

### REACTIVE INSPECTION FOR EVENTS AT FUEL CYCLE FACILITIES

PROGRAM APPLICABILITY: 1301, 2600 and 2683

#### 88003-01 INSPECTION OBJECTIVES

01.01 This inspection procedure applies to the inspection of events, involving safety or safeguards that occur at Nuclear Regulatory Commission (NRC)-regulated nuclear fuel cycle facilities. NRC management must determine the need to dispatch one or more regional or Headquarters inspectors to conduct a **reactive** inspection after an event occurs. The events to be inspected under this procedure include those that are considered significant enough to warrant **reactive** inspections to determine the operational status of safety and safeguards, but are not of such a nature as to require Incident Investigation Team (IIT) or an Augmented Inspection Team (AIT) **inspection**. Typically, the procedure will be used in response to: over exposures; losses or releases of significant quantities of radioactive materials; fires or toxic chemical spills that threaten losses of safety or safeguards controls, or that significantly increase the risks of such losses or releases; or actual losses of safety controls -- but its use is not limited to these types of events. The need for such an inspection may be strengthened by the occurrence of one or more previous events that may share a common root cause.

01.02 The objectives of the procedure are to assist the inspector to:

- a. Determine the safety or safeguards risk revealed by the event, and ensure that the current facility condition is safe. Determine that any compensatory measures taken in response to the event are adequate to ensure safety and safeguards until corrective actions are implemented, or that already implemented corrective actions are effective.
- b. Ensure that the **licensee** has considered possible generic implications of the event for the facility, and identify any generic implications for other NRC-regulated fuel cycle facilities.
- c. Assess the **licensee's** progress in conducting a root cause analysis of the event to determine if it is adequate to correctly identify direct, contributing, and root causes; likely precursors; and corrective actions to prevent recurrence.
- d. Monitor the **licensee's** treatment of any previously unknown risk-significant system interactions revealed by the event, to ensure that the interactions will be incorporated into the facility's safety basis [e.g., Integrated Safety Analysis (ISA)], and that the facility's safety basis will be updated accordingly, if one has been completed.
- e. Verify that the **licensee** responded to the event appropriately, in accordance with established emergency and safeguards contingency plans.

01.03 The primary emphasis of the inspection is on safety and safeguards, not compliance. Compliance issues are to be addressed only after all current safety and safeguards issues and program weaknesses related to the event are identified and clearly understood.

## 88003-02 INSPECTION REQUIREMENTS

A **reactive** inspection in response to an event, or series of related events, at a fuel cycle facility, **includes** the following:

**02.01 Pre-Inspection Preparation and Notifications.** Review **event** information **collected by** regional and Headquarters management, and the resident inspector, if any, which resulted in a determination of the need for the **reactive** inspection. Establish a clear understanding of the risk significance of the event with reference to the facility's **licensing documents** and ISA. Notify **licensee** management of the inspection; ascertain the current status of the facility; and make **logistical** arrangements with the **licensee**. Determine, through discussions with the **licensee** and NRC management, if any equipment has been or should be quarantined.

**02.02 Entrance Meeting.** Conduct an initial meeting with the **licensee's** management, on reaching the site, to explain the purpose of the NRC **reactive** inspection, to obtain requested documentation, ascertain the availability of interviewees, and identify important **licensee contacts**.

**02.03 Facility Tour.** Tour and inspect the areas of the facility affected by the event.

**02.04 Interviews.** Conduct interviews of **licensee** personnel to develop an understanding of the event, personnel actions, and facility system configuration and operations.

**02.05 Documentation.** Assemble and review the necessary documentation to characterize the event and its causes.

**02.06 Sequence of Events.** Develop **an understanding of** the sequence of actions or occurrences leading up to the event. Verify that **licensee** actions were consistent with established plans and procedures.

**02.07 Assess Licensee's Root Cause Analysis.** Assess the technical merit of the **licensee's** identification of direct, contributing, and root causes of the event; event precursors; and the corrective actions determined by the **licensee**. Verify that the **licensee's** compensatory measures and corrective actions are adequate to ensure facility safety and safeguards and prevent recurrences of the type of event that occurred, before leaving the site. As part of the assessment, review the **licensee's** consideration of possible generic issues at the facility, and consider whether issues arising from the event may apply at other NRC-regulated facilities.

**02.08 Licensee and NRC Management Briefings.** Meet periodically with the **licensee's** management and key personnel involved in the event, as the inspection continues, to provide the **licensee** with feedback, alert the **licensee** to any additional safety or safeguards issues discovered, and request additional documents, or other support, as needed. Periodically inform

appropriate NRC management of the progress of the inspection and alert management to possible generic issues that could affect other fuel cycle facilities.

**02.09** Exit Meeting. Meet with the highest level of the **licensee's** management available at the site, to present the inspection findings, as the last activity before leaving the site.

## **88003-03** INSPECTION GUIDANCE

**03.01** Pre-Inspection Preparation and Notifications. Review **event** information so that all parties have a clear understanding of the safety or safeguards significance of the event. **Review relevant sections of the regulations, licensing documentation, and ISA.**

The **reactive** inspection should be announced. The assigned (lead) inspector should contact the **licensee's** management, to address issues requiring planning or preparation, to facilitate the inspection (e.g., information on current safety or safeguards status of the facility, any ongoing safety or safeguards issues, entrance meeting arrangements, identifying individuals to be interviewed, documents to be made available, and a facility tour).

**Discuss equipment or operations that are quarantined or unavailable. Determining the necessity for quarantining the area affected by the event, and making the appropriate arrangements with the licensee, should have been addressed by NRC management, as part of the process of determining whether a reactive inspection should be performed.**

**03.02** Entrance Meeting. No additional guidance.

**03.03** Facility Tour. The purpose of a facility tour is to help reconstruct the actions and occurrences leading to the event, to place all items and persons involved in proper spatial perspective, and to attempt to identify any factors, relating to the facility or equipment, that may have contributed to the event. A knowledgeable **licensee** representative may be able to point out relevant items involved in the event, detail the path followed by involved persons, explain the layout of equipment and materials at the time of the event, or recount any equipment settings that may be relevant to the inspection.

**03.04** Interviews. Interview persons at the site knowledgeable of, or involved in, the event (e.g., maintenance; health **physicists**; process and system engineers; authors of involved procedures; nuclear criticality safety or other analysts who authored approval documents or reports around which the safety issues of the event revolve; people responsible for facilities, hardware, software, and/or supplies involved in the event; or supervisors, managers, and assistants whose responsibilities are connected with the systems or persons involved in the event). The depth of the interviews will vary, depending on the proximity of the interviewee's activities, or responsibilities, in the event.

During the interviews, note the extent to which the persons interviewed are aware of the circumstances directly or indirectly connected to the event. **Determine** whether their knowledge and awareness are commensurate with their responsibilities in the organization and consistent with known facts.

**03.05 Documentation.** During the course of the inspection, determine the necessary documents to review. These may include documents indicating the overall quality of the licensee's operation, as well as those directly related to the event. Documents to review may include the following:

- a. Procedures for activities related to the event
- b. Training and Qualifications Records
- c. Maintenance, Surveillance, Functional Test, Calibration, and Quality Control Records
- d. Records of the Event
- e. Records of Recovery

**03.06 Sequence of Events.** Develop a sequence of actions and occurrences leading to the reported event, based on available information (e.g., interviews, logs, control room computer entries, strip chart recordings, etc.). This could include annotations of relevant details, such as postings in the area, instrument readings, procedures and equipment used, when equipment was turned on/off, etc. For a significant event, documentation of areas where there is disagreement or lack of information on what actually happened, can help illuminate problems with procedures or controls that may have permitted the event to occur. Record the involved staffs' bases for actions taken and note any developing conclusions as they become apparent.

Note where the licensee's actions may have departed from established licensee plans for incident response. Inappropriate responses to minor occurrences sometimes can lead to more serious events. Also, literal implementation of an established incident response plan can lead to events, if the plan is defective. Comparison of the licensee's actions with established plans can help to identify where improvements in response plans may be needed as a corrective action.

**03.07 Assess Licensee's Root Cause Analysis.** The licensee should have begun an analysis of the causes of the event, as soon as the facility was determined to be safe. Since this procedure will be in use only in cases where no AIT or IIT investigation is determined necessary, no significant effort should be required for event mitigation and cleanup, and substantial progress in the licensee's investigation can be expected to occur while the reactive inspection is in progress.

Inspectors should be cognizant of the licensee's effort to conduct a root cause analysis, as it proceeds. Inspectors should eventually be aware of corrective actions determined by the licensee. As the licensee's analysis progresses, compare the findings of the inspectors and those of the licensee, and assess the pace and adequacy of the licensee's analysis.

The licensee's determination of root cause may not become known until after the inspectors leave the site, and may not even be available before the inspection report is issued. If this is the case, the inspection report may be issued with a preliminary determination of root cause. The inspector(s) should ensure that incomplete determinations of root cause and corresponding, safety-significant corrective actions are completed by the licensee within a reasonable time. The inspectors should consider specifying these activities as inspector follow-up items, if appropriate.

**03.08 Licensee and NRC Management Briefings.** Inspectors should meet periodically with licensee staff, during the inspection, to exchange information on the course of their investigations, and ensure there are no surprises at the end of the inspection. Periodically, during the inspection, the lead inspector should notify the appropriate regional or Headquarters management of the status of the inspection and inspection findings. **Notify NRC management** if, at the end of the inspection, the licensee and the inspectors do not substantially agree on the causes of the event, on the adequacy of the licensee's determination of corrective actions, or if conclusions have not yet been reached on these issues. If the inspectors do not believe the facility is in a safe or secure condition, they should inform the appropriate NRC management immediately and explain their position.

Based on **NRC and licensee** findings, inspectors should immediately notify appropriate NRC management if they identify any generic issues that could affect safety or security at other NRC-regulated fuel cycle facilities.

**03.09 Exit Meeting.** No additional guidance.

#### **88003-04 RESOURCE ESTIMATES**

Inspector effort should correspond to the risk significance and complexity of the event and associated inspection. Inspection hours may be between 8 hours for a less significant event and 72 hours for a significant operational event.

#### **88003-05 REFERENCES**

NRC Inspection Manual Chapter 1301, "Response to Radioactive Material Incidents That Do Not Require Activation of the NRC Incident Response Plan"

NRC Inspection Manual Chapter 2600, "Fuel Cycle Facility Operational Safety and Safeguards Inspection Program"

NRC Inspection Manual Chapter 2683, "Material Control and Accounting Inspection of Fuel Cycle Facilities"

#### **88003-06 PROCEDURE COMPLETION**

Implementation of this IP is complete when each inspection requirement has been addressed. The individual samples to be inspected, and the breadth of the review will be determined by the inspector based on the degree of compliance with the requirements observed, the risk-significance of the activity, and the extent of the activity or records available.

END

ATTACHMENT 1

Revision History for IP 88003

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment and Feedback Resolution Accession Number (Pre-Decisional, Non-Public)
N/A	08/10/98	Initial issuance of IP 88003.	None	--
N/A	ML15005A310 03/16/15 CN 15-004	Editorial changes made: <ul style="list-style-type: none"> <li>• Modified to be in compliance with format requirements of IMC 0040</li> <li>• Removed the requirement to perform an independent root cause analysis. Performing an independent one requires significant resources that are beyond the scope of reactive inspections (i.e. inspections below the level of AIT).</li> <li>• All references to allegation related material have been removed as they were redundant to guidance routinely offered by allegation support staff and training taken by NRC staff.</li> <li>• Replaced the “special inspection” with “reactive inspection” to stay in line with the title of the procedure and not to create a Special Inspection Procedure only.</li> <li>• Removed the definitions sections that did not add value to the procedure.</li> <li>• Added IMC 2683, “Material Control and Accounting Inspection of Fuel Cycle Facilities” to referenced documents.</li> </ul>	None	ML15005A324