

# Integrated Regulatory Review Service Mission to the United States

## INTRODUCTION

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### **NRC Mission**

The Nuclear Regulatory Commission is an independent agency created by Congress in 1975 to license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials in order to protect public health and safety, promote the common defense and security, and protect the environment.

### **NRC Scope of Responsibility**

The NRC's scope of responsibility covers active regulation of transport, storage, and disposal of radioactive materials and wastes as well as decommissioning of these facilities and sites. The NRC's regulations are designed to protect both the public and occupational workers from radiation hazards.

The NRC's Scope of Responsibility covers four main areas:

- Industry: Protection of the public and workers against radiation hazards from industries that use radioactive materials.
- Nuclear power plants: Regulation of commercial nuclear power plants; research, test, and training reactors; and nuclear fuel cycle facilities
- Medical: Regulation of medical and academic uses of radioactive materials.
- International: Regulation of imports and exports of radioactive materials.

In addition, the NRC works to enhance nuclear safety and security throughout the world.

### **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.

## NRC Values

In conducting all of our work, we adhere to the following organizational values:

- INTEGRITY** In our working relationships, practices, and decisions we strive to be trustworthy, reliable, ethical, and unbiased.
- SERVICE** To the public and others who are affected by our work we are responsive, accountable, and proactive. We work towards public interest and trust and expect to be held to our high standards.
- OPENNESS** In communications and decision-making, our actions and motives are open and transparent to the analyzing public. As the public has a right to know, information is readily available.
- COMMITMENT** To public health and safety, security, and the environment, we are dedicated, diligent, and vigilant professionals. We work towards efficiency and effectiveness through learning, innovation, and personal improvement.
- COOPERATION** In the planning, management, and performance of agency work, we maintain a helpful, sharing, team-oriented, and engaged environment.
- EXCELLENCE** In our individual and collective actions, we strive to achieve the highest quality, are continuously improving, and are self-aware of our successes and struggles.
- RESPECT** We have the utmost respect for individuals' diversity, roles, beliefs, viewpoints, and work-life balance. We act in a professional, courteous, objective, and compassionate manner towards colleagues, licensees, and the public.



## **Principles of Good Regulation**

As a regulator, the NRC strives to exhibit the following qualities in the day-to-day activities:

### **INDEPENDENCE**

All available facts and opinions must be sought openly from licensees and other interested members of the public. The many and possibly conflicting public interests involved must be considered. Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated.

### **OPENNESS**

Nuclear regulation is the public's business, and it must be transacted publicly and candidly. The public must be informed about and have the opportunity to participate in the regulatory processes as required by law. Open channels of communication must be maintained with Congress, other government agencies, licensees, and the public, as well as with the international nuclear community.

### **EFFICIENCY**

The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities. The highest technical and managerial competence is required, and must be a constant agency goal. The NRC must establish means to evaluate and continually upgrade its regulatory capabilities. Regulatory activities should be consistent with the degree of risk reduction they achieve. Where several effective alternatives are available, the option which minimizes the use of resources should be adopted. Regulatory decisions should be made without undue delay.

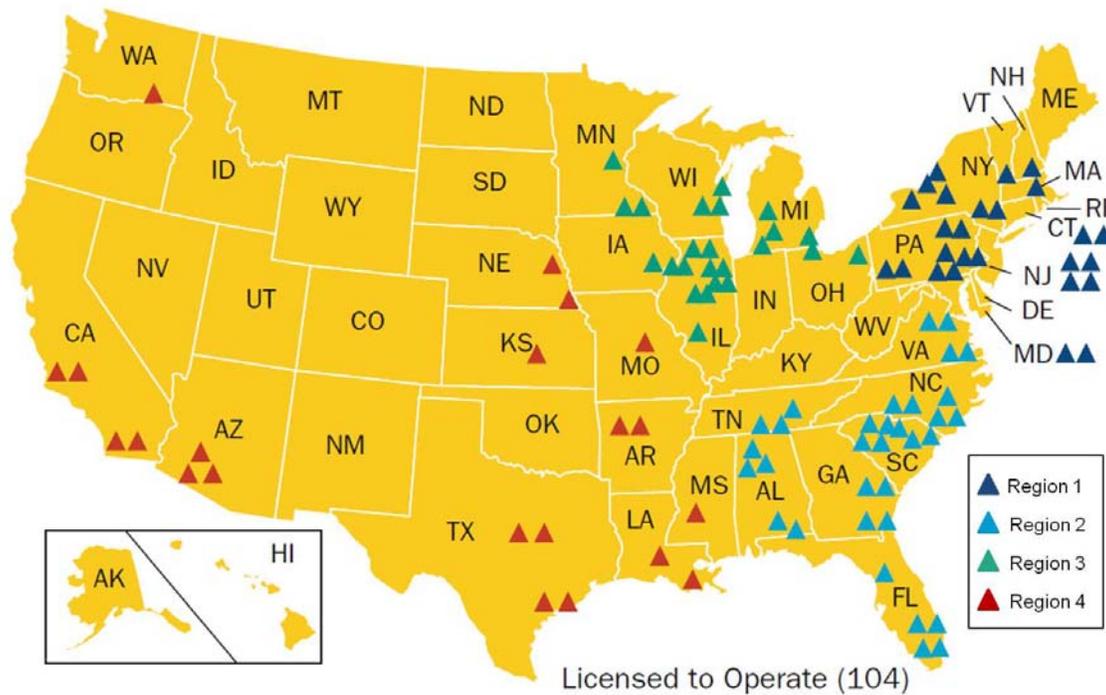
### **CLARITY**

Regulations should be coherent, logical, and practical. There should be a clear nexus between regulations and agency goals and objectives whether explicitly or implicitly stated. Agency positions should be readily understood and easily applied.

### **RELIABILITY**

Regulations should be based on the best available knowledge from research and operational experience. Systems interactions, technological uncertainties, and the diversity of licensees and regulatory activities must all be taken into account so that risks are maintained at an acceptably low level. Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition. Regulatory actions should always be fully consistent with written regulations and should be promptly, fairly, and decisively administered so as to lend stability to the nuclear operational and planning processes.

## U.S. Operating Commercial Nuclear Power Reactors



There are 104 commercial nuclear power reactors licensed to operate in the U.S., which produce approximately one-fifth of the Nation's electricity. The light-water reactors are located on 65 sites divided up among the four NRC Regional Offices. The reactors comprise four different reactor vendors, 80 designs, and 26 operating companies. U.S. reactors have accumulated nearly 3,000 years of operational experience.

### **Licensing Activities**

The NRC conducts a variety of licensing activities. Typically about 10 separate license changes are requested per power reactor each year. Slightly more than one-half of the reactors have received renewed licenses.

### **Reactor Oversight Process**

The NRC provides continuous oversight of plants through its Reactor Oversight Process (ROP) to verify that they are being operated in accordance with NRC rules, regulations, and license requirements. The NRC has full authority to take action to protect public health and safety.

### **Public Involvement**

The NRC has a longstanding practice of conducting its regulatory responsibilities in an open and transparent manner to keep the public informed of the agency's regulatory, licensing, and oversight activities and to involve stakeholders in the regulatory process.

## **Integrated Regulatory Review Service Mission Scope**

The Integrated Regulatory Review Service (IRRS) mission to the U.S. is focused specifically on the NRC's operating power reactor program.

The NRC has prepared for the mission based on the International Atomic Energy Agency's (IAEA) document, "Integrated Regulatory Review Service – Guidelines for the Preparation and the Conduct of IRRS Missions," Edition 2010. In accordance with the guidance, the mission will address the 10 core modules. In addition, the mission will address two thematic modules, one optional module, and three elective policy issues. Lastly, the NRC has prepared a White Paper to address a question raised during the preparatory meeting concerning NRC's approach to safety. Therefore, the scope is as follows:

### ***Core Modules***

- Module 1: Responsibilities and Functions of the Government
- Module 2: Global Nuclear Safety Regime
- Module 3: Responsibilities and Functions of the Regulatory Body
- Module 4: Management Systems for Regulatory Body
- Module 5: Authorization
- Module 6: Review and Assessment
- Module 7: Inspection
- Module 8: Enforcement
- Module 9: Regulations and Guides
- Module 10: Emergency Preparedness and Response

### ***Thematic Modules***

- Module 11A: Periodic Safety Review
- Module 11B: Feedback of Operating Experience

### ***Optional Module***

- Module 12: Interfaces with Nuclear Security

### ***Elective Policy Issues (EPI)***

- EPI1: Openness and Transparency
- EPI2: Long-term Operation and Ageing Management of Nuclear Facilities
- EPI3: Human Resources and Knowledge Management

### ***White Paper***

- Approach to Safety

## Self-Assessment

In 2007, the NRC staff performed a self-assessment that consisted of approximately 300 questions from IAEA's IRRS self-assessment questionnaire. The self-assessment responses showed that the NRC's regulatory and management processes are generally consistent with international practices. In addition, none of the self-assessment's findings represented a significant issue with the NRC's regulatory structure.

Subsequent to the 2007 self-assessment, the staff determined that a complementary self-assessment (CSA) needed to be performed to update the responses as part of its preparation for the IRRS mission in 2010. The CSA was performed in 2009 and is the basis for the mission.

The CSA consists of 291 questions. Each question was assigned a primary author and secondary authors to ensure a complete and accurate response. The authors reviewed the IAEA references and the IAEA performance criteria, if any, for their assigned question before writing a response. In their responses, the authors considered how NRC programs and requirements compare to the IAEA criteria. The primary authors' management then reviewed and concurred with the completeness and accuracy of the responses. Seventeen NRC offices participated in responding to the questions.

Following the author's efforts, a focused comprehensive review team (CRT) evaluated the responses for consistency, completeness, accuracy, and opportunities for improving NRC processes. The CRT members were assigned by IRRS module to evaluate the responses within that module. Team members then consulted the NRC Senior Executive Service managers assigned to each module regarding their analysis of the responses, including proposed changes to NRC processes, if any.

Overall, the CSA shows that NRC's operating power reactor program is mature and consistent with IAEA criteria. However, the staff is considering improvements, which are discussed in the following section, NRC Staff Actions.

One issue that the NRC staff faced in performing the CSA was what version of IAEA standard, GS-R-1, "Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety," would be used because GS-R-1 was undergoing revision. The staff decided to use the draft GS-R-1 available in early 2009 for the CSA. Because the questions referenced the existing GS-R-1 dated October 2000, the staff created a document that referenced the paragraph in the draft 2009 version that corresponded to the paragraph in the existing 2000 version.

In addition, the CSA was performed based on the module alignment contained in the 2008 guidance for IRRS missions. Following the issuance of the new 2010 guidance for IRRS missions, the staff realigned the 291 questions to conform to the 2010 guidance and all ten core modules are appropriately addressed. However, there is only one question in each of the two thematic modules and no questions for the optional module. The executive summaries for the thematic and optional modules should provide sufficient information to describe NRC's approach in those areas.

## **NRC Staff Actions**

Based on the self-assessment that was performed and a review of NRC processes while preparing the module executive summaries and the elective policy issue papers, the NRC staff identified activities, described below, to potentially improve NRC processes. An action plan will be developed to track the evaluations and actions. In some cases, action has been initiated.

Consensus standards are frequently incorporated by reference in regulations and guidance documents. The endorsement of consensus standards reduces the need for the development of standards unique to the Government, which reduces the cost to both industry and the Government. The NRC staff will consider additional ways to utilize international standards developed by organizations, such as IAEA and the International Organization for Standardization, and explore ways to harmonize U.S. and international standards. In addition, the staff will continue to assess additional ways to participate in international activities and communicate the importance and value of the activities that provide a direct or indirect benefit to the NRC. *(See modules 2 and 9)*

The IAEA standard, GS-R-3, "Documentation of the Management System," identifies criteria for establishing, implementing, assessing, and continually improving a management system that integrates safety, health, environmental, security, quality, and economic elements. The NRC compares favorably with GS-R-3 in most areas. However, the NRC staff has identified that it does not have an overarching document describing the many complex components of the agency's management system. The staff has commenced development of an overarching document that describes the relationship of each component of NRC's management system to ensure a clear understanding among NRC staff of how the agency's policies, instructions, and guidance relate to each other to support quality in NRC activities. *(See module 4)*

The practice of assessing the safety of operating nuclear power plants through the use of periodic safety reviews (PSRs) is well established among the IAEA Member States. The objective of a PSR is to ensure a high level of safety throughout a plant's operating life by systematically assessing the cumulative effects of plant ageing, plant modifications, operating experience, technical development and siting aspects. The NRC accomplishes this objective through its comprehensive set of regulations, inspections and safety review programs. As a result of the recent staff review of the PSR process compared to NRC programs, an improvement opportunity is under consideration. As a part of the NRC's operating experience program and Generic Issues program, the NRC could more systematically review findings from other regulator's assessments of PSRs to continue to verify that international experience is fully evaluated for potential applicability to U.S. licensees. *(See module 11A)*

The interface of safety and security activities needs to be considered, so as one activity does not diminish or adversely impact the other. The NRC has acted to ensure that the safety/security interface is considered in its programs. The staff has reviewed its processes related to the safety/security interface and has identified improvement opportunities, all in the area of internal coordination. The staff has determined that the guidance in the Office of Nuclear Reactor Regulation Office Instruction, COM-111, Managing the interfaces between Safety, Security, and Emergency Preparedness, needs to be enhanced. In addition, other internal procedures need review for consideration of whether they should include safety/security interface guidance. *(See module 12)*

## **Advance Reference Material**

Following is the Advance Reference Material for the 13 modules, three elective policy issues, and the white paper.

## **Conclusion**

The NRC looks forward to the mission in October 2010.