U.S.NRC
United States Nuclear Regulatory Commission
*Protecting People and the Environment*

# IRRS UNITED STATES 2010

# *Question and Response Report*

## *for:*

## Module 07: Inspection

# IRRS Question and Response Report

| Question No: 138 | Module 07: Inspection |
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**Question**

What is the legislative basis to allow the regulatory body to make inspections of the operator/licensee's facilities?

**Response**

The legislative basis of the U.S. Nuclear Regulatory Commission's (NRC's) inspection program is Section 161o of the Atomic Energy Act, as amended, which section authorizes the agency to provide for such inspections of licensed activities "as may be necessary to effectuate the purposes of this Act." This authority is implemented in Title 10 of the Code of Federal Regulations (10 CFR) 50.70, "Inspections." The agency has a well-developed Reactor Oversight Process (ROP) that includes inspections that can be conducted at whatever time is necessary for achievement of the objectives of the inspection. Team inspections are normally announced to facilitate coordination with the licensee. In addition, every reactor site has NRC inspectors who work full-time at the site and whose day-to-day inspection efforts are not announced to the licensee.

# IRRS Question and Response Report

**Question No:** 139 **Module 07: Inspection**

**Question**

I. What are the principles and criteria for the establishment of an inspection program? How are those made available to the:
1) Operators; and,
2) Regulatory Body staff?

**Response**

I. The NRC inspection program for operating power reactors is a risk-informed program that was developed and is revised with stakeholder input and is based on the reactor facility licensee performance. The program is administered through the ROP, which allocates and schedules inspection resources. Facility performance is determined by the risk-informed history of facility events, inspection findings and performance indicators (PIs). Extensive documentation of the ROP and the detailed inspection program procedures are publically available through the NRCs Web site. Interactive Web pages allow the reader to explore the program concepts and requirements. Access to the assessment history of all the reactor facilities is also available publically.

The regulatory framework for reactor oversight consists of three key strategic performance areas: reactor safety, radiation safety, and security. Within each strategic performance area are cornerstones that reflect the essential safety aspects of facility operation. These seven cornerstones include: initiating events, mitigating systems, barrier integrity, emergency preparedness, public radiation safety, occupational radiation safety, and physical protection. Satisfactory licensee performance in the cornerstones provides reasonable assurance of safe facility operation and that the NRC's safety mission is being accomplished. Each cornerstone contains inspection procedures and performance indicators to ensure that their objectives are being met. The ROP uses the significance determination process to determine the safety significance of most inspection findings identified at commercial nuclear power plants. Additional inspections and enforcement actions are implemented based on the safety significance of inspection findings and PIs.

The procedures that govern the program and publish the detailed inspection procedures are in the NRC Inspection Manual, which is also publically available through the NRC Web site. The NRC Inspection Manual Chapter (IMC) 2515, “Light-Water Reactor Inspection Program – Operations Phase,” dated September 24, 2009, and its appendices describe the operating power reactor inspection program. Other sections of the Inspection Manual administer the inspection program through other periods of a reactor facility life cycle. For example, IMCs 250x address the construction inspection program, IMC 2514, “Light-Water Reactor Inspection Program—Startup Testing Phase,” dated August 12, 1989, addresses the reactor startup program, and IMC 2561, “Decommissioning Power Reactor Inspection Program,” dated April 14, 2003, addresses the decommissioning program.

In accordance with IMC 1201, “Conduct of Employees,” dated June 29, 1999, all NRC inspectors are required to conduct themselves on the site in a manner that inspires confidence in and respect for their competence and integrity. Inspectors are expected to prepare for inspections by becoming familiar with each of the inspection requirements stated in each of the baseline inspection procedures and by gathering and reviewing all relevant information and data before proceeding. Inspectors are also expected to maintain an appropriate level of objectivity and independence. Guidance is provided in IMC 0102, “Oversight and Objectivity of Inspectors and Examiners at Reactor Facilities,” dated August 22, 2005, to ensure that the agency’s expectations are clearly communicated to inspectors.

In 10 CFR 50.70, the NRC establishes the legal basis for the conduct of inspections to verify the requirements of the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974. In 10 CFR 50.70, the NRC requires licensees to grant unfettered access to NRC personnel and provide them with the equipment and support necessary for the purpose of conducting inspections on the facility. Through the NRC Web site, the NRC staff, reactor licensee personnel, and the public have access to the legal basis documents, program level material, detailed inspection procedures, and ROP assessment data. Additionally, the NRC has held public meetings with the nuclear industry to promulgate changes in the program and also conducts in-house training for its employees.

II. The NRC has a planned and systematic inspection program. The power reactor inspection program is composed of several elements to provide indications of licensee performance. The key feature of the program is the baseline inspection program, which defines the minimum level of inspection that all plants will receive regardless of performance. Additional oversight is performed as part of the supplemental inspection program, which independently evaluates the root causes of performance deficiencies when indications of declining licensee performance are obtained through either the PIs or other inspections (principally the baseline inspection program). Special inspections are also performed during certain special or unique operations at a plant (i.e., power uprate, steam generator replacement; a full list of the inspections that fall into this category are provided in IMC 2515, Appendix C, “Special and Infrequently Performed Inspections,” dated November 9, 2009). Plant events are also inspected to determine their significance and to determine the agency’s necessary response (licensees are required by 10 CFR 50.73, “Licensee Event Report System,” to report the occurrence of unusual events to the NRC). Plants in extended shutdowns due to performance problems are inspected and assessed by a separate inspection process (i.e., IMC 0350, “Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns,” dated December 15, 2006) because many of the PIs and much of the baseline inspection program would not be applicable.

Region-based and resident inspectors carry out the regulatory inspection program described in IMC 2515. Region-based inspectors work out of NRC regional offices. Resident inspectors are assigned to an operating reactor site. There are four regions that provide inspection activities at all power reactor sites in the United States. In general, the resident inspector staffing policy is to assign two resident inspectors at single- and dual-unit sites and three resident inspectors at triple-unit sites. Additionally, to ensure the right blend of experience and objectivity, IMC 0102 stipulates required tour lengths for resident inspectors. Unless specific approval is granted, resident inspectors are expected to spend a minimum of 4 years and a maximum of 7 years at a facility. All NRC inspectors go through a training and qualification process (as described in IMC 1245, “Qualification Program for Operating Reactor Programs,” dated November 9, 2009) and are held to certain standards of conduct (as discussed in IMC 1201). Resident inspectors conduct the majority of baseline inspections. Many are conducted without announcing the activities that are to be observed. To ensure that an accurate representation of licensee activities is observed and inspected, IMC 2515 provides guidance on when these resident inspectors should conduct some of their activities. It is expected that some of the activities associated with the baseline inspection program will require coverage outside of normal working hours, including that at least 50 hours of direct inspection efforts should occur during “deep backshift” (between the hours of 10:00 p.m. and 5:00 a.m.). In contrast, all region-based

inspections are planned and announced; there are no unannounced inspections. The power reactor licensee is generally informed of the NRC schedule for inspections at the facility. The NRC will only withhold informing the facility licensee of a planned or pending inspection if it is believed that transmitting that information will compromise the inspection.

The risk-informed baseline inspection program (described in Appendix A, "Risk-Informed Baseline Inspection Program," to IMC - 2515, dated September 3, 2008) for power reactors defines the minimum level of planned inspections to evaluate licensee performance over a 12 month period. The overall objective of the program is to monitor all power reactor licensees at a defined level of effort to assure licensees' performance meets the objectives for each cornerstone of safety. These cornerstones support the agency's performance goals in the NRC's Strategic Plan. The inspection program was designed to be risk-informed and performance-based and to identify the minimum level of inspection required for a plant (regardless of performance) to give the NRC sufficient information to determine whether plant performance is acceptable. A key input to this effort was the regulatory framework and the cornerstones of safety, which are areas of reactor functions or licensee activities that must be performed to a certain set of objectives to ensure that the NRC's mission is met.

The baseline inspection program was developed using a risk-informed approach to determine a comprehensive list of inspectable areas within each cornerstone of safety. These inspectable areas were selected based on their risk significance (i.e., they are needed to meet a cornerstone objective as derived from a combination of probabilistic risk analyses insights, operational experience, deterministic analyses insights, and regulatory requirements). The scope of inspection within each inspectable area was determined using the same risk-informed approach. The scope of inspection was also modified by the applicability of a PI. The more fully a PI measures an area, the less extensive is the scope of inspection. The current baseline inspection program was developed by three task groups, which were formed to develop the recommendations from internal and external stakeholders. Task groups consisted of a technical framework task group, an inspection task group, and an assessment task group. The technical framework task group was responsible for completing the regulatory oversight structure and for identifying the PIs and appropriate thresholds that could be used to measure performance. The inspection task group was responsible for developing the scope, depth, and frequency of a risk-informed baseline inspection program that would be used to supplement and verify the PIs. The assessment process task group developed methods for integrating PI and inspection data, determining NRC action based on assessment results, and communicating results to licensees and the public. The enforcement program was coordinated with these three task groups to ensure that enforcement process changes were properly evaluated in the framework structure, and that changes to the inspection and assessment programs were integrated with changes to the enforcement program. The baseline inspection program is required to be completed in its entirety. Specific guidelines (provided in IMC 2515) detail what steps to take if any baseline inspection requirements cannot be completed.

Twice a year, each operating nuclear reactor is assessed using the process described in IMC 0305, "Operating Reactor Assessment Program," dated December 24, 2009. As part of this assessment, a determination is made as to whether additional NRC oversight is required, and an inspection plan is developed. The inspection plan ensures that all baseline inspections can be completed at a site, and resources are allocated for any supplemental or special inspections deemed necessary for a facility. A summary of the plant's performance, along with the inspection plan, is provided to the licensee and is posted on the NRC public Web site. A less formal process of assessing a licensee's performance is conducted on an ongoing and quarterly basis. There is additional guidance in IMC 0305 that directs inspectors and their supervisors to conduct additional inspection samples in any areas of concern (within the range provided by the baseline procedures). Most baseline inspection procedures require a minimum number of inspection samples to be conducted in order for the procedure to be called complete; however, a maximum number of samples is also provided in order to give this desired flexibility without inadvertently imposing additional inspection resources on a facility. This assessment process, along with any reactive inspections, allows the NRC inspection program to respond to specific concerns.

The inspection program is periodically reviewed and updated through the ROP self-assessment process, as described in IMC 0307, "Reactor Oversight Process Self-Assessment Program," dated March 23, 2009. The ROP self-assessment program evaluates the overall effectiveness of the ROP through its success in meeting its preestablished goals and intended outcomes. Overall ROP effectiveness is measured each year through its self-assessment program using predefined metrics and performance evaluations of key program areas. A more in-depth review of the program is conducted every 2 years, as detailed in IMC 0307, Appendix B, "ROP Realignment Process," dated April 9, 2009. The ROP realignment evaluates the effectiveness of each baseline inspection procedure through a review of past inspection results, industry events, and other inspection activities to determine if any changes to the inspection procedures are warranted. Additionally, feedback is continually provided through the ROP Feedback Program. As discussed in IMC 0801, "Reactor Oversight Process Feedback Program," dated July 1, 2008, NRC staff can provide recommended changes to individual inspection procedures or to a broader portion of the inspection program. New technical issues are often introduced to the inspection program through this process.

# IRRS Question and Response Report

**Question No:** 139AS **Module 07: Inspection**

**Question**

What processes, criteria, and supporting documents has the Regulatory body established to support compliance promotion activities?

**Response**

The NRC, through the development of the ROP, has established a regulatory oversight framework by which compliance to the regulations by licensees is promoted and verified. Under the ROP, NRC regulatory responses to identified performance deficiencies are not driven by enforcement actions but by the risk significance of inspection findings identified at the plant. This approach used in the ROP, in which enforcement no longer drives NRC assessment of licensee performance, results in less regulatory burden on a mature industry while retaining the option by the NRC of using a more intrusive regulatory approach (i.e., use of enforcement sanctions, including the use of civil penalties to deter noncompliance) for situations in which assumptions under which ROP was developed are no longer valid at a facility.

Because the regulatory burden is less on licensees under the ROP, they are more motivated to ensure that their programs and personnel promptly identify and correct deficiencies in order to come into compliance with regulatory requirements. For example, all severity Level IV violations that have been determined to be very low safety significance (green) are characterized as non-cited violations (NCVs). For operating reactor sites, an NCV is not cited, meaning that no formal response is required from the licensee to the NRC, as long as licensee takes the required actions as specified in the NRC Enforcement Policy. Alternative to the ROP would be the previous inspection program, in which sanctions, including the use of civil penalties, was used regularly to ensure compliance to NRC regulations.

The following are some ROP documents that provide additional information on how regulatory compliance by licensees is promoted:

-IMC 0308, “Reactor Oversight Process (ROP) Basis Document,” dated November 8, 2007
-IMC 0308, Attachment 5, “Technical Basis for Enforcement,” dated October 16, 2006

These documents can by found at the following Web site: http://www.nrc.gov/reading-rm/doc-collections/insp-manual/manual-chapter/index.html.

# IRRS Question and Response Report

**Question No:** 140 **Module 07: Inspection**

**Question**

I. How does the Regulatory Body organize itself to perform its inspection program?
II. What management arrangements (procedures) are in place in order to ensure that a comprehensive and consistent inspection process is established?
III. To what extent does the Regulatory Body make use of resident inspectors, designated site inspectors, or other external inspection agencies, experts or

**Response**

I. The NRC is headquartered in Washington, DC, and maintains regional satellite offices in four key cities throughout the country. Each regional office is responsible for executing established NRC policies and assigned programs within its regional boundary. These regional offices, comprised of both region-based and resident inspectors, carry out the regulatory inspection program described in IMC 2515. Routine daily inspections across a broad range of technical areas are conducted by the NRC resident inspectors assigned to a reactor facility. In-depth periodic inspections, conducted as part of the baseline and supplemental inspections scheduled by the ROP, are generally performed by region-based specialist inspectors. Additional details on the specific types of activities accomplished by these inspectors are provided in the response to Question 145. Headquarters staff in the Division of Inspection and Regional Support (DIRS) within the Office of Nuclear Reactor Regulation (NRR) is responsible for providing overall management for the reactor inspection program. This includes development of policies, practices, procedures, and the necessary infrastructure to support implementation and continuous enhancement of the ROP.

II. The NRC inspection program for operating power reactors is a risk-informed program that is based on the reactor facility licensee performance. The program is administered through the ROP, which is described in Management Directive (MD) 8.13, “Reactor Oversight Process,” dated June 19, 2002, and IMC 0308. See the response to Question 139 for additional details on the inspection program. DIRS provides guidance for implementation of the program through an Inspection Manual. This manual provides overall program guidance in the form of Inspection Manual chapters, and specific inspection guidance in the form of inspection procedures. Additional information regarding the Inspection Manual is provided in the response to Question 152. Aside from this guidance, various activities are in place to ensure consistent and comprehensive implementation of the inspection program. These include numerous lines of communication between the regional offices and Headquarters, peer reviews of findings, management involvement in plant assessment (as discussed in Question 139), and program audits (such as the ROP self-assessment described in the response to Question 139).

III and IV. Additional details on how inspections are completed and the specific types of activities accomplished by inspectors are provided in the responses to Questions 139 and 145. Further information regarding inspector assignment is provided as follows:

In general, all NRC inspections are accomplished by resident inspectors, by region-based specialist inspectors, or by a combination of these personnel. On occasion, personnel may be deployed from the NRC Headquarters office or from other regional offices to assist with an inspection. Additional assignment of personnel to an inspection is usually because the inspection requires a specific technical expertise. The NRC has developed an extensive training and qualification program for its inspectors, as outlined in IMC 1245. On occasion, the NRC may employ technical experts from an outside organization, and personnel from the U.S. National Laboratories have been used as part of NRC inspection teams in the past.

With regard to resident inspector staffing, the NRC’s policy is generally to assign two resident inspectors at single- and dual-unit sites, and three resident inspectors at triple-unit sites. The resident inspectors provide the major onsite NRC presence for direct observation and verification of licensees’ ongoing activities. IMC 2515, Appendix D, “Plant Status,” dated February 2, 2010, outlines the responsibilities of resident inspectors to be aware of major activities and the current status of the plant as the NRC’s onsite representatives. On average, completion of the baseline and plant status inspections requires 2,600 hours for a one-unit site, 2,900 hours at a two unit site, and 3,400 hours at a three unit site. Approximately one quarter of the inspection hours are related to plant status inspections. The resident inspectors also are primary NRC onsite evaluators for events or incidents. For sites with two or more resident inspectors, at least one inspector (or a qualified region-based alternate) should provide site coverage during the regular NRC workday, Monday through Friday. The intent of this guidance is that NRC coverage of a site will not be interrupted for more than three consecutive NRC working days. Additionally, to ensure the right blend of experience and objectivity, IMC 0102 stipulates required tour lengths for resident inspectors. Unless specific approval is granted, resident inspectors are expected to spend a minimum of 4 years, and a maximum of 7 years at a facility. The NRC is currently evaluating these policies along with proposed resident inspector retention initiatives. The evaluation includes an assessment of the availability of qualified personnel and the need to maintain a balance between experience and objectivity. Although the NRC has a detailed inspector training and qualification program, a recent higher rate of inspector turnover has reduced the experience level of the inspector pool. The program is currently being evaluated, and any recommended changes are expected to be presented within the next fiscal year.

# IRRS Question and Response Report

**Question No:** 141 **Module 07: Inspection**

**Question**

I. How do the inspectors prepare for inspections?

II. Does the preparation take account of:

**Response**

I and II. NRC inspectors prepare for inspection activities by taking into account: regulatory requirements related to the inspection area; past operating experience; previous inspection findings; past correspondence between the NRC and its licensees; the final safety analysis report (as updated); facility operating design documentation; planned outage activities; and licensee management procedures. To facilitate management of inspection resources and tracking of inspection programs, annual site-specific inspection plans are required to be developed in accordance with IMC 2515, Appendix A, "Risk-Informed Baseline Inspection Program," dated September 3, 2008. The inspection planning factors to be considered are covered in each inspection procedure. Some procedures are dependent on plant activities and events, while others target systems or components relied upon for safe plant operation. Periodic reviews and updates of inspection plans are expected to be performed at least semiannually as part of the assessment process discussed in IMC 0305.

When it comes time to actually conduct an inspection, it is expected that all NRC staff (including inspectors) conduct themselves in a professional manner, in accordance with IMC 1201. As part of this, inspectors prepare for inspections by becoming familiar with each of the inspection requirements stated in each of the baseline inspection procedures. Each inspection procedure has specific inspection requirements associated with the inspected area that inspectors use to verify compliance by the licensees. When selecting which structures, systems, and components and activity to review, inspectors are directed in each of the procedures to select the more risk-significant components and activities and to provide as broad a sampling of the licensee's activities as possible. In order to perform an adequate inspection, inspectors will normally have to become familiar with the following:

-regulatory requirements in the area inspected
-safety analysis report (and appropriate updates)
-facility operating procedures, management procedures, and other licensee documents relevant to the area inspected

Additionally, "Smart Samples" and summary information about individual operating experience items associated with area of review, together with problems identified in the past by the licensee, as documented in the licensee's corrective action program, are used by the inspector to focus inspection samples. Inspection procedures are reviewed annually and revised as needed to incorporate operating experience. Previous inspection findings in the area inspected are normally reviewed to allow inspectors an understanding of the type of problems identified by inspectors in the past. Planned outage activities are used to schedule NRC team inspections, such as those required to take place during refueling activities. In addition to training provided to inspectors during the qualification process, guidance is also provided in IMC 0102 to ensure that the agency's expectations in this area are clearly communicated to inspectors through their management. Temporary instructions (TIs) are issued for use in inspecting licensee responses to generic issues.

The NRC inspects licensee facilities and operations to ensure that the quality of services being provided to a licensed facility results in compliance with all NRC requirements and regulations. The facility licensee reviews and controls the adequacy of services and products through its quality assurance (QA) program, but the NRC inspects the function of a service or product regardless of who provides it. The QA program is linked by reference to the reactor facility operating license and is a requirement of the license. The NRC would inspect this oversight and make a judgment on the quality of services, products, and material as part of the baseline and supplemental inspection program as specific technical topics are under review.

# IRRS Question and Response Report

**Question No:** 142 **Module 07: Inspection**

**Question**

What types of inspection does the Regulatory Body conduct to verify that the operator is complying with all the safety requirements?

**Response**

The power reactor licensee has primary responsibility to ensure compliance with all safety requirements in all areas. The NRC inspections are an independent confirmation of the licensee performance, and they are carried out in risk-significant areas. Inspections at operating power reactors are guided by the NRC's ROP, a risk-informed approach for performing inspection activities based on the reactor facility licensee performance. The basic program is described in IMC 2515. Detailed information on the basis, development, and implementation of the ROP is provided in the response to Question 139. The following types of inspections are conducted under the ROP:

-Baseline Inspections: Baseline inspections are the routine, planned portion of the NRC's inspection program and are completed at each of the operating reactor sites annually. The type and frequency of inspections completed at each of the operating reactors are listed in Attachment 3, "Baseline Inspection Procedures," to IMC 2515, Appendix A.
-Supplemental Inspections: Follow-up inspections on licensee's corrective actions taken to address more risk-significant inspection findings are accomplished through the supplemental inspection program. Inspections will vary from issue to issue and are discussed in IMC 2515, Appendix B, "Supplemental Inspection Program," dated October 29, 2009.
-Special Inspections: Special inspections augment the baseline inspection program with additional inspections to review infrequent, major plant activity such as rector head replacement or license renewal. These inspections are listed in IMC 2515, Appendix C, "Special and Infrequently Performed Inspections," dated November 9, 2009.
-Reactive Inspections: These inspections are conducted in response to an event or degraded conditions at a reactor facility through special inspections (SIs), Augmented Inspection Teams (AITs), or Incident Investigation Teams (IITs). IMC 0309, "Reactive Inspection Decision Basis for Reactors," dated February 2, 2010, along with MD 8.3, "NRC Incident Investigation Program," dated March 27, 2001, Inspection Procedure (IP) 93812, "Special Inspection," dated March 23, 2009, and IP 93800, "Augmented Inspection Team," dated March 23, 2009, provide guidance on these inspections.
-Generic Safety Inspections: These inspections target new regulatory concerns that might affect all pressurized-water reactors (PWRs), boiling-water reactors (BWRs), or both and are implemented through the use of a TI. A TI is a temporary inspection procedure that is focused on current safety issues or concerns not currently addressed by established IPs or IMCs. TIs are issued to supplement an inspection program and generally are placed in effect for 12 months, but not longer than 24 months. TIs have the same force as an IP, and they are used for a one-time initial inspection of a safety issue or a one-time collection of information.

The ROP and the NRC Inspection Manual specify a baseline and supplemental inspection program that responds to the level of licensee performance. The baseline inspection includes a range of subject material that is intended to verify licensee performance. However, the NRC inspections are a sampling program in which the sample size increases when performance in risk-significant areas is observed to degrade. In addition to the specific guidance discussed above, a provision to allow for general surveillance of the site by an inspector is also provided in the inspection program, as described in IMC 2515, Appendix D. The purpose of this provision is to ensure that resident inspectors maintain knowledge of current plant activities and status in order to help them determine how to select and implement the appropriate baseline inspection procedures. Plant status activities focus on being aware of emergent plant issues, potential adverse trends, current equipment problems, and ongoing activities, including their impact on plant risk. Based on the knowledge gained through the plant status review, the inspectors are expected to make adjustments to their inspections so that they can inspect activities that are of higher risk-significance.

Inspectors prepare for inspections by becoming familiar with each of the inspection requirements stated in the inspection procedure. Each inspection procedure will have a specific inspection attribute (requirement) associated with the inspected area that inspectors are asked to verify that the licensees are in compliance with, along with suggested methods for how to verify these requirements (e.g., direct observation, record review, interviews). When selecting which SSC and activity to review, inspectors are directed in each of the procedures to select the more risk-significant components and activities and to provide as broad a sampling of the licensee's activities as possible. The NRC does not conduct any testing and measurement independent of the operator. A more detailed discussion of how inspectors prepare for inspections and what information is reviewed during this preparation is provided in the response to Question 141. Following the inspection, NRC inspectors will meet with licensee staff and management to discuss any issues identified during the review. The expectations of this meeting are detailed in IMC 2515, Section 12, "General Inspection Policies." Subsequent to this meeting, a detailed inspection report will be provided to the licensee and posted on the NRC public Web site. Reports include information on the objective of the inspection, what was inspected, how the inspection was conducted, the criteria used to determine if a licensee was in compliance with the regulations, and any findings that were identified as a result of the inspection. The form and context of the NRC inspection reports are standardized in IMC 0612, "Power Reactor Inspection Reports," dated April 30, 2010, and its associated attachments and exhibits.

# IRRS Question and Response Report

**Question No:** 143 **Module 07: Inspection**

**Question**

Are inspections planned, reactive, both announced and unannounced (e.g., what does the Regulatory Body do in the case of abnormal occurrences which require immediate investigation)?

**Response**

With the exception of constant monitoring by resident inspectors (as described in the response to Question 139), all inspections are planned and announced in the ROP. This includes reactive inspections conducted in response to an abnormal event or occurrence. For a detailed description of the NRC inspection program, see the responses to Questions 139, 140, and 142. The power reactor licensee is generally informed of the NRC schedule for inspections at the facility. The NRC will only withhold informing the facility licensee of a planned or pending inspection if it is believed that transmitting that information will compromise the inspection. The plan for each reactor facility inspection schedule is publically available through the NRC Web site. This plan is also sent by letter to the facility licensee. The plan incorporates any additional inspections added to the baseline inspection program because of degraded performance. The process for calculating and tracking performance is implemented through the ROP. The NRC inspection program responds to degraded performance by increasing the inspection activity in the appropriate areas.

In response to an event or degraded conditions at a reactor facility, the NRC will conduct a reactive inspection. The NRC's policy (as provided in MD 8.3) is to ensure that significant operational events involving reactor and materials facilities are investigated in a timely, objective, systematic, and technically sound manner; that the factual information pertaining to each event is documented; and that the cause or causes of each event are ascertained. A significant operational event is defined as a radiological, safeguards, or other safety-related operational event at an NRC-licensed facility that poses an actual or potential hazard to public health and safety, property, or the environment. At power reactors, these events include significant unplanned degraded conditions identified by the licensee or the NRC. In accordance with 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," licensees are required to report such events and occurrences to the NRC. Also, 10 CFR 50.70 requires licensees to grant unfettered access to NRC personnel for the purpose of conducting inspections on the facility. The level of agency response is intended to be commensurate with the increase in risk associated with the event or occurrence, and the inspection will be carried out by the following:

-Incident Investigation Team (IIT)—This group consists of technical experts who, to the extent practicable, do not have, and have not had, previous significant involvement with licensing and inspection activities at the affected facility; they perform the NRC investigation of the significant operational event. An NRC senior manager leads the IIT. Each IIT reports directly to the Executive Director for Operations (EDO) and is independent of regional and Headquarters office management.
-Augmented Inspection Team (AIT)—This group consists of technical experts from the region in which the incident took place, augmented by personnel from headquarters or other regions or by contractors; they perform an inspection of the significant operating event. AIT members may have had prior involvement with licensing and inspection activities at the affected facility. The AIT reports directly to the appropriate regional administrator.
-Special Inspection (SI) Team—This inspection is similar to an AIT inspection except that the group generally is smaller (the number of members is based on management's judgment) and is generally not augmented by personnel from Headquarters or other regions or by contractors. The special inspection team reports directly to the appropriate regional administrator.

Following notification of an event, or during an event, the responding onsite inspectors provide details regarding plant status and performance of equipment and personnel to management, event review staff, and regional and Headquarters risk analysts. The details are used to determine the level of agency response, investigatory response if any (i.e., IIT, AIT, or SI) and any special resources and expertise needed for event followup. An IIT or AIT is considered for certain events or degraded conditions meeting deterministic criteria without any probabilistic risk input (e.g., exceeding a safety limit of the licensee's technical specifications, site area emergency, significant radiological release, significant occupational or public exposure, and safeguards concerns). Other deterministic criteria related to events or degraded conditions are risk informed (e.g., loss of a safety function or multiple failures in systems used to mitigate an event). The decision criteria associated with implementing a reactive inspection (and a description of the scope of each inspection) is provided in MD 8.3, IMC 0309, IP 93800, and IP 93812. Although the reactive inspection may be announced to the public and to the facility licensee, it is usually started onsite promptly with very little notice. If no reactive inspection is warranted (per the guidance documents listed above) the event would be followed up through the applicable ROP baseline inspection procedures.

Inspections conducted by the NRC do not relieve the licensee of the prime responsibility for safety and investigation of the event or occurrence. Per 10 CFR 50.57, "Issuance of Operating License," by issuance of an operating license a facility is required to conform with its application as amended, the provisions of the Atomic Energy Act of 1954, as amended, and the rules and regulations of the NRC. Under Criterion XVI, "Corrective Action," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," licensees must promptly identify and correct any conditions adverse to quality. In the case of significant conditions adverse to quality, the measures taken shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. Guidance is provided in IP 71153, "Followup of Events and Notices of Enforcement Discretion," dated February 2, 2010, for limiting the NRC impact during events. The NRC's goal is to monitor and assess with as little impact on the licensee as possible and at the same time ensure that NRC evaluations are timely and accurate.

# IRRS Question and Response Report

**Question No:** 144 **Module 07: Inspection**

**Question**

Are special inspections (not included in the planned inspection program) conducted, for example, as the result of a specific identified problem, a gradual deterioration in a specific area, etc.?

**Response**

The NRC has programs to conduct inspections as the result of a specific identified problem, gradual deterioration in a specific area, special or infrequent events, and generic safety issues. The NRC conducts several types of inspections in addition to the baseline inspections detailed in the ROP. These include the following:

-supplemental inspections
-special inspections
-reactive inspections (a description of the NRC's reactive inspection process is provided in the response to Question 143)
-generic safety inspections

Followup inspections on licensee's corrective actions taken to address more risk-significant inspection findings are accomplished through the supplemental inspection program. Supplemental inspections are conducted to verify the adequacy of licensee's corrective actions taken in response to inspection findings that have been determined to be greater-than-green or to performance indicators that have crossed their green-to-white thresholds. Accordingly, the NRC regional office will assess the need for supplemental inspections after identifying an inspection finding categorized as risk significant (i.e., white, yellow, or red) with the significance determination process (SDP), or when a PI exceeds the licensee response band threshold. The scope and breadth of these inspections will be based upon the guidance provided in the assessment program's Action Matrix and expanded upon in the "Supplemental Inspection Selection Table" included in Appendix B to IMC 2515. Depending on the risk significance and breadth of the identified performance issues, the supplemental inspections provide a graded response as follows: oversight of the licensee's root cause evaluation of the issues; expansion of the baseline inspection sample or a focused team inspection (as necessary to evaluate extent of condition); or a broad scope, multidisciplinary team inspection, which would include inspection of multiple cornerstone areas and inspection of crosscutting issues. Any new issues identified during the supplemental inspections will be evaluated by the SDP. The need for additional NRC actions, including additional supplemental inspections, will be governed by the Action Matrix. The graded response is captured through one of three supplemental inspections:

-IP 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," dated November 9, 2009
-IP 95002, "Inspection for One Degraded Cornerstone or Any Three White Inputs in a Strategic Performance Area," dated November 9, 2009
-IP 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs or One Red Input," dated November 9, 2009

A less structured process for addressing gradual deterioration in a specific area is through the conduct of additional samples within the baseline inspection procedures. There is additional guidance in IMC 0305 that directs inspectors and their supervisors to conduct additional inspection samples in any areas of concern (within the range provided by the procedures). Most baseline IPs require a minimum number of inspection samples to be conducted in order for the procedure to be called complete; however, a maximum number of samples is also provided in order to give this desired flexibility without inadvertently imposing additional inspection resources on a facility.

Special inspections augment the baseline inspection program with additional inspections to review infrequent, major plant activities such as reactor head replacement, power uprate, or license renewal. These inspections are to be performed only when authorized by the regional administrator after a review and assessment of plant events or conditions, or to fulfill NRC obligations under domestic interagency memoranda of understanding, or because of participation in international agencies. These inspections are not part of the baseline or supplemental inspection program elements. The inspections that fall under this category are listed in IMC 2515, Appendix C.
Generic safety inspections target new regulatory concerns that might affect all PWRs, BWRs, or both and are implemented through the use of a TI. A TI is a temporary inspection procedure that is focused on current safety issues or concerns not currently addressed by established IPs or IMCs. For example, when it is determined that a safety issue addressed in a bulletin or generic letter requires inspection verification or followup, requirements and guidance for the inspection will be developed and issued in a TI. TIs are issued to supplement the inspection program and generally are placed in effect for 12 months, but not longer than 24 months. TIs are equivalent to IPs and are used for a one-time initial inspection of a safety issue or a one-time collection of information.

# IRRS Question and Response Report

**Question No:** 145 **Module 07: Inspection**

**Question**

Do the same parts of the Regulatory Body conduct both the routine and special inspections? If not, identify them.

**Response**

The same organizations, the NRC regional offices, conduct both the routine and special inspections. Region-based and resident inspectors carry out the regulatory inspection program described in IMC 2515. Resident inspectors are assigned to an operating reactor site. There are four regions that provide inspection activities at all power reactor sites in the United States. These inspectors carry out the NRC's inspection program, which consists of the following three major program elements:

-Risk-Informed Baseline Inspection Program (baseline) inspections
-plant-specific supplemental inspections
-generic safety issue, special, and infrequent inspections

The baseline inspection portion of the NRC's inspection program is completed at each of the operating reactor sites by both region-based and resident inspectors annually. The type and frequency of inspections completed at each of the operating reactors are listed in Attachment 3 to Appendix A to IMC 2515. Inspectors from the regional offices and resident inspectors assigned to the plants perform both the routine and special inspections. Routine daily inspections across a broad range of technical areas are conducted by the NRC resident inspectors assigned to a reactor facility. In-depth periodic inspections, conducted as part of the baseline and supplemental inspections scheduled by the ROP, are generally performed by region-based specialist inspectors. The following baseline inspection procedures will normally be performed by regional specialists:

-IP 71111.05T, "Fire Protection (Triennial)," issued December 2009
-IP 71111.05TTP, "Fire Protection – NFPA 805 Transition Period (Triennial)," issued December 2009
-IP 71111.07, "Heat Sink Performance," issued February 2010
-IP 71111.08, "In-service Inspection Activities," issued November 2009
-IP 71111.11, "Licensed Operator Requalification Program," issued January 2006
-IP 71111.12, "Maintenance Effectiveness," issued November 2009
-IP 71111.18, "Plant Modifications," issued December 2008
-IP 71111.21, "Component Design Bases Inspection," issued August 2008
-IP 71114, "Reactor Safety Emergency Preparedness" (all attachments), issued June 2006
-IP 71121, "Occupational Radiation Safety" (all attachments)
-IP 71122, "Public Radiation Safety" (all attachments)
-IP 71130, "Physical Protection" (all attachments)

The remaining baseline inspection procedures (inspections listed in Attachment 3 to Appendix A to IMC 2515 that are not listed above) will normally be performed by resident inspectors.

Special inspections and reactive inspections can be accomplished by NRC resident inspectors, by the region-based specialist inspectors, or by a combination of these personnel. On occasion, a resident inspector may be deployed to another facility to assist in followup of an event, or personnel may be deployed from the NRC Headquarters office or from other regional offices. Assignment of personnel to a special inspection is usually made by considering the type of event and desired response and the skills and expertise of the inspection personnel assigned to the task. On occasion, the NRC may employ technical experts from an outside organization. Personnel from the U.S. National Laboratories have been used as part of NRC inspection teams in the past.

In general, the resident inspector staffing policy is to assign two resident inspectors at single- and dual-unit sites and three resident inspectors at triple-unit sites. Additionally, to ensure the right blend of experience and objectivity IMC 0102 stipulates required tour lengths for resident inspectors. Unless specific approval is granted, resident inspectors are expected to spend a minimum of 4 years, and a maximum of 7 years at a facility. The NRC is currently evaluating these policies along with proposed resident inspector retention initiatives. The evaluation includes an assessment of the availability of qualified personnel and the need to maintain a balance between experience and objectivity.

# IRRS Question and Response Report

**Question No:** 146 **Module 07: Inspection**

**Question**

How are the activities of review and assessment linked to the inspection program?

**Response**

Operating power reactors in the United States are under the ROP. This process uses risk-informed, performance-based inspection and PIs to ensure compliance with NRC regulations and specific license conditions. Changes made to the plant's design basis, licensing basis, or any other commitments made to the NRC are also considered under the ROP. The PIs are provided by the licensees and are designed to provide basic information on performance over a wide range of disciplines, including emergency preparedness and plant security, and to trigger additional NRC inspection if thresholds are crossed. Inspectors verify the completeness and accuracy of the PIs. The inspection program is designed to supplement the PIs while placing emphasis in areas not covered by the PIs. The areas of inspection were determined using risk insights and tailored based on the design and vintage of the plant. The output of both the inspection program and performance indicators are equally weighted and are input into the ROP Action Matrix, which is contained and described in IMC 0305. The Action Matrix is a presolved table that takes PIs and inspection findings and groups them by numbers, cornerstone, and significance to determine placement in the performance columns, which are an estimate of integrated licensee performance for the current assessment period. Additional inspection efforts are initiated based on which performance column a licensee is placed in. Consideration of overall performance and determination of the timing for the additional inspection is performed during assessment sessions at the midpoint and end of each assessment cycle. The planned NRC actions are communicated to the licensee.

On a periodic basis, and as part of the baseline inspections that are performed at all power reactor sites, the NRC conducts a review of each license's corrective action program. The baseline inspections are discussed in Appendix A to IMC 2515. Each baseline inspection procedure contains guidance for inspectors to verify that problems are being added to the licensee's corrective action program (based on an appropriate threshold), and that these problems are being adequately addressed. In addition, the NRC performs a periodic inspection specifically focused on a licensee's ability to address problems. This inspection is performed in accordance with IP 71152, "Problem Identification and Resolution," issued February 2010. Additional information on the ROP is provided in the responses to Questions 139 and 140.

In the area of license renewal, an NRC inspection takes place after a license renewal application is submitted to verify that the programs credited in the application are as described. This inspection is conducted in accordance with IP 71002, "License Renewal Inspection," issued February 2005. After a license renewal has been approved by the NRC, a subsequent inspection takes place to verify that the programs have been implemented as described and are adequate. This inspection is conducted in accordance with IP 71003, "Post-Approval Site Inspection for License Renewal," issued October 2008.

# IRRS Question and Response Report

**Question No:** 147 **Module 07: Inspection**

**Question**

How are the activities of the inspection program linked to the requests for authorizations?

**Response**

It is the policy of the NRC to provide oversight of nuclear power plant activities to verify that the plants are being operated in accordance with NRC rules and regulations. As stated in the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, the mission of the NRC is to ensure that commercial nuclear power plants are operated in a manner that provides adequate protection of public health and safety and the environment, and protection against radiological sabotage and the theft or diversion of special nuclear materials. The NRC fulfills this mission by establishing regulatory requirements for the design, construction, and operation of plants; performing thorough plant licensing reviews; creating stringent standards for licensing of plant operators; and overseeing plant activities. Within this structure, NRC licensees have primary responsibility for operating their plants safely. The NRC expects that licensees will address performance issues of very low safety significance that may arise as a normal part of operating a facility without requiring additional NRC involvement. In providing its oversight, NRC strives to use an objective, understandable, and predictable process to ensure that licensees fulfill their responsibility for safe operation.

The NRC's regulations require each application for an operating license to include a final safety analysis report (FSAR). The FSAR includes information that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole. In particular, the FSAR provides a description and analysis of the structures, systems, and components of the facility, with emphasis upon performance requirements, the bases—with technical justification therefore—upon which such requirements have been established, and the evaluations required to show that safety functions will be accomplished. The description must be sufficient to permit an understanding of the system designs and their relationship to safety evaluations.

Before an operating license is issued, the Commission must in part find that (1) construction of the facility has been substantially completed, in conformity with the construction permit and the application as amended, the provisions of the Atomic Energy Act, as amended (AEA), and the rules and regulations of the Commission; (2) the facility will operate in conformity with the application as amended, the provisions of the AEA, and the rules and regulations of the Commission; and (3) there is reasonable assurance that the activities authorized by the operating license can be conducted without endangering the health and safety of the public, and that such activities will be conducted in compliance with the regulations.

The NRC documents a summary of its safety review of the facility in a safety evaluation report (SER). The SER is based on information in the applicant's FSAR, and Technical Specifications, as reviewed against the Federal regulations, construction permits criteria, and the NRC Standard Review Plan (NUREG 0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition") and Standard Review Plan for License Renewal (NUREG 1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants"). Any outstanding matters described in the SER must be favorably resolved before an operating or renewal. Any outstanding matters described in the SER must be favorably resolved before an operating license may be issued. Some SER matters may require inspection followup outside normal inspection activities. These matters may be identified in the SER and identified to the inspector by licensing staff. In addition, the NRC approves plant-specific technical specifications that must be followed by the plant operators to ensure that the proper combination of safety-related equipment, as described in the FSAR, is available to safely shut down the plant in the event of an accident.

NRR has principal responsibility for implementing regulations and developing and implementing policies, programs, and procedures for all aspects of licensing and inspection of nuclear facilities, including contractors and suppliers of these nuclear facilities. NRR identifies and takes action regarding conditions and license performance that may adversely affect public health and safety, the environment, or the safeguarding of nuclear facilities, and assesses and recommends or takes action regarding incidents or accidents. NRR provides guidance and implementation direction to regional offices on reactor licensing and inspection programs assigned to the regions and appraises regional program performance in terms of effectiveness and uniformity. Each applicant for or holder of a license, including a construction permit or an early site permit, must permit inspection of his records, premises, activities, and licensed materials in possession or use related to the license or construction permit or early site permit as may be necessary to effectuate the purposes of the Act, as amended, including Section 105 of the Act, and the Energy Reorganization Act of 1974, as amended.

After an operating license is granted, the regulatory structure in the United States is designed so that the license holder does not need to make requests for authorization from the NRC to operate its plant in a configuration allowed by its Technical Specifications. Therefore, inspections are conducted to ensure that the licensees are operating the plant in accordance with their licensed conditions as described in their FSAR and Technical Specifications. If a licensee requests a change to the licensing basis as described in the FSAR or a change in its technical specifications, the NRC's licensing organization ensures that all technical justifications for the changes are satisfied before authorizing the change. In general, NRC inspections are not linked to licensee's requests for authorization after a license to operate the facility has been granted. However, in some situations, such as license renewal applications or requests for extended power uprates, the NRC may follow up these licensing activities with an onsite inspection of selected items related to the basis of the approvals. A detailed description of the NRC's operating power reactor inspection program is provided in the response to Questions 139 and 143.

The license renewal inspection program is implemented before the approval of an application for a renewed license to verify that an applicant, requesting a renewed license under 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," meets the requirements of the rule and has implemented license renewal programs and activities consistent with its license renewal application and the NRC's SER.

The primary objectives of license renewal inspection activities are to review the documentation, implementation, and effectiveness of the programs and activities associated with an applicant's license renewal program to verify that there is reasonable assurance that the effects of aging will be adequately managed such that the intended function of components and structures within the scope of license renewal will be maintained consistent with the current

licensing basis during the period of extended operation.

Each nuclear power reactor licensee must periodically update the FSAR to assure that the information included in the report contains the latest information developed. This submittal must contain all the changes necessary to reflect information and analyses submitted to the NRC or prepared by the licensee pursuant to Commission requirement since the submittal of the original FSAR. The submittal shall include the effects of all changes made in the facility or procedures as described in the FSAR, all safety analyses and evaluations performed by the applicant or licensee either in support of approved license amendments or in support of conclusions that changes did not require a license amendment in accordance with 10 CFR 50.59(c)(2), and all analyses of new safety issues performed by or on behalf of the applicant or licensee at Commission request. The updated information shall be appropriately located within the update to the FSAR. The NRC periodically inspects these activities.

The NRC has a coordinated program to systematically review operating experience gained from the nuclear power industry and research and test reactors, assess its significance, provide timely and effective communication to stakeholders, and apply the lessons learned to regulatory decisions and programs affecting nuclear reactors.

**Question No:** 148 **Module 07: Inspection**

**Question**

How does the Regulatory Body inspect the way in which the operator controls the adequacy of the services and products supplied to it? (e.g., material condition of components at site).

**Response**

The NRC inspects licensee's facilities and operations to ensure that the quality of services being provided to a licensed facility results in compliance with all NRC requirements and regulations. Baseline IP 71111.17, "Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications," dated October 31, 2008, provides for a review of licensees' commercial dedication, which may be performed for components in safety systems as part of the review of system modifications. Additionally, IP 71111.21 will verify that any changes (which will include adequacy of replacement components) made to a safety system will still result in the safety system continuing to meet its design requirements.

The facility licensee reviews and controls the adequacy of services and products through their QA program. The QA program is linked by reference to the reactor facility operating license and is a requirement of the license. The NRC would inspect this oversight and make a judgment on the quality of services, products, and material as part of the baseline and supplemental inspection program as specific technical topics are under review.

For inspections under the vendor inspection program, the NRC in a Federal Register notice dated November 20, 1985 (50 FR 47716), announced a minor revision to the NRC Enforcement Policy to describe how the enforcement policy applies to vendors of product or services that are supplied to the nuclear industry for ultimate use in facilities or activities that are licensed by the NRC. This revision reflected a Commission decision to support an increased focus on NRC inspection and oversight of industry vendor activities. Various sections of the enforcement policy, including the purpose and supplements, were expanded to encompass vendor activities. References to the Notice of Nonconformance to vendors were also added. The NRC Enforcement Policy is applicable to nonlicensees, including contractors and subcontractors, holders of NRC approvals (e.g., certificates of compliance, early site permits, standard design certificates, quality assurance program approvals, or applicants for any of them), and to employees of any of the foregoing, who knowingly provide components, equipment, or other goods or services that relate to a licensee's activities subject to NRC regulation. Vendor inspections, as defined in IMC 2700, "Vendor Inspection Program," dated October 29, 1990, are conducted at vendor shops principally to examine whether they have been complying with Appendix B to 10 CFR Part 50 as they are required to do under their procurement contracts with licensees. Notices of Nonconformance and Notices of Violations (NOVs) are issued to vendors for failures to meet quality commitments and 10 CFR 21, "Reporting of Defects and Noncompliance," respectively.

# IRRS Question and Response Report

**Question No:** 149 **Module 07: Inspection**

**Question**

What reports are prepared on the inspection activities, how are inspection findings fed back into the regulatory process?

**Response**

The ROP requires inspectors to document inspection findings in accordance with report guidance contained in IMC 0612 and associated ROP inspection procedures. These include findings identified through baseline inspections, supplemental inspections, and special inspections. All ROP inspection reports follow the format and guidance in IMC 0612 for report issuance. These reports communicate significant inspection findings in a consistent manner to licensees, NRC staff, and, where applicable, the public, and they document the basis for significance determination and enforcement action. Inspectors who performed the inspection will prepare the report, ensuring that it includes information on the objective of the inspection, what was inspected, how the inspection was conducted, and criteria that were used to determine if a licensee was in compliance with the regulations. Additional information will be included in the report as required by IMC 0612 and associated inspection procedures. Following management review, inspection reports are sent from the applicable NRC official (branch chief, division director, or regional administrator) to a designated licensee executive.

Inspection findings also provide input to the Operating Reactor Assessment Program, as described in IMC 0305. Findings are sorted based on their significance and reactor safety cornerstones and fed into the ROP Action Matrix for the respective assessment period. On a quarterly basis, plant performance is updated, and the results are displayed on the NRC's public Web page: http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/actionmatrix_summary.html.

Twice a year, plant performance is assessed using all the input provided by the inspection and PI programs. Overall plant performance is determined by the number and commonality of significant (greater-than-green) findings, as dictated by the ROP Action Matrix.

**Question No:** 150 **Module 07: Inspection**

**Question**

What are the form and content of the inspection reports prepared by the regulatory inspectors? To whom are the reports addressed, and to whom are they made available?

**Response**

Written reports are prepared to document all NRC inspections. The form and context of the NRC inspection reports are standardized in IMC 0612, and its associated attachments and exhibits. Reports include information on the objective of the inspection, what was inspected, how the inspection was conducted, the criteria that were used to determine if a licensee was in compliance with the regulations, and any findings that were identified as a result of the inspection. When findings are identified, information is provided in the report detailing which requirements were not being met, the significance associated with the finding, and any actions taken by the licensee and the NRC for identified deficiencies. When applicable, the need for followup actions will be annotated in the report as well. Depending on the circumstances of the inspection, additional information will be included in the report as required by IMC 0612 and associated inspection procedures. Following management review, inspection reports are sent from the applicable NRC official (branch chief, division director, or regional administrator) to a designated licensee executive. All NRC reports, except those containing sensitive physical security information, are publically available through the NRC Web site. The inspection reports and their findings that have been coded for their safety-significance are located on the Web site in a form that is convenient to other information supporting the NRC ROP (such as PI data, the licensee's performance data, and the NRC inspection schedule).

# IRRS Question and Response Report

**Question No:** 151 **Module 07: Inspection**

**Question**

What kind of analysis is performed on regulatory inspection reports and by whom?

**Response**

All draft NRC inspection report findings are preliminarily assessed by the onsite senior resident inspectors and their regional branch chiefs; findings of higher potential risk significance are reviewed by a senior risk analyst in the respective region. Risk-significant findings are presented at a Significance and Enforcement Panel (SERP) to managers representing the region, the Office of Enforcement, and DIRS and the Division of Risk Assessment in NRR. The purpose of the significance review is to ensure agreement on the comprehensive risk assessment before the information is released to the licensee. Violations are also reviewed at a SERP. The purpose of the enforcement review is to coordinate enforcement results among the various parts of the agency, including the region, the Office of Enforcement, the Office of the General Counsel, NRR, and the Office of Investigation. The Office of Investigation collects the information necessary for the agency to make a determination of willfulness.

Regional staff and management ensure that finalized inspection reports are complete, timely, and conform to the guidelines for preparation of inspection reports as set forth in IMC 0612, IMC 2515, and the associated inspection procedures. Resident inspectors develop an integrated inspection report (IIR), which is issued at the end of every calendar quarter. This IIR details all the baseline inspections that were performed by the resident inspectors during that time period. In the case of inspections performed by regionally based inspectors (team inspections), inspectors who performed the inspection will prepare a separate report for that specific inspection and then provide any pertinent information to the resident inspectors. In all cases, inspection reports are submitted for review and approval by the appropriate level of management prior to issuance (typically the cognizant branch chief).

On an annual audit basis, in accordance with IMC 0307, Appendix A, "Reactor Oversight Process Self-Assessment Metrics," dated March 23, 2009, Headquarters staff (the Reactor Inspection Branch and Performance Assessment Branch in NRR) audit a sampling of inspection reports to ensure they conform to the requirements of IMC 0612 with regard to format, consistency, objectiveness, and documentation of findings. The audit reviews several IIRs and team inspection reports from each of the four NRC regional offices. The results of this audit are included in the annual ROP self-assessment report. Additionally, a working group, consisting of both Headquarters and regional staff, exists in order to evaluate proposed changes to the format and content of inspection reports. Inspection reports are also reviewed during the ROP Realignment Process (which is discussed in the response to Question 139) to evaluate the resource estimates provided in the inspection procedures.

**Question No:** 152 **Module 07: Inspection**

**Question**

Does the Regulatory Body provide detailed written inspection procedures such as an inspection manual, for use by inspection staff? If not, how is guidance given?

**Response**

The ROP provides inspectors with written guidance in the NRC Inspection Manual in order to conduct inspections and assess licensee performance. The Inspection Manual contains objectives and procedures to use for each type of inspection and is broken up into four main types of guidance:

-Inspection Manual Chapters (IMCs)—IMCs state the purpose, objectives, definitions, responsibilities, authorities, and basic requirements for inspection programs. An IMC for an inspection program defines the program through a listing of inspection procedures, which is normally appended to the IMC.
-Inspection Procedures (IPs)—IPs detail the objectives, requirements, and specific guidance for activities required to be performed by an inspector or technical staff.
-Temporary Instructions (TIs)—A temporary inspection procedure that is focused on current safety issues or concerns not currently addressed by established IPs or IMCs. They are used for a one-time initial inspection of a safety issue or a one-time collection of information.
-Technical Guidance—A document issued to provide specific guidance to address a particular technical question that is associated with an inspection procedure. A subset of this guidance is 10 CFR guidance, which provides acceptable approaches to particular issues involving rules and regulations in 10 CFR, “Energy.”

In the case of operating power reactors, the principles and guidance for development of the inspection program are contained in IMC 0308, and the guidance for implementation of this program is contained in IMC 2515. The areas subject to inspection, methods for selecting and conducting inspections, and relevant technical information (including the regulatory basis for the inspection scope) is provided to the inspection staff through the individual IPs listed in IMC 2515. Further guidance is provided to the inspection staff regarding reporting requirements (IMC 0612), enforcement policies and practices (IMC 0609, “Significance Determination Process,” dated August 5, 2008), assessment of licensee performance and the process for conducting additional inspections based on that performance (IMC 0305), and inspector standards of conduct (IMC 1201). More information on the operating power reactor inspection program is provided in the response to Question 139. Additional guidance is provided through the various forms of Inspection Manual documents listed above. In all cases, inspectors complete a qualification program that is designed to provide them with adequate training on how to properly implement the required guidance (IMC 1245).

IMC 0040, “Preparing, Revising, and Issuing Documents for the NRC Inspection Manual,” dated October 29, 2009, provides guidance to develop or revise any inspection manual documents. The Inspection Manual is publically available through the NRC Web site: http://www.nrc.gov/reading-rm/doc-collections/insp-manual/.

# IRRS Question and Response Report

**Question No:** 153 **Module 07: Inspection**

**Question**

Describe the system used for storage, internal distribution and retrieval of specific information contained in the inspection reports.

**Response**

The results of all NRC inspections are documented in written reports. The inspection reports contain information detailing the scope of the inspection (e.g., the objective of the inspection, what was inspected, how the inspection was conducted, documents that were reviewed, criteria used to determine compliance) and any findings identified during the inspection. The process for preparation, review, issuance, distribution, and storage of these reports is provided in IMC 0612.

In accordance with 10 CFR 2.390, “Public Inspections, Exemptions, Requests for Withholding,” of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders” (10 CFR Part 2), a copy of each inspection report is available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of the NRC’s Agencywide Documents Access and Management System (ADAMS). Other documents related to the inspection (information exchanged between the NRC and other stakeholders) are also maintained in this database. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the public Electronic Reading Room). All internal NRC users have access to the inspection reports through ADAMS. In addition, reports of inspections conducted since the year 2000 are accessible through the NRC public Web page. The primary database used to track inspection report status and store basic summary information is the Reactor Program System (RPS). There are also several search mechanisms available to retrieve specific information from inspection reports based on inspection subject, type of finding, time period, facility type, or other key words or parameters. This can be accomplished through ADAMS and various internal applications, including the RPS and the Dynamic Web page. ADAMS and the NRC Web site are linked such that information that is provided through these systems is current and up-to-date to the extent practicable.

Inspection findings contained in reports are reviewed twice a year as part of the ROP, as described in IMC 0305. The purpose of this review is to review findings related to a specific facility to determine any commonality. The result of this review is used to generate a midcycle and end-of-cycle performance letter. Additional information on the assessment process is provided in the responses to Questions 155 to 160.

# IRRS Question and Response Report

**Question No:** 154 **Module 07: Inspection**

**Question**

To what extent does the Regulatory Body rely on the internal safety verifications of the operator? Is it clear that regulatory inspections do not diminish the operator's prime responsibility for safety or replace its verification and supervision activities?

**Response**

The reactor facility licensee has primary responsibility to ensure that the facility is maintained and operated in accordance with the NRC rules and regulations and the facility operating license. Safe operation is implied through this compliance (a detailed discussion of the NRC's policy regarding verification of the operator's compliance with safety requirements is provided in the response to Question 142). The NRC requires that the facility licensees establish and maintain QA and audit programs that verify compliance with the regulations. For example, each facility is required by its operating license to have an independent nuclear review board. That board is tasked with performing audits that take place in addition to the audits and surveillance activities of the QA organization. As defined by IMC 2515, the NRC inspection program aims to provide confidence that licensees are indeed operating safely. The objectives of the inspection program are the following:

-to obtain factual information providing objective evidence that power reactor facilities are operated safely and licensee activities do no pose an undue risk to public health and safety
-to determine the causes of declining performance before such performance reaches a level that may result in an undue risk to public health and safety
-to identify those safety-significant issues that may have generic applicability

Recognizing that problems will and do occur, a fundamental goal of the NRC's ROP is to establish confidence that each licensee is detecting and correcting problems in a manner that ensures nuclear safety is a top priority and limits the risk to members of the public. Licensees are expected to self-identify many of their own problems. A key premise of the ROP is that weaknesses in licensee's problem identification and resolution programs will manifest themselves as performance issues that will be identified during the baseline inspection program or by crossing predetermined performance indicator thresholds prior to significant degradations of safety. The NRC routine baseline and supplemental inspections that are conducted by the NRC resident inspectors and the region-based specialist inspectors are a sampling of licensee activities. The NRC inspection program will respond to poor performance and increase the inspection resources applied to a facility in specific appropriate technical areas. Enforcement actions will also be applied as necessary in the event of deviations from or noncompliance with regulatory requirements. See the response to Question 162 for additional information on the NRC's Enforcement Policy.

Nearly all plant deficiencies are entered into the licensee's corrective action program. An NRC review of each licensee's corrective action program is conducted as part of the baseline inspection program using the guidance contained in IP 71152. One of the main objectives of this IP is to determine whether licensees are complying with NRC regulations regarding corrective action programs. Completion of the inspection objectives is accomplished by screening all corrective action program issues, performing a semiannual trend review, sampling issues during each inspectable area inspection, performing focused reviews of four to seven samples per year, and performing a biennial problem identification and resolution team inspection.

Finally, 10 CFR Part 21 requires that any firm constructing, owning, operating, or supplying components to an NRC-licensed facility to report any defect or failure to comply with any applicable NRC rules, regulations, orders, or licenses. This ensures that suppliers of services and products are held accountable not only to the licensee but also to the NRC for reporting any matters that may result in a need for additional steps to verify continued safe operation of the facility. In such instances, further NRC investigation can be accomplished through implementation of additional inspections, as detailed in IMC 2700.

# IRRS Question and Response Report

**Question No:** 155 **Module 07: Inspection**

**Question**

How are unsatisfactory findings reported to the operator and what responses are required?

**Response**

Unsatisfactory findings are reported to a licensee (operator) verbally and in written correspondence. Written responses are required in certain cases as described below. During the conduct of an inspection, NRC inspectors will inform licensee representatives of any conditions adverse to safety that are discovered during that inspection. This will give the reactor licensee the opportunity to investigate the issue and place the facility in a safe status. NRC inspectors inform their management of conditions adverse to safety and generally will not conclude the site inspection if there is an open safety issue. The results of all NRC inspections are documented in written reports that are sent to the reactor facility licensee. Additionally, the NRC inspectors provide information to the licensee during the course of the inspection and will verbally debrief with the reactor facility management representatives at the conclusion of an inspection and inform the licensee managers of the status of their inspection findings at the time of the exit meeting. The results of all NRC inspections are documented in written reports that are sent to the reactor facility licensee in accordance with IMC 0612.

The ROP uses IMC 0609 to determine the safety significance of most inspection findings identified at commercial nuclear power plants. After determining the risk significance associated with these inspection findings, the NRC determines whether the findings are also violations of regulatory requirements. If the inspection findings are determined to be violations of regulatory requirements and are also evaluated as greater than minor, the findings will be documented in inspection reports and appropriate enforcement action associated with the findings will be described. Minor violations are violations of regulatory requirements that are of minimal safety or environmental significance. Although the licensees must correct these minor violations, minor violations are not normally documented in NRC inspection reports and no enforcement action is taken. All findings determined to be more than minor are documented using the guidance in IMC 0612.

Most violations of regulatory requirements in the ROP are determined to be very low risk significance (green). Violations associated with findings that the SDP evaluates as having very low safety significance (i.e., green) will normally be described in inspection reports as Non-Cited Violations (NCVs). An NCV is the term used to describe a method for dispositioning a Severity Level IV violation or a violation associated with a green inspection finding. These issues are documented as violations in inspection reports to establish public records of the violations but are not cited in NOVs, which normally require written responses from licensees. Licensees are expected to enter an NCV into their corrective action program. Dispositioning violations in this manner does not eliminate the NRC’s emphasis on compliance, and the licensee must correct the noncompliant conditions in a timely manner. For the types of inspection findings determined by the SDP to be potentially safety significant (white, yellow, or red), the SERP provides a management review of the preliminary and, when necessary, based on the results of a regulatory conference or written response provided by the licensee, the final significance characterization and enforcement decision. The principal objective of the SERP is to arrive at a consensus regarding the significance determinations and their basis and the appropriate enforcement actions to be taken, if applicable. No official agency preliminary significance determination of white, yellow, red, or greater than green are made without an SERP review. Significance and enforcement decisions reached by the SERP are communicated to the licensees using controlled NRC correspondence (letters). Violations associated with findings that the SDP evaluates as having low to moderate safety significance (white), substantial safety significance (yellow), or high safety significance (red) will be cited in a NOV requiring a written response unless sufficient information is already on the docket describing the cause, corrective actions, and the date when full compliance has been achieved. All NOVs are reviewed by the NRC. The NRC normally takes action in response to significant findings (white, yellow, or red) in accordance with the agency Action Matrix; however, the Commission reserves the use of discretion for particularly significant violations to assess civil penalties in accordance with Section 234 of the AEA.

# IRRS Question and Response Report

**Question No:** 156 **Module 07: Inspection**

**Question**

How does the regulatory body satisfy itself that the licensee's safety performance meets the objectives of operational safety?

**Response**

The NRC's mission and focus 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. The NRC's statutory authority is granted by the AEA. The plant technical specifications provide the minimum set of equipment that must be operational for safety.
Additional minimum safety requirements are contained in 10 CFR 50.54, "Conditions of Licenses," including staffing requirements. In 10 CFR 50.70, the NRC establishes the legal basis for the conduct of inspections to verify the requirements of the AEA, and the Energy Reorganization Act of 1974 and requires licensees to grant unfettered access to NRC personnel for the purpose of conducting inspections on the facility.

The reactor facility licensee has primary responsibility to ensure that the facility is maintained and operated in accordance with the NRC rules and regulations and the facility operating license. A fundamental goal of the ROP is to establish confidence that each licensee is detecting and correcting problems in a manner that ensures nuclear safety is a top priority and limits the risk to members of the public. A key premise of the ROP is that weaknesses in licensee's problem identification and resolution programs will manifest themselves as performance issues, which will be identified during the baseline inspection program or by crossing predetermined performance indicator thresholds. The NRC routine baseline and supplemental inspections (per IMC 2515) that are conducted by the NRC resident inspectors and the region-based specialist inspectors provide an independent check on the operator and the state of the facility and provide a high level of confidence that operators are in compliance with the safety objectives prescribed or approved by the regulatory body, including the technical specifications and 10 CFR 50.54 requirements. Any findings or violations from an inspection are formally communicated to the operator in accordance with IMC 0612. Inspection findings are evaluated for their safety significance using IMC 0609. The NRC inspection program will respond to poor performance and increase the inspection resources applied to a facility in specific appropriate technical areas based on the ROP Action Matrix as described in IMC 0305. The NRC utilizes Appendix B to IMC 2515 to monitor and follow up on inspection findings. In addition, reactive inspections are conducted in response to an event or degraded conditions at a reactor facility through SIs, AITs, or IITs. IMC 0309, along with MD 8.3, IP 93812, and IP 93800, provide guidance on these inspections.

The NRC's Enforcement Policy defines actions taken to deal with noncompliance by the operator with specified conditions and requirements. This policy establishes provisions to ensure that licensees take action (1) to remedy deficiencies and prevent their recurrence, (2) to curtail activities or to shut down the facility when the results of a regulatory inspection or another regulatory assessment indicate that the protection of workers, the public, or the environment might be inadequate, and (3) to impose or recommend civil penalties or other sanctions for noncompliance with specified requirements.

The NRC continuously assesses industry performance and the ability of the licensee to operate within the requirements of the regulations and technical specifications. IMC 0305 provides a mechanism by which inspection results, performance indicator results, the nature and duration of substantive crosscutting issues associated with inspection results, and enforcement actions are integrated to arrive at objective conclusions about a licensee's safety performance and to determine the level of regulatory oversight in accordance with the ROP Action Matrix. Based on this assessment information, the NRC determines the appropriate level of agency response, including supplemental inspection and pertinent regulatory actions ranging from management meetings up to and including orders for plant shutdown. Followup agency actions, as applicable, are conducted to ensure that the corrective actions designed to address performance weaknesses were effective.

# IRRS Question and Response Report

**Question No:** 157 **Module 07: Inspection**

**Question**

How is the inspection strategy defined to monitoring and judge the safety performance of the operator, taking into account any external factors influencing operations e.g. deregulation of the electricity market?

**Response**

The NRC's inspection strategy to monitor and judge the safety performance of the operator is described in the NRC Inspection Manual and is implemented through its ROROP. The ROP provides an objective, risk-informed, performance-based approach to plant inspection and assessment. The ROP takes into account external factors that may influence operations primarily through the conduct of special inspections and safety culture assessments that can be tailored by incorporating insights gained from NRC staff conducting generic communications and risk studies, industry feedback, operating experience, and other sources. The NRC's regulatory authority and additional detail regarding the inspection and enforcement of operator activities is described in the response to Question 156.

The NRC conducts its reactor facility inspections, assessments, and enforcement in accordance with detailed written procedures. The power reactor licensee has primary responsibility to ensure compliance with all safety requirements in all areas. The NRC inspections are an independent confirmation of the licensee performance and the state of the facility and ensure that operators are in compliance with the safety objectives prescribed or approved by the regulatory body, including the technical specifications and 10 CFR 50.54 requirements. These inspections cover the initiating events, mitigating systems, containment functions, and other activities that contribute to plant safety. The inspection program is described in IMC 2515. Separate IMCs are in place and tailored to the stages of the facility's lifetime in order to make the most effective and efficient use of resources for inspections.

The ROP and the NRC Inspection Manual specify a baseline and supplemental inspection program that responds to the level of licensee performance and ensures compliance with NRC regulations. However, the NRC inspections are a sampling program in which the sample size increases when performance in risk-significant areas is observed to degrade. In addition to the specific guidance discussed above, a provision to allow for general surveillance of the site by an inspector is also provided in the inspection program, as described in Appendix D to IMC 2515. The purpose of this provision is to ensure that resident inspectors maintain knowledge of current plant activities and status in order to help them determine how to select and implement the appropriate baseline inspection procedures. Plant status activities focus on being aware of emergent plant issues, potential adverse trends, current equipment problems, and ongoing activities, including their impact on plant risk. Based on the knowledge gained through the plant status review, the inspectors are expected to make adjustments to their inspections so that they can inspect activities that are of higher risk significance.

In addition, the ROP safety culture guidance provides a mechanism for acquiring insights about potential influences of external factors on plant operations. Several of the safety culture components relate to management effectiveness with respect to ensuring nuclear safety and adequacy of resources. For example, the "Resources" safety culture component is applicable to licensees ensuring that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety. Therefore, if external factors result in the cause of a finding being inadequate resources, the ROP allows inspectors to raise these issues to the licensee.

# IRRS Question and Response Report

**Question No:** 158 **Module 07: Inspection**

**Question**

How are safety performance indicator programmes, or other systematic methods for assessment of operator's performance, used when selecting the assessment area and establishing priorities for inspection programmes?

**Response**

The NRC's PI program is used in conjunction with its inspection program to systematically assess licensee performance and establish inspection priorities in accordance with the ROP. PIs are reported to the NRC by licensees on a quarterly basis after the end of each quarter in accordance with IMC 0608, "Performance Indicator Program," Dated February 27, 2007. The ROP PI program structure is hierarchal in concept, using a cornerstone approach that covers all areas of licensee performance. The ROP PI program is a performance-based, risk-informed program that compliments and supplements the ROP inspection program. Taken together, the two programs provide an adequate level of regulatory oversight of commercial nuclear power plants that is responsive to changes in licensee performance. The ROP is designed to detect changes in licensee performance well before licensee performance declines to an unacceptable level and to focus regulatory resources in those areas where performance thresholds are crossed. In areas of licensee performance covered by a PI, the level of inspection oversight for that area can be reduced, allowing for a more effective use of inspector-based resources in areas not suitable to monitoring by a PI. However, if a PI threshold is exceeded, this will have the opposite effect, triggering an increase in the level of inspection commensurate with the significance of the PI threshold crossed. The NRC also periodically reviews PI data to determine its accuracy and completeness in accordance with IP 71151, "Performance Indicator Verification," dated June 28, 2007.

The NRC implements the inspection program for each reactor facility as described in IMC 2515. Baseline inspections—the routine, planned portion of the NRC's inspection program—are completed at each of the operating reactor sites annually. The sample size and content are determined during the mid- and end-of-cycle review meetings based on plant-specific performance issues and industrywide operating experience in accordance with IMC 0305. Supplemental inspections are conducted to verify the adequacy of a licensee's corrective actions taken in response to inspection findings that have been determined to be greater-than-green or to performance indicators that have crossed their green-to-white thresholds. The scope and breadth of these inspections will be based upon the guidance provided in the assessment program's Action Matrix as described in IMC 0305 and expanded upon in the "Supplemental Inspection Selection Table" included in Appendix B to IMC 2515.

Reactive inspections, special inspections, and generic safety inspections are also performed periodically (as described in the response to Question 157) to incorporate operational experience, lessons learned from operating the facility and other similar facilities, and the results of research and development into the inspection program. Therefore, the inspection program is planned and altered as necessary based on the results of previous inspections and PIs, the results of NRC review and assessment, and operating experience and lessons learned.

The effectiveness of the ROP is formally assessed annually using IMC 0307, and improvements are made to ROP processes and procedures as a result of lessons learned and feedback from industry and other stakeholders. In the NRC's most recent annual self-assessment (SECY 09 0054, "Reactor Oversight Process Self-Assessment for Calendar Year 2008," dated April 6, 2009), the staff noted its intent to continue to refine existing PIs and explore options for introducing new PIs to ensure that the PI program provides useful insights and contributes to the identification of declining performance.

# IRRS Question and Response Report

**Question No:** 159 **Module 07: Inspection**

**Question**

Do written inspection procedures or instruction manuals exist by which safety performance in the plant is monitored, analyzed and trended?

**Response**

The NRC's written inspection procedures and instruction manuals by which safety performance in the plant is monitored, analyzed, and trended are governed by the NRC's ROP and included in the NRC's Inspection Manual. The NRC monitors and assesses industry performance on an ongoing basis, as described in IMC 0305, and takes actions to address performance deficiencies. IMC 0305 provides a mechanism by which inspection results, PI results, the nature and duration of substantive crosscutting issues associated with inspection results, and enforcement actions are integrated to arrive at objective conclusions about a licensee's safety performance and to determine the level of regulatory oversight in accordance with the ROP's Action Matrix. Based on this assessment information, the NRC determines the appropriate level of agency response, including supplemental inspection and pertinent regulatory actions ranging from management meetings up to and including orders for plant shutdown. Followup agency actions, as applicable, are conducted to ensure that the corrective actions designed to address performance weaknesses were effective. In addition, each regional office conducts a midcycle and end-of-cycle review for each plant, including an evaluation of potential substantive crosscutting issues.

The staff also implements an Industry Trends Program (ITP) in accordance with IMC 0313, "Industry Trends Program," dated May 29, 2008, to monitor trends in indicators of industry performance as a means to confirm that the safety of operating power plants is being maintained. Should any long-term indicators show a statistically significant adverse trend, the NRC will evaluate them and take appropriate regulatory action using its existing processes for resolving generic issues and issuing generic communications. The NRC formally reviews plant performance, the ROP self-assessment, and the ITP results as part of the Agency Action Review Meeting (AARM) each year.

IMC 0040 contains guidance for the development of written inspection guidance and helps ensure that the NRC provides its inspectors with written guidelines in sufficient detail and that the inspection staff is trained and qualified on the applicable procedures and guidance in accordance with IMC 1245. The Inspection Manual contains objectives and procedures to use for each type of inspection to ensure a systematic and consistent approach to inspection while allowing sufficient flexibility for inspectors to take the initiative in dealing with new concerns that arise. The NRC's inspection program, including baseline, supplemental, and special inspections, is defined in IMC 2515. All inspection findings determined to be more than minor are documented using the guidance in IMC 0612. IP 71111, "Reactor Safety—Initiating Events, Mitigating Systems, Barrier Integrity," dated May 16, 2008, and its attachments contain the baseline guidance for inspectors to monitor and oversee plant performance.

On a biennial sampling basis, IP 71152 requires inspectors to review corrective action reports and trending of plant issues and problems. The corrective action program is also reviewed using the other baseline inspection procedures for items specific to the inspectable area. Inspectors also review performance indicators throughout the year and ensure that thresholds exceeded are addressed and any corrective actions taken are appropriate in order to prevent recurrence. Supplemental inspections are conducted to verify adequacy of licensee's corrective actions taken in response to inspection findings that have been determined to be greater-than-green in accordance with IMC 0609, or to performance indicators that have crossed their green-to-white thresholds. The scope and breadth of these inspections will be based upon the guidance provided in the assessment program's Action Matrix as described in IMC 0305 and expanded upon in the "Supplemental Inspection Selection Table" included in Appendix B to IMC 2515.

# IRRS Question and Response Report

**Question No:** 160 **Module 07: Inspection**

**Question**

Are there other administrative procedures for dealing with periodic or continuous screening, evaluation, dissemination, feed back of inspection results, audits, internal events (including precursor events), abnormal operation, special tests, radiation exposure, radioactive releases. If so is there a process that ensures that inspection programmes and procedures are routinely updated?

**Response**

The NRC uses several forums for reviewing data on both individual plant performance and industry trends. The ROP provides inspectors with written guidance in the NRC Inspection Manual in order to conduct inspections and assess licensee performance. IMC 0040 contains guidance for the development of written inspection guidance and helps ensure that the NRC provides its inspectors with written guidelines in sufficient detail. The NRC's inspection program, including baseline, supplemental, and special inspections, is defined in IMC 2515. All findings determined to be more than minor are documented using the guidance in IMC 0612. The inspection staff is trained and qualified on the applicable procedures and guidance in accordance with IMC 1245. Additional detail on the inspection program and procedures is included in the responses to previous questions, including Question 159.

The NRC assesses licensee performance on an ongoing basis as described in IMC 0305 and takes actions to address performance deficiencies. Improvements are made to ROP processes and procedures as a result of lessons learned and feedback from industry and other stakeholders. The effectiveness of the ROP is formally assessed annually using IMC 0307. As part of this self-assessment program, the NRC performs a biennial, in-depth effectiveness review, known as ROP realignment, for all baseline inspection procedures as described in Appendix B to IMC 0307. The purpose of this review is to ensure that the baseline inspection program applies the appropriate level of inspections in selected areas based on risk, licensee deficiencies identified in the past, and feedback from the regions. On a monthly basis, the staff hosts a public meeting with industry and the Nuclear Energy Institute (NEI) to discuss issues of concern regarding the ROP, including programmatic issues as well as individual plant issues. The staff also implements an ITP in accordance with IMC 0313 to monitor trends in indicators of industry performance as a means to confirm that the safety of operating power plants is being maintained. Should any long-term indicators show a statistically significant adverse trend, the NRC will evaluate them and take appropriate regulatory action using its existing processes for resolving generic issues and issuing generic communications. The NRC formally reviews plant performance, the ROP self-assessment, and the ITP results as part of the AARM each year, and any adverse industry trends are reported to Congress in the NRC's Performance and Accountability Report. Finally, the staff also has an Accident Sequence Precursor (ASP) Program, where ASP events are documented in the NUREG 4674 series, "Precursors to Potential Severe Core Damage Accidents."

In certain cases, events reported by licensees are addressed through generic communications to the industry and other interested or potentially affected parties and are made available to the public through the Web. See the response to Question 183 for additional information on the use of operating experience.

# IRRS Question and Response Report

**Question No:** 166 **Module 07: Inspection**

**Question**

Does the Regulatory Body require the operator to perform a thorough investigation of non-compliances and take necessary measures to prevent a recurrence?

**Response**

Criterion XVI of Appendix B to 10 CFR Part 50 states the following:

Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.

NRC IP 71152 establishes guidelines for assessing a licensee's corrective action process, including verification of the following:

-Verify procedures are established for identification and correction of conditions adverse to quality.
-Verify provisions are established for escalating to higher management those corrective actions that are not adequate or timely.
-Verify a management system is established for overview of trends in conditions adverse to quality.

One of the primary goals of these routine reviews is to verify that licensees are identifying issues at an appropriate threshold and entering issues into the corrective action program. The inspections are normally to be accomplished by resident inspectors and region-based inspectors responsible for conducting plant status and baseline inspections. These routine reviews also allow for followup of selected issues and operational occurrences to ensure that corrective actions commensurate with the significance of the issues have been identified and implemented by the licensee.

A licensee must perform a thorough investigation of all cited violations of NRC regulations. Cited violations involve issuing a NOV in accordance with the NRC rules and regulations, 10 CFR 2.201, "Notice of Violation." The licensee is obliged to respond with specific information on the violation including the corrective actions taken to restore compliance and actions taken or planned to prevent recurrence. The comprehensiveness of the investigations associated with the violation is commensurate with the risk significance of the underlying inspection finding.

Violations and their associated enforcement actions are described in inspection reports and transmittal letters to the licensee. Inspection and enforcement information not related to security matters is made publicly available and is posted to the NRC's Web site.

In the event of extremely serious noncompliance or release of radioactive material, the NRC may take several actions. Initially, the NRC may consider issuing either a Confirmatory Action Letter (CAL) or an Immediately Effective Order to require the licensee to complete those actions necessary to restore compliance. A CAL is an administrative action that confirms in writing the licensee's commitment to take specified corrective actions to restore compliance within an agreed upon time.

An Immediately Effective Order would provide a similar outcome, but an order is a written directive that the licensee must follow or additional enforcement sanctions could be applied. The order could modify, suspend, or revoke the license, such as by requiring the facility to shut down or remain shut down until the noncompliance is corrected. Most extremely serious noncompliance situations, especially those involving actual safety consequences, would be evaluated under traditional enforcement, assigned a severity level, and likely would involve issuance of a civil penalty, an order, or both. Also, the NRC has the authority to revoke a license for violations of this nature. Again, as described previously, the NRC would consider transitioning the facility from the normal ROP to the IMC 0350 oversight process for these situations.

In unusual circumstances, requirements beyond the current existing regulatory framework may have to be imposed to provide reasonable assurance of public health and safety. In such circumstances, NRR may issue Safety Orders to impose additional requirements. An order is a written NRC directive to modify, suspend, or revoke a license; to cease and desist from a given practice or activity; or to take such other action as may be proper. Orders are governed by 10 CFR 2.202, "Orders."

Finally, information on NRC enforcement actions, including the policy and other enforcement related guidance, is publically available through the NRC Web site.

# IRRS Question and Response Report

**Question No:** 167 **Module 07: Inspection**

**Question**

How does the Regulatory Body satisfy itself that the operator has effectively implemented any necessary corrective actions?

**Response**

Within the operating reactor program, inspections are used to identify violations. Inspectors collect the information necessary for the NRC to make an informed decision regarding the appropriate enforcement response. An NOV is issued only after the proposed violation is reviewed by a panel tasked with ensuring that the enforcement policy is applied consistently and that violations are assigned enforcement actions at the appropriate level. The panel consists of management-level representatives from NRR, OE, and the regional office as well as a representative from the Office of the General Counsel.

The NRC places importance on timely corrective actions for any violation of its rules and regulations or violations of facility license requirements and conditions. The NRC verifies that necessary corrective actions were taken by the licensee for all inspection findings determined to be greater than very low risk significance (greater-than-green) using supplemental inspections and all cited violations (NOVs) are reviewed and non-cited violation (NCVs) are reviewed on a sampling basis.

In addition to correcting the conditions that has caused the violation, for all cited violations, the NRC also requires the facility licensee to describe the actions taken to prevent recurrence. These requirements are stated in the NRC rules and regulations, 10 CFR 2.201 and also are factors that the NRC considers in determining the level of response when considering enforcement actions.

Under the ROP, licensees are expected to have a robust and effective corrective action program to allow them to verify that the plant is being operated and maintained in a safe manner. Nearly all plant deficiencies are entered into the licensee's corrective action program. A licensee is expected to perform a self-assessment for each deficient condition placed into its corrective action program to determine if actions are needed to prevent recurrence of the condition. NRC resident inspectors perform daily reviews of licensee corrective actions. More extensive periodic review of the licensee's corrective action program using IP 71152 are performed by the resident and specialist inspectors to verify that the corrective action program activities are working effectively.

# IRRS Question and Response Report

**Question No:** 171 **Module 07: Inspection**

**Question**

Where on the spot enforcement authority is not granted to individual inspectors, how is information transmitted to the Regulatory Body so that the necessary actions are taken in a timely fashion?

**Response**

As part of the IMC 1245 qualification process, all inspectors are trained to immediately inform senior licensee management and their NRC management of any ongoing conditions that represent an immediate safety concern. If the licensee does not correct the condition, the NRC may, where justified, issue an immediately effective order pursuant to 10 CFR 2.202(a)(5). The normal process for issuing violations is described below. This process has been proven effective where there is no immediate risk to the safety of workers, the public, or the environment.

The reactor facility licensees are responsible for the safe operation of their facility and have primary responsibility to identify and correct problems. It is important that the licensee be informed by an NRC inspector of the discovery of an apparent violation of the NRC rules and regulations or of a violation of the facility operating license conditions. This allows the licensee to investigate the issue and take the required corrective actions. The NRC inspectors communicate and discuss these issues during an inspection. The NRC inspectors also verbally summarize their inspection findings, including potential violations, in an exit meeting with licensee management at the conclusion of an inspection. The NRC inspectors generally have had the opportunity to discuss their findings, including potential violations, with NRC management.

The NRC's SDP is used to determine the safety significance of the issue for use in both the enforcement process and the ROP, which follows licensee performance and allocates inspection resources based on that performance. These programs assure that the NRC's actions are predictable and fair and meet the goals of the NRC Strategic Plan:

-Safety: Ensure protection of public health and safety and the environment.
-Security: Ensure the secure use and management of radioactive materials.
-Openness: Ensure openness in the NRC's regulatory process.
-Effectiveness: Ensure that NRC actions are effective, efficient, realistic, and timely.
-Management: Ensure excellence in agency management to carry out the NRC's strategic objective.

An inspection report is issued to the licensee by the NRC describing the areas reviewed by the inspector and documenting any violations. Inspection reports are written and approved through the process described in NRC IMC 0612. Any enforcement action is processed using the guidance contained in the NRC Enforcement Manual and the SDP. The NRC rules and regulations in 10 CFR 2.201 allow the NRC to require that the licensee respond to written notices of violation within 20 days of the date of the notice and provide (1) corrective steps that have been taken by the licensee or other person and the results achieved, (2) corrective steps that will be taken, and (3) the date when full compliance will be achieved. Followup inspection to confirm compliance and corrective actions are performed for violations that are greater than very low safety significance.

More significant issues, whether identified by the licensee or by an NRC inspector, can result in a significant enforcement action such as an order. The director of a major program office, such as NRR, is not delegated the authority in the NRC to issue enforcement orders, such as shutdown orders or revocation orders. These types of orders are reserved for the signature of the Deputy Executive Director Materials, Waste, Research, State, Tribal and Compliance Programs and the Director, Office of Enforcement.

# IRRS Question and Response Report

**Question No:** 173 **Module 07: Inspection**

**Question**

Are there any inspection and enforcement actions or activities which are specific to the area of radioactive waste management that are different from other areas?

**Response**

The NRC's NRR has a series of IPs, as subsets of IP 71122, that are part of the ROP baseline inspection program for reactors. The IPs deal with radioactive effluent treatment and monitoring, radioactive material processing and transportation, and radiological environmental monitoring and material control.

The NRC's Office of Federal and State Materials and Environmental Management Systems (FSME) has other IPs that deal more specifically with low-level radioactive waste. The latter IPs include IP 84101, "Radioactive Waste Management," dated December 30, 1991, on radioactive waste management; IP 84850, "Radioactive Waste Management—Inspection of Waste Generator Requirements of 10 CFR Part 20 and 10 CFR Part 61," dated December 22, 2008, which deals with inspection of waste generators; and IP 84900, "Low-Level Radioactive Waste Storage," dated December 22, 2008, on low-level waste storage. NRC IMC 2690, "Inspection Program for Dry Storage of Spent Reactor Fuel at Independent Spent Fuel Storage Installations and for 10 CFR Part 71 Transportation Packagings," dated November 9, 2009, covers all activities related to independent spent fuel storage installations (ISFSIs), including operations, maintenance, surveillance testing, preoperational testing, design control, fabrication, and construction. The NRC has a series of IPs related to that manual chapter that deal with the inspection program for dry storage of spent fuel at ISFSIs.

In the area of spent fuel management, the NRC's Division of Spent Fuel and Transportation (SFST) holds annual counterpart meetings with inspectors and management from the NRC's regional offices. These interactions are considered to be a programmatic strength, in that they enable staff and management to discuss technical and policy issues and questions. Based on feedback from regional staff, SFST staff is developing additional guidance on the performance of periodic inspections referenced in Table B 3 of Appendix B to IMC 2690. SFST staff is currently working on changes to the manual chapter that focus on away-from-reactor ISFSI inspections and has generated a draft new IMC 2690 as well as a draft new inspection procedure (IP 60858, "Away-From-Reactor ISFSI Inspection Guidance") for away-from-reactor ISFSIs.

The general approach for high-level radioactive waste management inspection and enforcement actions and activities is the same as for other areas. However, specific procedures will be different. For example, the unique aspects of geologic disposal (e.g., waste packages emplaced in mined tunnels) may require the development of specific procedures for inspection. These will be developed on an as-needed basis as repository design and operational procedures mature. The additional procedures are not expected to be significant deviations from currently accepted inspection procedures and practices.

Enforcement related to violations involving radioactive waste management is governed by the same Enforcement Policy and Enforcement Manual used to address violations in other areas related to reactor operations.

**Question No:** 174 **Module 07: Inspection**

**Question**

Are there any inspection and enforcement actions or activities which are specific to the area of radiation protection that are different from other areas?

**Response**

NRC inspection and enforcement in the area of radiation protection are not different from other areas. The NRC conducts various kinds of inspections and investigation designed to assure that licensee activities are conducted in strict compliance with the terms of the license and the agency's regulations and other requirements, and it enforces compliance as necessary. Under the law, the responsibility for assuring safe operations rests with the licensee, whose performance is monitored by the NRC. In general, the NRC applies the same inspection and enforcement principles to all the licensed activities performed by the licensee. For inspection, NRC inspections focus on areas of greatest safety significance with appropriate independent verification of licensee performance. Inspection is not aimed at merely confirming compliance on the part of the licensee; rather, inspection is a deliberate, systematic evaluation of the overall adequacy and effectiveness of licensee performance. For enforcement, the NRC uses a graded approach for violations, both in terms of addressing their significance and developing sanctions. The NRC assesses the significance of a violation by considering actual safety consequences, potential safety consequences, potential for impacting the NRC's ability to perform its regulatory function, and any willful aspects of the violation. There are three primary enforcement sanctions available: notices of violation, civil penalties, and orders.

# IRRS Question and Response Report

**Question No:** 175 **Module 07: Inspection**

**Question**

Do the processes of the regulator address the various types and frequencies of inspections?

**Response**

The NRC processes address the various types and frequencies of inspections. Region-based and resident inspectors carry out the regulatory inspection program described in IMC 2515. Region-based inspectors work out of NRC regional offices. Resident inspectors are assigned to an operating reactor site. There are four regions that provide inspection activities at all power reactor sites in the United States. These inspectors carry out the NRC's inspection program, which consists of the following three major program elements:

-Risk-Informed Baseline Inspection Program (baseline) inspections
-plant-specific supplemental inspections
-generic safety issue, special, and infrequent inspections

The baseline inspection portion of the NRC's inspection program is completed at each of the operating reactor sites by both region-based and resident inspectors annually. The type and frequency of inspections completed at each of the operating reactors are listed in Attachment 3 to Appendix A to IMC 2515. The following baseline inspection procedures will normally involve regional specialists:

-IP 71111.05T, "Fire Protection (Triennial)"
-IP 71111.05TTP, "Fire Protection – NFPA 805 Transition Period (Triennial)"
-IP 71111.07, "Heat Sink Performance"
-IP 71111.08, "In-service Inspection Activities"
-IP 71111.11, "Licensed Operator Requalification Program"
-IP 71111.18, "Plant Modifications"
-IP 71111.21, "Component Design Bases Inspection"
-IP 71114, "Reactor Safety Emergency Preparedness" (all attachments)
-IP 71121, "Occupational Radiation Safety" (all attachments)
-IP 71122, "Public Radiation Safety" (all attachments)
-IP 71130, "Physical Protection" (all attachments)

The remaining baseline inspection procedures (inspections listed in Attachment 3 to Appendix A to IMC 2515 that are not listed above) will normally be performed by resident inspectors.

Supplemental inspections are conducted to verify adequacy of licensee's corrective actions taken in response to inspection findings which have been determined to be greater-than-green or to performance indicators that have crossed their green-to-white thresholds. Accordingly, the NRC regional office will assess the need for supplemental inspections after identifying an inspection finding categorized as risk significant (i.e., white, yellow, or red) with the SDP, or when a PI exceeds the licensee response band threshold. The scope and breadth of these inspections will be based upon the guidance provided in the assessment program's Action Matrix and expanded upon in the "Supplemental Inspection Selection Table" included in Appendix B to IMC 2515.

Depending on the risk significance and breadth of the identified performance issues, the supplemental inspections provide a graded response as follows: oversight of the licensee's root cause evaluation of the issues; expansion of the baseline inspection sample or a focused team inspection (as necessary to evaluate extent of condition); or a broad scope, multidisciplinary team inspection, which would include inspection of multiple cornerstone areas and inspection of crosscutting issues. Any new issues identified during the supplemental inspections will be evaluated by the SDP. The need for additional NRC actions, including additional supplemental inspections, will be governed by the Action Matrix.

A supplemental inspection will be performed for all white, yellow, or red issues (either PIs or inspection findings). The region may choose not to perform a supplemental inspection for white issues identified as part of a licensee's self assessment, although such exceptions are expected to be infrequent. In such instances, the region will still ensure that the issue is entered into the licensee's corrective action program and that an appropriate evaluation is performed. The licensee's evaluation for such an issue will be reviewed as part of baseline inspection procedure 71152. Additionally, the regional offices may choose to propose a deviation from the Action Matrix when the level of supplemental inspection is not appropriate for the particular circumstances. Examples of when the level of supplemental inspection may need to be increased or decreased include (but are not limited to): (1) a single red finding or performance indicator that does not appear to be indicative of broad programmatic concerns, (2) a single red inspection finding or a performance indicator, particularly those that meet the criteria for old design issues, (3) multiple examples of non-SDP Severity Level III or greater enforcement actions, and (4) a type of finding unanticipated by the SDP that results in an inappropriate level of regulatory attention when entered into the Action Matrix. A deviation from the Action Matrix may be authorized in accordance with IMC 0305.

Generic safety inspections target new regulatory concerns that might affect all PWRs, BWRs, or both and are implemented through the use of a TI. A TI is a temporary inspection procedure that is focused on current safety issues or concerns not currently addressed by established IPs or IMCs. For example, when it is determined that a safety issue addressed in a bulletin or generic letter requires inspection verification or followup, requirements and guidance for the inspection will be developed and issued in a TI. TIs are issued to supplement the inspection program and generally are placed in effect for 12 months, but not longer than 24 months. TIs are equivalent to IPs and they are used for a one-time initial inspection of a safety issue or a one-time collection of information.
Inspections are also conducted in response to events that occur at the reactor sites. Routine events of low significance, such as uncomplicated reactor trips,

will be followed up by resident or region-based inspectors to verify that the events are not complicated by loss of mitigation equipment or other factors. This event followup is part of the baseline inspection program and emphasizes collecting information about the event for use by risk analysts in evaluating the risk significance of the event to help regional and headquarters management determine if a response beyond the baseline program is warranted. The significance of operational events is evaluated using the conditional core damage probability (CCDP) metric, which best reflects the full extent of any loss of defense-in-depth due to the event, in conjunction with various deterministic criteria to address the most influential related assumptions and uncertainties. The significance is determined regardless of whether the cause is due to licensee performance or otherwise.

The agency's response to significant events is described in NRC MD 8.3. In general, significant operational events may be investigated by multi-disciplined IITs that are initiated by the EDO and are comprised of both regional and Headquarters personnel. Operational events of lesser significance may be investigated by AITs that are initiated by regional administrators. Regional administrators may also initiate SI teams that use only regional personnel. The applicable procedures for AITs and SI teams are listed in Appendix C to IMC 2515. In addition, for an event of extraordinary safety significance or profound regulatory implications, an Accident Review Group may be formed that reports directly to the Commission, as described in MD 8.9, "Accident Investigation," dated August 26, 2005. Additional information regarding the NRC's incident investigation program is provided in the response to Question 143.

All inspection findings are documented in accordance with the guidance provided in IMC 0612. The first step in documenting inspection findings is to determine if the finding is minor or more than minor. Minor findings are issues that are of minimal safety or environmental significance. Although the licensees must correct these, minor findings do not normally warrant documentation in NRC inspection reports. The next step is determining the risk significance associated with these inspection findings, and a determination is made on whether the findings are also violations of regulatory requirements. If an inspection finding is determined to be a violation of regulatory requirements and is also evaluated as greater than minor, the finding will be documented in inspection reports and appropriate enforcement action associated with the finding will be described. Violations associated with findings that the SDP evaluates as having very low safety significance (i.e., green) will normally be described in inspection reports as NCVs. NCV is the term used to describe a method to disposition a Severity Level IV violation or a violation associated with a green inspection finding. These issues are documented as violations in inspection reports (or inspection records for some materials licensees) to establish public records of the violations, but are not cited in NOVs, which normally require written responses from licensees.
Dispositioning violations in this manner does not eliminate the NRC's emphasis on compliance, and the licensee must correct the noncompliant conditions in a timely manner.

**Question No:** 176 **Module 07: Inspection**

**Question**

Do the procedures address reporting and documenting requirements?

**Response**

The ROP requires inspectors to document inspection results and findings in accordance with report guidance contained in IMC 0612 and associated ROP inspection procedures. These include findings identified through baseline inspections, supplemental inspections, and special inspections. All ROP inspection reports follow the format and guidance in IMC 0612 for report issuance. NRC inspection guidance and procedures are maintained in the NRC Inspection Manual, which is available on the NRC public Web site: http://www.nrc.gov/reading-rm/doc-collections/insp-manual/.

Inspection reports communicate significant inspection findings in a consistent manner to licensees, NRC staff, and, where applicable, the public,; and they document the basis for significance determination and enforcement action. Inspectors who performed the inspection will prepare the report, ensuring that it includes information on the objective of the inspection, what was inspected, how the inspection was conducted, and criteria that were used to determine if a licensee was in compliance with the regulations. Additional information will be included in the report as required by IMC 0612 and associated inspection procedures. Resident inspectors develop an inspection report, which is issued at the end of every calendar quarter. This inspection report details all the baseline inspections that were performed by the resident inspectors during that time period. In the case of inspections performed by regionally based inspectors (team inspections), the inspectors who performed the inspection will prepare a separate report for that specific inspection and then provide any pertinent information to the resident inspectors. In all cases, inspection reports are submitted for review and approval by the appropriate level of management prior to issuance (typically the cognizant branch chief). Following management review, inspection reports are sent from the applicable NRC official (branch chief, division director, or regional administrator) to a designated licensee executive. In addition, all NRC reports, except reports that contain sensitive physical security information, are publically available through the NRC Web site: http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/listofrpts_body.html.

The findings and information provided in the inspection reports is fed back into the regulatory process as part of the assessment and enforcement programs. A detailed discussion of how this is accomplished is provided in the response to Question 140.

# IRRS Question and Response Report

**Question No:** 177 **Module 07: Inspection**

**Question**

How does the regulator integrate inspection results and other sources of information in its decision-making?

**Response**

The NRC integrates inspection results and other sources of information in its decisionmaking on enforcement and performance assessment in accordance with established administrative processes and associated guidance. Inspection results are used in conjunction with other assessment inputs to determine the nature of the regulatory oversight at a particular facility. The responses to previous questions (162–171) discuss various aspects of the inspection and enforcement processes at the NRC associated with individual inspection and enforcement actions. These include the rights of the licensee to contest or appeal an NOV in accordance with the NRC's Enforcement Manual. The ROP uses an SDP in accordance with IMC 0609 to determine the safety significance of most inspection findings identified at commercial nuclear power plants. Depending on their significance, inspection findings are assigned colors of green, white, yellow, or red. After determining the risk significance associated with these inspection findings, a determination is made on whether the findings are also violations of regulatory requirements in accordance with NRC Enforcement Policy. If the inspection findings are determined to be violations of regulatory requirements and are also evaluated as greater than minor, the findings will be documented in inspection reports using the guidance in IMC 0612, and appropriate enforcement action associated with the findings will be described. A licensee is provided the initial NRC assessment of risk associated with an inspection finding and is asked to provide additional information that may not have been available when the inspection was initially conducted and to meet with the NRC to discuss the impact of that information on the significance. After consideration of the new information, the NRC arrives at a final determination of significance. If the licensee does not agree with the final significance, an appeal is possible provided the conditions defined in IMC 0609, Attachment 2, "Process for Appealing NRC Characterization of Inspection Findings (SDP Appeal Process)," dated January 31, 2008, are met.

The ROP provides a mechanism by which inspection results, PI results, the nature and duration of crosscutting themes associated with inspection results, and enforcement actions are integrated to determine the level of regulatory oversight in accordance with the ROP Action Matrix. This process is defined in IMC 0305. The inspection staff is trained and qualified on the applicable procedures and guidance in accordance with IMC 1245.

The effectiveness of the ROP is formally assessed annually using IMC 0307, and improvements are made to ROP processes and procedures as a result of lessons learned and feedback from industry and other stakeholders. In the NRC's most recent annual self-assessment (SECY 09 0054), the staff noted its intent to revise program guidance to better integrate traditional enforcement outcomes into the assessment process.

# IRRS Question and Response Report

**Question No:** 182 **Module 07: Inspection**

**Question**

Describe the basic arrangements and requirements for the operator in the following areas: incident reporting; the reports that the operator must submit to the Regulatory Body; records that the operator

**Response**

In 10 CFR 50.90, “Application for Amendment of License, Construction Permit, or Early Site Permit,” the NRC describes the application for a license amendment for those modifications that are beyond the scope of 10 CFR 50.59, “Changes, Tests and Experiments,” and affect the technical specifications.

In 10 CFR 50.71, “Maintenance of Records, Making of Reports,” the NRC requires the submission of updates to the FSAR at intervals not to exceed 24 months and requires licensees to maintain records of any modifications in accordance with the issued license.

Reports demonstrating the continuing safety of the plant during commissioning and operation are required by several different regulations. The results of commissioning tests are required to be reported as detailed in 10 CFR 50.71. Operational data is reported as required by 10 CFR 50.69, “Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors,” 10 CFR 50.72, and 10 CFR 50.73 for safety significant or risk-significant events. Modifications to the facility are required to be reported by 10 CFR 50.4, “Written Communications,” 10 CFR 50.59, 10 CFR 50.71, or 10 CFR 50.90 as applicable.

Reports on the results of the radiation protection program are required by 10 CFR 20.2202, 20.2203, 20.2204, and 20.2205 as described above, and 10 CFR 20.2206, “Reports of Individual Monitoring.” Results of the environmental monitoring program are reported according to 10 CFR 50.36a, “Technical Specifications on Effluents from Nuclear Power Reactors,” which requires submission of an annual report detailing the quantity of each of the principal radionuclides released to unrestricted areas in liquid and gaseous effluents during the previous year. Radioactive waste management, the requirements for which are detailed in 10 CFR Part 20, “Standards for Protection against Radiation,” Subpart K, “Waste Disposal,” requires reports in the event of incidents detailed in 10 CFR Part 20, Subpart M, “Reports.”

Reports and records required for considering the release of a facility from regulatory control or for facilities requiring controls in the post-closure phase are detailed in 10 CFR 50.75, “Reporting and Recordkeeping for Decommissioning Planning,” 10 CFR 50.82, “Termination of License,” and 10 CFR Part 20, Subpart E, “Radiological Criteria for License Termination.” In 1- CFR 50.83, “Release of Part of a Power Reactor Facility or Site for Unrestricted Use,” the NRC details the reports and records required to release parts of the site before the initial site license is terminated.

Records required to be kept from site evaluation studies conducted under 10 CFR 100.21, “Non-seismic Site Criteria,” and 10 CFR 100.23, “Geologic and Seismic Siting Criteria,” preoperational environmental monitoring, construction design and manufacturing records, and commissioning tests, are detailed in several parts. In 10 CFR Part 20, Subpart L, “Records,” the NRC requires records to be kept for all radiation protection related programs including surveys, individual monitoring, waste disposal, and planned special exposures. In 10 CFR 21.51, “Maintenance and Inspection of Records,” the NRC requires records to be maintained for all deviations and failures to comply due to defects in supplied equipment and services. In 10 CFR 50.59, the NRC requires records of modifications to the facility for inclusion in updates to the FSAR. In 10 CFR 71.91, “Records,” the NRC describes records required to be kept concerning the transportation and shipment of radioactive materials, and in 10 CFR 73.70, “Records,” describes requirements for record retention concerning the physical protection of reactor facilities. Appendix B to 10 CFR Part 50 states that sufficient records shall be maintained to furnish evidence of activities affecting quality. In 10 CFR 50.71, the NRC covers the retention of all records as required by the conditions of the license.

Operational records are covered under many of the same sections. Operating logs and records of periodic testing of equipment and systems, including records of preventive maintenance performed per 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” and equipment calibration, along with quality assurance documentation, are kept in accordance with Appendix B to 10 CFR Part 50. Regulatory Guide 1.33, “Quality Assurance Program Requirements (Operation),” provides additional clarification about the requirements of Appendix B to 10 CFR Part 50. In 10 CFR 20.2108, “Records of Waste Disposal,” The NRC provides requirements for records to be kept regarding waste disposal. In 10 CFR Part 20, Subpart L, the NRC provides requirements for records relating to radiation protection as described above, and 10 CFR Part 20, Subpart I, “Storage and Control of Licensed Material,” contains requirements for the inventory of fissile and radioactive materials. In 10 CFR 50.55a, “Codes and Standards,” the NRC requires licensees to meet the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. In-service inspection is performed in accordance with the guidelines of the ASME Boiler and Pressure Vessel Code Section XI, “Rules for In-service Inspection of Nuclear Power Plant Components,” which details the retention requirements for the records of the inspection. In 10 CFR 50.71, the NRC requires the retention any other records as required by the conditions of the license.