, and 8]
- Support U.S. government goals to secure nuclear materials internationally through bilateral agreements to support material control and accounting programs. [Supports Security Strategies 3, 7, and 8]
- Identify and obtain access to threat and security information maintained by other Federal agencies to ensure that the NRC Agreement States and licensees maintain a current awareness of potential threats to licensed facilities and activities. [Supports Security Strategies 2, 4, 9, and 10]



- Identify and develop key information technology investments, including secure electronic document and records management capabilities that will enhance the storage, handling, and communication of sensitive security information both within and outside the agency. [Supports Security Strategies 4 and 10]
- Engage stakeholders and other Federal partners in ensuring a consistent process for the evaluation and resolution of issues with potential implications for cyber security. [Supports Security Strategy 9]
- Develop policies and procedures relating to the conduct of cyber security program evaluations for digital instrumentation and control systems. [Supports Security Strategy 9]
- Provide training to the NRC staff that ensures the NRC's ability to store, handle, and communicate sensitive security-related information, SGI and Classified Information, and to implement national directives to enhance consistency. [Supports Security Strategy 10]

## ORGANIZATIONAL EXCELLENCE OBJECTIVES

### Organizational Excellence Objectives

This section discusses three key objectives that the NRC uses in carrying out its mission: openness, regulatory effectiveness, and operational excellence.

**Openness:** The NRC increases openness by conducting its business in a transparent manner, encouraging stakeholder participation, and enhancing collaboration with other Federal, State, local, and Tribal governments.

### Discussion

As an independent regulatory agency the NRC conducts its regulatory activities as openly as possible with meaningful stakeholder involvement. Over the next several years, the NRC anticipates continuing and, in some cases, increasing activity across its range of regulatory responsibilities for nuclear power generation, use of nuclear materials, and management of radioactive waste. Ensuring openness in these activities will be essential to the agency's continuing success. The NRC's openness strategies take advantage of social media and other Web-based technologies, which offer the opportunity to build on the agency's strong history of openness.

Openness includes three main elements:

- Transparency: Transparency promotes accountability by providing the public with information about the NRC's activities. More specifically, this means that public stakeholders must have timely access to clear and understandable information about the NRC's role, processes, activities, and decision-making.
- Participation: Participation allows members of the public to contribute ideas and expertise so that the NRC can make regulatory decisions with the benefit of information from a wide range of stakeholders. These stakeholders must have a reasonable opportunity to participate meaningfully in the NRC's regulatory processes.
- Collaboration: Collaboration improves the effectiveness of government by encouraging partnerships and cooperation within the Federal and Tribal governments.

## **Openness Strategies and Means to Support the Strategies**

### **Transparency**

1. Enable stakeholders to more readily obtain the NRC information they need.
  - Means—continued enhancements to the NRC’s public Web site and Agencywide Documents Access and Management System.
2. Increase public access, to data that are collected or generated in the course of NRC activities and that are of significant interest to the public.
  - Means—stakeholder consultation, publication at <http://www.data.gov>.
3. Provide clear, accurate, and timely information to members of the public of the NRC’s independent role, policies, decisions, programs, and activities and to enable them to participate in agency regulatory and decision-making processes.
  - Means—content on the NRC public Web site and other media, conducting public meetings, public outreach, plain language efforts.
4. Enhance public awareness about the uses of, and risks associated with, radioactive materials.
  - Means—independent risk studies, content on the NRC public Web site and other media, public meetings.

### **Participation**

1. Ensure opportunities for timely, inclusive, and meaningful stakeholder engagement in NRC decision-making.
  - Means—early communication with stakeholders on issues of substantial interest, use of social media for public discussions, Web-conferencing, training staff on best practices for public meetings.

### **Collaboration**

1. Increase opportunities to collaborate with other Federal, State, local, and Tribal governments and international agencies that have a role in nuclear safety and security.
  - Means—Web-conferencing, use of collaboration tools to work with stakeholders in the government regulatory community.

**Regulatory Effectiveness:** NRC actions are of high quality, efficient, timely, and realistic to enable the safe and beneficial uses of radioactive materials.

### **Discussion**

To maintain and enhance regulatory effectiveness, the NRC must respond to the changing national and global nuclear environment. These changes may include an increase in licensing activities and the NRC's potential oversight of additional facilities, and the continued evolution of nuclear technologies that the agency may be called upon to license and regulate. In addition, the NRC may need to collaborate more extensively with the global nuclear community.

At the same time, broader factors affecting the entire Federal Government continue to increase budget pressures and challenge Federal agencies to become more effective and efficient in carrying out their missions.

To address these challenges, the NRC follows three strategies for regulatory effectiveness:

- **Regulatory processes:** This covers how well the agency performs its rulemaking, licensing, oversight, enforcement, and research activities.
- **Collaboration with Federal agencies and State and local agencies and engagement with Tribal governments:** This covers the effectiveness of the agency's interactions with its U.S. nuclear regulatory partners at all levels of government.
- **Collaboration with international regulatory and safety organizations:** This covers the effectiveness of the NRC's relationships with the global nuclear safety community.

## **Regulatory Effectiveness Strategies and Means to Support the Strategies**

### **Regulatory Processes**

1. Enhance the effectiveness and realism of NRC actions.
  - Means—expand use of risk-informed and performance-based insights in NRC decision-making; use state-of-the-art technologies to inform regulatory decisions.
2. Anticipate challenges and promptly evaluate and respond to changes in the regulatory and technical environments.
  - Means—maintain a comprehensive set of codes to be able to independently verify safety margins, engage in long term research to address novel technologies, remain cognizant of external experimental facilities and analytical resources to respond to emergent safety issues.
3. Improve efficiency in carrying out regulatory activities that enable the safe and secure use of nuclear material without compromising safety or security.
  - Means—conduct program evaluations; reduce lag-time between completion of the evaluations and the implementation of lessons learned.
4. Provide clear and timely guidance to applicants and licensees to foster the submittal of high-quality, timely applications and license amendment requests.
  - Means—use plain language, proactively review regulations and guidance to clarify their applicability to new designs and technologies, keep regulatory guidance up to date, and continue to use regulatory issue summaries and generic letters to provide timely guidance to licensees.

### **Collaboration with Federal and State Agencies and Engagement with Tribal Governments**

1. Ensure adequate and compatible Agreement State programs that are adaptable to different experience levels of its participants.
  - a. Means—continue to provide training for the regulatory staff of Agreement States, leverage the unique capabilities of the NRC and State agencies with a focus on planning and coordination of key initiatives.
2. Increase collaboration with Federal and State agencies and engagement with Tribal Governments to gain insights and effectively resolve issues and better enable the safe and beneficial use of radioactive materials nationwide.
  - Means—in lieu of pursuing new legislation, use mechanisms such as memoranda of understanding to more expeditiously reduce regulatory or jurisdictional overlap or gaps.

### **Collaboration with International Regulatory and Safety Organizations**

1. Collaborate with international regulatory and safety organizations to promote global nuclear safety and security.
  - Means—participate in multinational meetings at IAEA and NEA to develop international standards and assist other countries, participate in bilateral and multilateral meetings to assist and cooperate with other countries to promote global nuclear safety and security, and participate actively in IAEA's Integrated Regulatory Review Service to review member state safety regulations.

**Operational Excellence:** NRC operations use effective business methods and solutions to achieve excellence in accomplishing the agency's mission.

### **Discussion**

A number of factors will influence or provide opportunities for improving the way the NRC operates. Those with perhaps the broadest impact are the escalating budget pressure and the increasing public demand for accountability and results discussed in the previous section, providing a two-fold impetus to focus on performance management at all levels of the organization. Consistent with a Federal fiscal outlook of reduced spending, the NRC will reduce its business support costs over the period of this Strategic Plan by optimizing, centralizing and standardizing processes in the areas of human resource management, financial management, contract management, and information technology.

The NRC's organizational culture is another key element of operational excellence. The NRC has increased its focus on safety culture in the regulated community. The agency intends to focus on the same underlying tenets that it has communicated externally by continuously improving its own safety culture to ensure that the agency's mission is at the forefront of all work activities.

In the area of staffing and retention, the projected growth in nuclear power, together with the impending retirement of many skilled nuclear professionals both at the NRC and in industry, will make it more important for the NRC to attract and retain a high-quality regulatory workforce and to use knowledge management to preserve and transfer knowledge essential for accomplishing the NRC's mission.

With respect to facilities, the growth of the agency workforce has required the agency to use office space in four additional locations outside its main headquarters complex. During the period of this Strategic Plan, the agency will address the resultant inefficiencies through reconsolidation made possible by the construction of a third building at its White Flint Complex (3WFN).

The NRC is moving towards a 21<sup>st</sup> Century acquisition program that will transform the way the agency conducts its acquisition program from a tactical, transaction-based procurement function to a more integrated, disciplined, strategically planned process. The anticipated approach will consider broader agency programmatic requirements with a more integrated and informed planning approach that will leverage agency resources, programmatic requirements, and contract dollars. With this approach, the NRC plans to align the acquisition process more closely with the budget cycle, better use agency resources, and better protect the agency's procurement investments.

In addition, social media, cloud computing, collaboration tools, and other Web technologies will continue to evolve, offering potential opportunities for improving and streamlining agency operations and mission support.

## **Operational Excellence Strategies and Means to Support the Strategies**

### **Safety Culture**

1. Promote a strong safety culture and an open, collaborative work environment where individuals are comfortable speaking up and sharing concerns and differing views without fear of negative consequences.
  - Means—provide training and strengthen communication to support a strong safety culture and an open, collaborative work environment, conduct assessment and evaluation activities to identify areas for continuous improvement, and coordinate with the agency’s outwardly focused safety culture activities (see Safety Strategy 7).

### **Performance Management**

1. Strengthen accountability for setting and achieving individual and organizational performance expectations and for providing timely and comprehensive feedback.
  - Means—strengthen linkages between the NRC Strategic Plan, budget, operating plans, and individual performance plans and use effective measures and feedback at all levels.

### **Human Resources Management<sup>1</sup>**

1. Attract, develop, and retain a high-performing, diverse, and engaged workforce.
  - Means—use formal development programs and succession planning to create a cadre of diverse leaders at all levels who are prepared to meet the agency’s future challenges; apply organizational development principles to monitor and foster employee engagement; expand communications on the NRC benefits program, work schedule, and telework flexibilities to promote work/life balance; streamline the hiring process and expand the use of NRC human capital strategies to hire the best talent with the critical competencies that are needed to achieve the agency’s mission requirements.
2. Foster a work environment that is free from discrimination and provides maximum opportunities for all employees to use their talents in a way that advances the agency’s mission.
  - Means—conduct activities to implement the NRC’s Comprehensive Diversity Management Plan; based on demographic data, conduct a gap analysis to determine additional focus areas to support the plan’s objectives; monitor agency progress to help foster a work environment that is inclusive and free from discrimination; conduct diversity management information, communication, and team building sessions.
3. Sustain a learning environment that provides continuing improvement in performance through knowledge management, performance feedback, training, coaching, and mentoring.
  - Means—advance the agency’s ability to identify, capture, retain, and share critical knowledge possessed within its staff; expand the use of current technology to enhance employee learning to address future challenges.

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<sup>1</sup> For additional information, see the NRC’s Strategic Human Capital Plan at <http://www.nrc.gov>.

## **Information Management and Information Technology<sup>2</sup>**

1. Manage information and employ technology to enhance internal information access and strengthen agency performance.
  - Means—carry out a modernization program to streamline key business processes, reduce the number of legacy systems, standardize the application infrastructure, improve mobile and remote access, and complete work enabling secure information technology systems access through the use of the Government wide personal identity verification cards; enhance the information management program to ensure that information is available in a complete and timely manner and improve search capabilities.

## **Financial Management and Procurement**

1. Improve the efficiency of financial systems and processes and the usefulness of the resultant financial information for management decision-making.
  - Means—integrate and standardize financial and acquisition systems and processes to provide more useful data to decision-makers.
2. Procure goods and services to achieve the best value for the NRC in a timely manner.
  - Means—leverage agency resources and align the acquisition process more closely with the budget process to achieve a more integrated, disciplined, and strategically planned process and make better use of agency resources.

## **Administrative Services**

1. Deliver high-quality and efficient facility and administrative services and provide a safe, secure, and environmentally conscious workplace.
  - Means—complete the agency's construction and space planning activities to reconsolidate headquarters staff in a single geographic location, implement and continually assess physical and personal security controls to ensure occupant safety in the workplace; maximize the benefits of conservation, waste prevention, emission reduction, recycling, and the purchase of environmentally preferable products; ensure that resources are invested wisely and services and operations remain effective in a changing climate.

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<sup>2</sup> For additional information, see the NRC Information Technology/Information Management Strategic Plan at <http://www.nrc.gov>.



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## APPENDICES

### **Appendix A**

#### **Key External Factors**

The ability of the U.S. Nuclear Regulatory Commission (NRC) to achieve its goals depends on a changing mix of industry operating experience, national priorities, legislation, market forces, and resource availability. The NRC will continue to refine and implement processes for managing change to ensure that the agency is ready to address shifting priorities in a timely manner. This appendix discusses significant external factors that, although beyond the control of the NRC, could still affect the agency's ability to achieve its strategic goals.

#### **Significant Operating Incident (Domestic or International)**

A significant incident at a nuclear facility could cause the agency to reassess its safety and security requirements, which could change the agency's focus on some initiatives related to its goals until the situation stabilizes. Because the NRC's stakeholders (including the public) are highly sensitive to many issues regarding the use of radioactive materials, even events of relatively minor safety or security significance could potentially require a response that consumes considerable agency resources.

#### **Significant Terrorist Incident**

A significant terrorist incident anywhere in the United States would heighten the NRC's oversight and response stance. Subsequent new or changed security requirements or other policy decisions might affect the NRC, its partners, and the industry it regulates. A significant terrorist incident at a nuclear facility or activity anywhere in the world that departs from the agency's evaluation of threat parameters could result in impacts to the NRC's priorities and potentially to U.S. policy for export activities, the NRC's role in international security, and requirements for security at U.S. nuclear power plants and other licensee facilities.

#### **Emergency Preparedness and Incident Response**

Emergency preparedness and incident response activities with Federal, State, and local agencies and Tribal governments continue to increase in scope and number. This affects the NRC's priorities and workloads.

#### **Legislative Initiatives**

Legislative Initiatives under consideration by Congress can have a major impact on the NRC. For example, initiatives concerning cybersecurity may have potential impacts on the NRC's regulatory framework.

#### **International Nuclear Safety Developments**

The international community, often through the International Atomic Energy Agency (IAEA), changes and updates international standards that could affect the NRC. For instance, the IAEA could develop new standards or change current standards, and the NRC would then need to address stakeholder calls (both domestically and internationally) to implement the new standards for U.S. licensees. The NRC will need to actively engage with the international community, including the IAEA, NEA, multilaterally, and bilaterally.

### International Treaties and Conventions

The ratification of international instruments on safety and security in the sector of nuclear materials and facilities imposes binding provisions on the Nation and the corresponding governmental agencies, such as the NRC and the U.S. Department of Energy. These obligations and the resources necessary to ensure compliance with them compete with all the other programs and activities that are within the role and responsibility of the NRC, as the national regulatory body.

### International Progress for Nuclear Power

China, India, and other countries are emphasizing the role of nuclear power in their energy strategies. Greater competition among countries for current inventories of uranium on the spot market may influence uranium resource development domestically and in joint overseas ventures in order to vouchsafe the flow of resource material for national commercial and security applications.

### Uranium Recovery

The increased worldwide interest in nuclear power development had resulted in a greater interest in domestic development of the uranium recovery industry. This led to new applications and amendments for expansions of existing facilities in NRC Agreement States and non-Agreement States. However, the economic downturn has resulted in delays to some projects. Furthermore, the volatility in the spot price market for uranium because of global speculation and changing national strategies poses challenges when planning for resource needs for the NRC and Agreement States in managing the current list of license applications, overseeing operating facilities, coordinating with stakeholders and Tribal governments, and reviewing license renewals. The cleanup of legacy uranium recovery sites and coordination with stakeholders and Indian Tribes will also continue to present resource challenges.

### Fuel Facilities

The NRC expects to continue significant construction oversight for fuel cycle facilities under construction, which include LES, USEC, ACP, the Mixed Oxide Fuel Fabrication Facility, AREVA, GE-Hitachi, and International Isotopes facilities. The agency expects to conduct significant inspection activity related to verifying the construction of principal structures, systems, and components at the Mixed Oxide Fuel Fabrication Facility. For operating facilities, the NRC expects to continue moderate facility licensing and oversight, including baseline inspection activities and reactive inspections. External factors could influence the anticipated increase in review activities for smaller medical isotopes production facilities licensed under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70, "Domestic Licensing of Special Nuclear Material."

### Medical Isotope Production

The US currently does not have the capability to produce Mo-99 domestically and imports 100% of its supply from foreign producers. In the past few years, technical difficulties and shutdowns at the major foreign production facilities have caused serious supply shortages in the US. The Department of Energy awarded four cost-sharing cooperative agreements (CA) for the domestic production of Mo-99 applying unique technologies with low enriched uranium, contingent on each producing 50% of the US demand. Potential applicants without CAs have also expressed an interest in licensing a Mo-99 production facility. Communications with several potential applicants has produced varying and dynamic schedule projections for submission of applications. Currently it is anticipated that production facilities will be licensed under Part 50 and informed by safety analysis for chemical processes that typically would be processes considered under Part 70.

### Small Modular Reactors

Reactor designers are developing a number of small light-water reactor (LWR) and non-LWR designs employing innovative solutions to technical nuclear power issues. These designs could be used for replacing aging fossil fuel plants generating electricity in isolated areas or for producing high-temperature process heat for industrial purposes. The NRC expects to receive license applications for some of these designs as early as FY 2012. The agency has developed its current regulations on the basis of experience gained over the past 40 years from the design and operation of LWR facilities. Currently, to facilitate the licensing of new reactor designs that differ from the current generation of large LWR facilities, the NRC staff is seeking to resolve key safety and licensing issues and develop a regulatory infrastructure to support the licensing review of these advanced reactor designs.

### National Strategy on Nuclear Waste

The development of a potential national strategy for the management of high level waste and spent nuclear fuel will continue to present challenges in setting the strategic direction of the agency's spent fuel and high level waste management programs. The nation will need to consider the recommendations of the President's Blue Ribbon Commission on America's Nuclear Future, expected in January 2012, in setting the direction of associated agency programs related to nuclear waste storage, transport, disposal, and reprocessing. NRC will respond to any direction from Congress modifying the national strategy through amendments to the Nuclear Waste Policy Act.

## **Appendix B**

### **Planned Program Evaluations**

#### **Operator Licensing Program**

*Expected Completion Date:* Annually.

*Objective:* The annual evaluation of the Operator Licensing Program ensures that the program is effective and consistently implements the requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55, "Operator's Licenses"; the guidance in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, issued July 2004; and other policy documents.

*Scope:* The annual evaluation of the Operator Licensing Program involves audits of one or two written examinations and operating tests in each U.S. Nuclear Regulatory Commission (NRC) Region to ensure consistent quality, level of difficulty, administration, and grading. The evaluation also includes a detailed review of the operator licensing function in two regional offices each year, with each NRC Region performing a similar self-assessment during the alternate years. The detailed reviews assess seven functional areas: administrative requirements, written examinations, operating tests, requalification program oversight, regional operations, licensing assistant activities, and resource utilization.

#### **Reactor Oversight Program**

*Expected Completion Date:* Annually.

*Objective:* The annual reactor oversight program evaluation has two objectives: (1) to determine whether the ongoing program is effective in supporting the achievement of the performance goals and the agency's strategic goals and (2) to provide timely, objective information to inform program planning and improvements.

*Scope:* At a minimum, the evaluation includes (1) the efficiency of the agency's baseline inspection program, (2) the effectiveness of the significance determination process, (3) the usefulness of current performance indicators for enhancing agency planning and response, and (4) the effectiveness of the assessment program to prescribe appropriate regulatory oversight to those plants with performance deficiencies.

#### **Integrated Materials Performance Evaluation Program Reviews of NRC Regional Offices and Agreement States**

*Expected Completion Date:* At least every 4 years.

*Objective:* Each program evaluation will determine whether the regional offices and Agreement States are conducting programs that meet the objectives set out in Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004.

*Scope:* The evaluations include the common performance criteria (technical staffing and training, status of the Materials Inspection Program, technical quality of inspections, technical quality of licensing actions, technical quality of incidents and allegations) and the appropriate noncommon criteria for the specific Agreement States and NRC regional office activities and responsibilities. The evaluations are conducted in accordance with Management Directive 5.6 and the associated implementing procedures. The agency finalizes the findings and report after evaluation by the Management Review Board. The staff factors any recommendations or good practices into future reviews of materials programs.

### Corporate Support

*Expected Completion Date:* Annually

*Objective:* Each program evaluation will determine whether the corporate support services (e.g., administrative services, human capital management, financial management (including contract management), and information technology and information management) are being delivered consistent with the overall goals and whether internal and external customer needs and requirements are met.

*Scope:* The annual evaluation will be focused on one corporate support service area through a questionnaire, survey or checklist to determine: (1) did the program deliver the promised results, (2) customer satisfaction, (3) strengths and weaknesses and (4) are staff resources adequately qualified.

## **Appendix C**

### **Glossary**

**Agreement State:** A State that has signed an agreement with the U.S. Nuclear Regulatory Commission (NRC) providing for the State to regulate the use of certain radioactive materials within its borders and discontinuing Federal authority in that State. The agreements do not apply to the regulation of operating commercial nuclear reactors.

**Category 1 Facility:** A fuel cycle facility that possess more than 5,000 grams (about 11 pounds) of uranium-235 or more than 2,000 grams (about 4.5 pounds) of plutonium.

**Defense-in-Depth:** An element of the NRC's Safety Philosophy that employs successive compensatory measures to prevent accidents or lessen the effects of damage if a malfunction or accident occurs at a nuclear facility. The NRC's Safety Philosophy ensures that the public is adequately protected and that emergency plans surrounding a nuclear facility are well conceived and will work. Moreover, the philosophy ensures that safety will not be wholly dependent on any single element of the design construction, maintenance, or operation of a nuclear facility.

**Design-Basis Threat:** A profile of the type, composition, and capabilities of an adversary. The NRC and its licensees use the design-basis threat as a basis for designing safeguards systems to protect against acts of radiological sabotage and to prevent the theft of special nuclear material.

**Diversity Management:** A practice with the goal to enable all employees to reach their full potential in pursuit of the organization's mission. This includes fostering an environment where diversity is commonplace and enhances execution of the agency's objectives.

**Effectiveness:** The ability to achieve the intended outcome(s) of an activity, program, or process. A program cannot be considered effective if it is not meeting its objectives and achieving the intended outcome(s).

**Efficiency:** The ability to act with a minimum of waste, expense, or unnecessary effort. Efficiency embodies a combination of productivity, cost, timeliness, and quality.

**High-Level Waste:** The highly radioactive materials that are produced as byproducts of the reactions that occur inside nuclear reactors. Such wastes take one of two forms, becoming either spent (used) reactor fuel when it is accepted for disposal or waste materials that remain after spent fuel is reprocessed.

**In Situ Uranium Recovery:** One of the two primary recovery methods that are currently used to extract uranium from ore bodies where they are normally found underground, without physical excavation. This method is also known as "solution mining" or "in situ leaching."

**Low-Level Waste:** Items that have become contaminated with radioactive material or have become radioactive through exposure to neutron radiation. This waste typically consists of contaminated protective shoe covers and clothing, wiping rags, mops, filters, reactor water treatment residues, equipment and tools, luminous dials, medical swabs, injection needles, and syringes. The radioactivity can range from just above the background levels found in nature to very high levels (such as parts from inside the reactor vessel in a nuclear power plant).

Performance-Based: An approach to regulatory practice that establishes performance and results as the primary bases for decision-making. Performance-based regulations have the following attributes: (1) measurable, calculable or objectively observable parameters exist or can be developed to monitor performance, (2) objective criteria exist or can be developed to assess performance, (3) licensees have flexibility to determine how to meet the established performance criteria in ways that will encourage and reward improved outcomes, and (4) a framework exists or can be developed in which the failure to meet a performance criterion, while undesirable, will not in and of itself constitute or result in an immediate safety concern.

Regulatory Framework: Involves several interrelated aspects, such as (1) the NRC's mandate from Congress in the form of enabling legislation, (2) the NRC's licenses, orders, and regulations in 10 CFR, (3) regulatory guides, review plans, and other documents that clarify and guide the application of NRC requirements and amplify agency regulations, (4) the licensing and inspection procedures used by NRC employees, and (5) the enforcement guidance.

Risk Assessment: A systematic method for addressing the following three questions as they relate to the performance of a particular system, including the human component: (1) What can go wrong? (2) How likely is it? and (3) What are the consequences?

Risk-Informed: An approach to decision-making in which risk insights are considered along with other factors such as engineering judgment, safety limits, and redundant and/or diverse safety systems. Such an approach is used to establish requirements that better focus licensee and regulatory attention on design and operational issues commensurate with their importance to public health and safety.

Risk Insights: Refers to the results and findings that come from risk assessments and may include improved understanding of the likelihood of possible outcomes, sensitivity of the results to key assumptions, relative importance of the various system components and their potential interactions, and the areas and magnitude of the uncertainties.

Safety Culture: The core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

Spent Fuel: Fuel that has been withdrawn from a nuclear reactor following irradiation and that has not been chemically separated into its constituent elements by reprocessing.

Stakeholders: Members of the public; Federal, State, and local agencies; and license applicants and licensees with a specific interest in a given topic.

Standards: Technical requirements and recommended practices for performance of any device, apparatus, system, or phenomenon associated with a specific field.

Waste Incidental to Reprocessing: Radioactive material, resulting from the reprocessing of spent nuclear fuel, which the U.S. Department of Energy has distinguished from high-level waste, as provided under the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005.