



# Audit of the U.S. Nuclear Regulatory Commission's Processes for Deploying Reactive Inspection Teams

OIG-23-A-06  
May 10, 2023



All publicly available OIG reports, including this report, are accessible through the OIG's website at:  
[www.nrcoig.oversight.gov](http://www.nrcoig.oversight.gov)



## **MEMORANDUM**

**DATE:** May 10, 2023

**TO:** Daniel H. Dorman  
Executive Director for Operations

**FROM:** Hruta Virkar */RA/*  
Assistant Inspector General for Audits

**SUBJECT:** AUDIT OF THE U.S. NUCLEAR REGULATORY  
COMMISSION'S PROCESSES FOR DEPLOYING REACTIVE  
INSPECTION TEAMS (OIG-23-A-06)

Attached is the Office of the Inspector General's (OIG) audit report titled *Audit of the U.S. Nuclear Regulatory Commission's Processes for Deploying Reactive Inspection Teams*.

The report presents the results of the subject audit. Following the May 1, 2023, exit conference, the Nuclear Regulatory Commission staff indicated that they had no formal comments for inclusion in this report.

Please provide information on actions taken or planned on each of the recommendations within 30 days of the date of this memorandum.

We appreciate the cooperation extended to us by members of your staff during the audit. If you have any questions or comments about our report, please contact me at 301.415.1982, or Avinash Jaigobind, Team Leader, at 301.415.5402.

Attachment:  
As stated

cc: M. Bailey, OEDO  
J. Jolicoeur, OEDO



# Results in Brief

## Why We Did This Review

The U.S. Nuclear Regulatory Commission (NRC) ensures that significant events involving reactor and materials facilities licensed by the NRC are investigated in a technically sound manner.

The significant events may prompt responses by an incident investigation team (IIT), augmented inspection team (AIT), or special inspection team (SIT), depending upon the level of response required.

Incident investigation is a formal process conducted for the purpose of accident prevention. The process includes gathering and analyzing information; determining findings and conclusions, including the cause(s) of a significant event; and, disseminating the investigation results for the NRC, industry, and public review. Incidents must be examined against the deterministic criteria and risk assessment criteria when deciding on the appropriate level of reactive inspection response.

The audit objective was to assess the consistency with which the NRC follows agency guidance for deploying special, augmented, and incident inspection teams in response to safety and security incidents at operating nuclear power plants.

## ***Audit of the U.S. Nuclear Regulatory Commission's Processes for Deploying Reactive Inspection Teams***

OIG-23-A-06

May 10, 2023

### What We Found

The OIG found inconsistent completion and profiling of reactive inspection screening evaluation forms, and that reactive decision-making information is not shared with the public. Moreover, the OIG found that the NRC does not have clear and consistent reactive inspection screening guidance and has not assessed the effectiveness of its guidance in this area.

### What We Recommend

This report makes recommendations to: (1) update agency policies to require that staff provide complete information on screening evaluation forms, correctly profile evaluation forms in the Agencywide Documents Access and Management System, and publicly share non-sensitive reactive inspection screening decision-making, whenever possible; (2) update agency policies so that they provide a well-defined incident screening process with examples for screening reactor safety and security events; and, (3) periodically assess the effectiveness of Management Directive (MD) 8.3 and Inspection Manual Chapter (IMC) 0309 implementation.

# TABLE OF CONTENTS

<u>ABBREVIATIONS AND ACRONYMS</u> .....	i
I. <u>BACKGROUND</u> .....	1
II. <u>OBJECTIVE</u> .....	4
III. <u>FINDINGS</u> .....	4
1. <u>The NRC Should Improve Documentation of Reactive Inspection         Decisions and Public Information Sharing</u> .....	4
2. <u>The NRC Should Develop Clear and Consistent Reactive         Inspection Screening Guidance</u> .....	10
3. <u>The NRC Should Periodically Assess the Effectiveness of Reactive         Inspection Screening Guidance</u> .....	12
IV. <u>CONSOLIDATED LIST OF RECOMMENDATIONS</u> .....	14
V. <u>NRC COMMENTS</u> .....	15
 <b>APPENDICES</b>	
A. <u>OBJECTIVE, SCOPE, AND METHODOLOGY</u> .....	16
B. <u>DECISION DOCUMENTATION FOR REACTIVE INSPECTION</u> .....	19
 <u>TO REPORT FRAUD, WASTE, OR ABUSE</u> .....	 25
<u>COMMENTS AND SUGGESTIONS</u> .....	25

## ABBREVIATIONS AND ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AIT	Augmented Inspection Team
GAO	U.S. Government Accountability Office
IIT	Incident Investigation Team
IMC	Inspection Manual Chapter
MD	Management Directive
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NSIR	Office of Nuclear Security and Incident Response
OIG	Office of the Inspector General
SIT	Special Inspection Team

# I. BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC) is responsible for ensuring that significant events involving reactor and materials facilities licensed by the NRC are investigated in a timely, objective, systematic, and technically sound manner; that the information pertaining to each event is documented; and, that the cause or causes of each event are ascertained. A significant event is any event at an NRC-licensed facility that poses an actual or potential hazard to public health and safety, common defense and security, property, or the environment. The events may prompt reactive inspections by an incident investigation team (IIT), augmented inspection team (AIT), or special inspection team (SIT), depending upon the level of response required. See table 1 for the descriptions of an IIT, AIT, and SIT.

**Table 1: Reactive Inspection Teams Description**

Reactive Inspection Teams	Description
<b>Incident Investigation Team</b>	An IIT consists of technical experts who do not have, and have not had, involvement with licensing and inspection activities at the affected facility. An NRC senior manager leads the IIT. The IIT reports to the Executive Director for Operations.
<b>Augmented Inspection Team</b>	An AIT consists of technical experts from the region where the event took place, augmented by personnel from headquarters, other regions, or by contractors. AIT members may have had prior involvement with licensing and inspection activities at the affected facility. The AIT reports to the Regional Administrator.
<b>Special Inspection Team</b>	An SIT consists of technical experts from the region where the event took place and is generally not augmented by personnel from headquarters, other regions, or by contractors. The SIT reports to the Regional Administrator.

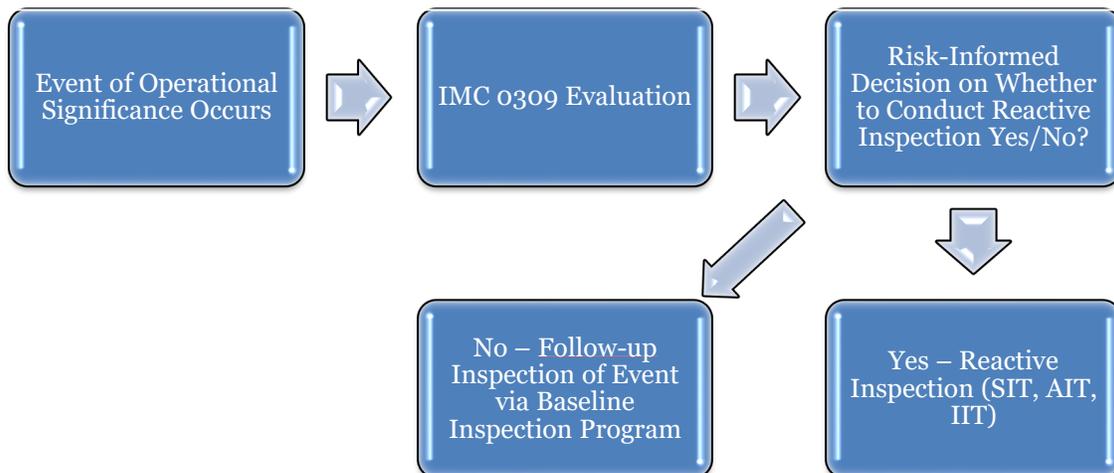
Source: OIG generated based on Management Directive 8.3, *NRC Incident Investigation Program*

## Reactive Inspection Screening Process

When an event occurs, inspectors use Inspection Procedure 71153, *Follow Up of Events and Notices of Enforcement Discretion*,<sup>1</sup> to assess, gather, and share information about the event with technical experts from the region where the event took place. Information gathered is evaluated against deterministic and risk assessment criteria in Inspection Manual Chapter (IMC) 0309, *Reactive Inspection Decision Basis for Reactors*.<sup>2</sup> Specifically, inspectors and technical experts answer deterministic and risk questions on the Decision Documentation for Reactive Inspection evaluation form. If staff answer “yes” to any of the deterministic criteria questions, an IMC 0309 risk assessment is conducted. Additionally, if staff answer “yes” to any deterministic *or* risk question, the region senior management will make the decision whether to conduct a reactive inspection or follow-up on the event with a baseline inspection. In addition, under IMC 0309, factors such as openness, public interest, transparency, and public safety should be appropriately considered by the NRC when deciding whether to dispatch an IIT, AIT, or SIT.

See Figure 1 for a description of the reactive inspection screening process. Additionally, see Appendix B for the Decision Documentation for Reactive Inspection evaluation form for deterministic criteria.

**Figure 1: Reactive Inspection Screening Process**



Source: OIG generated based on IMC 0309

<sup>1</sup> [Inspection Procedure 71153](#) provides inspection guidance for evaluating licensee events and degraded conditions.

<sup>2</sup> [IMC 0309](#) provides guidance to the Office of Nuclear Reactor Regulation and the regional staff implementing the requirements prescribed in [Management Directive 8.3](#), *NRC Incident Investigation Program*. Management Directive (MD) 8.3 is the agency-level governing document for IMC 0309 and includes some of the deterministic and risk criteria for determining the agency’s appropriate event response at reactor and material facilities. MD 8.3 also delineates responsibilities at the office level for responding to significant operational events.

## Reactive Inspection Evaluations

The NRC conducted over 100 reactive inspection evaluations from January 1, 2018, through July 31, 2022.<sup>3</sup> Of the 112 evaluations recorded in the Agencywide Documents Access and Management System (ADAMS), 10 resulted in special inspections. Table 2 shows the number of evaluations and reactive inspections by region.

**Table 2: Reactive Inspection Evaluations Conducted from January 1, 2018, through July 31, 2022**

Region	Evaluations	Special Inspection Teams (SIT)	Augmented Inspection Teams (AIT)	Incident Investigation Teams (IIT)
Region I	16	0	0	0
Region II	38	3	0	0
Region III	21	4	0	0
Region IV	37	3	0	0
Total	112	10	0	0

Source: OIG generated based on ADAMS data

## The NRC's Incident Response Oversight Roles and Responsibilities

The NRC's Office of Nuclear Security and Incident Response (NSIR) administers the incident investigation program with the assistance of other NRC offices. Specifically relating to incidents at operating nuclear power plants, the Office of Nuclear Reactor Regulation (NRR) interfaces with the regional offices that have the lead responsibility for implementing the inspection program. The Division of Reactor Oversight supports the NRR's mission by leading, guiding, and coordinating the activities associated with inspecting and assessing licensee performance at commercial nuclear power plants and evaluating plant events. The regional offices coordinate with the NSIR and the NRR for events warranting consideration of investigation by an AIT or IIT at operating nuclear power plants.

---

<sup>3</sup> During the audit, the OIG identified 28 additional evaluations that were not properly profiled in ADAMS, three of which resulted in special inspections.

## II. OBJECTIVE

The audit objective was to assess the consistency with which the NRC follows agency guidance for deploying special, augmented, and incident inspection teams in response to safety and security incidents at operating nuclear power plants.

## III. FINDINGS

The NRC performs reviews of significant operational events. However, it could improve its reactive inspection screening process by:

- Improving documentation of reactive inspection decision-making and public information sharing;
- Developing clear and consistent reactive inspection screening guidance; and,
- Periodically assessing the effectiveness of its reactive inspection screening guidance.

### **1. The NRC Should Improve Documentation of Reactive Inspection Decisions and Public Information Sharing**

The NRC should ensure regional staff complete Decision Documentation for Reactive Inspection forms, consistently profile completed forms in ADAMS, and share reactive inspection decision-making information with the public, whenever possible. However, NRC staff do not:

- consistently provide sufficient information on the Decision Documentation for Reactive Inspection evaluation forms;
- consistently profile completed evaluation forms in ADAMS, in accordance with agency guidance; and,
- share reactive inspection decision-making with the public.

This occurs because NRC guidance lacks clarity on information quality, and varies across the regions. The NRC could improve oversight, efficiency, and instill greater public confidence with higher-quality and more readily accessible information regarding reactive inspection screening.

## What Is Required

### Federal and NRC Guidance Stipulate that the Agency Should Strive to be Transparent and Maintain Reliable Records Management

One of the NRC's Principles of Good Regulation is "Openness," which comprises the means through which the public will be informed about, and have the opportunity to participate in, the agency's regulatory work.<sup>4</sup>

Specifically, the openness principle states that communication must be maintained with Congress, other government agencies, licensees, and the public.

Additionally, the U.S. Government Accountability Office, *Standards for Internal Control in the Federal Government* (GAO Green Book),<sup>5</sup> states that management should use quality information to achieve the entity's objectives. The GAO Green Book also states that management should design control activities to ensure documentation and records are properly managed and maintained.

As relevant here, IMC 0309 and Management Directive (MD) 8.3 require NRC staff to document reactive inspection decisions by placing the evaluation forms in ADAMS.

#### What is internal control?

Internal control is a process used by management to help an entity achieve its objectives.

#### How does internal control work?

Internal control helps an entity:

- Run its operations efficiently and effectively;
- Report reliable information about its operations; and,
- Comply with applicable laws and regulations.

<sup>4</sup> The five Principles of Good Regulation are Independence, Openness, Efficiency, Clarity, and Reliability. The definitions of all the principles are available at [NRC Values](#) on the NRC public website. The Commission revised the "Mission and Regulatory Philosophy" section of the NRC's Five Year Plan for Fiscal Years 1991 through 1995 to promulgate the five Principles of Good Regulation. The principles were then published separately as guidance for the NRC staff from the Chairman. They have since been used by the NRC to drive improvement and by stakeholders to hold the agency accountable.

<sup>5</sup> U. S. Government Accountability Office, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#), September 2014.

## What We Found

### **Inconsistent Completion and Profiling of Reactive Inspection Evaluation Forms and Limited Public Sharing of Reactive Inspection Decision-Making Information**

NRC staff do not consistently provide sufficient information on the reactive inspection screening evaluation forms; do not consistently profile completed evaluations forms in ADAMS, in accordance with agency guidance; and, do not share reactive inspection screening decision-making with the public.

#### *Inconsistent Completion of Reactive Inspection Evaluation Forms*

The OIG analyzed 112 IMC 0309 reactive inspection evaluation forms for commercial power reactor safety and security events completed from January 1, 2018, through July 31, 2022. Specifically, the OIG analyzed each form to determine whether it contained information sufficient for NRC staff and independent reviewers to understand each event and its safety significance. Based on IMC 0309, MD 8.3, and our understanding, each form should include the following information:

- Background information on what happened and how both the nuclear power reactor and licensee staff responded to the initiating event;
- Reactor operating modes when the event happened and the nuclear power reactor conditions and related risks;
- Safety functions of the involved systems, structures, and components;
- The affected systems, structures, and components information should be described in enough detail to help readers understand the intended functions and safety significance. Additionally, unique features of the nuclear power reactor should be highlighted to minimize errors from extrapolating generic understanding;
- The technical specifications affected by the incident, because among all the licensing bases, technical specifications are one of the most significant safety requirements for reactor operations. Technical specification violations are often the basis for later escalated enforcement actions; and,
- Justification details when answering “No” to the screening questions on the evaluation form. While some of the generic questions may not be applicable or meaningful to the event, applicable questions should be answered with sufficient detail to enable the readers and approver to reach the same conclusion with minimal follow-up engagements.

Table 3 summarizes the results of the OIG’s analysis and shows the number of reactive inspection evaluation forms that either provided or did not provide sufficient information (based on the criteria above) in specific categories for screening events at operating nuclear power reactors. In Table 3, “Not Applicable” represents either security-related information or indicates that question is not relevant to the reactive inspection determination.

**Table 3: OIG Analysis of Reactive Inspection Evaluation Forms**

		Information Categories				
		Background	Operating Mode	Structures Systems Components Safety Function	Technical Specification	All Relevant “No” Answers Justified
Do Forms Consistently Provide Sufficient Information?	Yes	104	67	86	25	54
	No	6	39	16	48	55
	Not Applicable	2	6	10	39	3

Source: OIG generated based on completed evaluation forms in ADAMS

*Inconsistent Uploading and Profiling of Completed Evaluation Forms in ADAMS*

NRC staff should upload and profile all completed reactive inspection evaluation forms in ADAMS. NRC staff do not, however, consistently complete these actions in accordance with agency guidance. For example, the OIG reviewed special inspection reports, searched NRC regional office SharePoint sites that store evaluation forms, and communicated with regional staff to obtain an accurate count of completed evaluation forms. Through these efforts, the OIG found an additional 28 completed evaluation forms that were saved in ADAMS but not profiled correctly. The 28 additional evaluation forms were not profiled in ADAMS as, “MD 8.3 Reactive Inspection Evaluation.” Correct profiling of completed reactive inspection evaluation forms in ADAMS is important because it allows staff to efficiently search for and retrieve these records.

## *NRC Staff Do Not Share Reactive Inspection Decision-Making Information with the Public*

In the OIG’s review of the 112 evaluation forms plus the additional 28 evaluation forms,<sup>6</sup> all except one were uploaded as “non-publicly available” in ADAMS. Uploading evaluation forms in ADAMS as “non-publicly available” means the public cannot view the evaluation forms and thus has limited insight into the decision bases for reactive inspections, as well as cases where the NRC opts not to conduct a reactive inspection.

### **Why This Occurred**

#### **NRC Guidance Lacks Clarity and Varies Across Regional Offices**

IMC 0309 does not provide clear guidance about completing the evaluation forms, as well as ADAMS uploading criteria. Additionally, the NRR has a separate guidance document (*NRR-123*),<sup>7</sup> about uploading completed evaluation forms into ADAMS. NRR-123 requires staff to upload the evaluation forms as “non-publicly available.”

Furthermore, each regional office has its own supplemental guidance for completing the reactive inspection evaluation forms. Additionally, Regions I and II have exclusion lists of events and conditions that would not warrant completing the reactive inspection evaluation form unless they are exacerbated by other issues that contributed to those events and conditions or complexities. For example, the exclusion lists cover:

- Uncomplicated reactor trips or scrams (manual or auto);
- Water hammer events having little or no adverse impact on safety system inoperability;
- Small fires extinguished that do not challenge fire safe shutdown;
- Scaffolding found to have potentially impacted only a single safety related system operation;
- Safety system instrumentation found out of calibration via periodic testing or surveillance;
- Inadvertent discharge of Freon, fire water, carbon dioxide, or Halon having no adverse impact on plant operations; and,
- Internal flooding events that do not adversely impact safety related equipment.

---

<sup>6</sup> The 28 additional evaluation forms resulted in three special inspections.

<sup>7</sup> NRR-123, *Document Type Summary*, Management Directive 8.3 Reactive Inspection Evaluation.

## Why This Is Important

### **Oversight, Efficiency, and Public Confidence Could be Improved**

Oversight, efficiency, and public confidence could be improved with higher quality and more readily accessible information regarding reactive inspection screenings. Providing quality information about nuclear power plant safety events helps NRC management make timely and informed decisions about whether to deploy reactive inspection teams. Additionally, providing reactive inspection screening decision-making information to the public aligns with the NRC's organizational goal of being a transparent regulator. However, withholding such information as a matter of practice could adversely affect public confidence in the NRC's public health and safety mission.<sup>8</sup>

In discussions with the OIG during the audit, NRC managers expressed concerns about changing their practice of withholding reactive inspection decision-making information from the public. Specifically, they stated that sharing this information would not benefit the public's understanding of nuclear safety issues and might raise unnecessary public fear when the agency opts not to conduct a reactive inspection based on an incident's low safety risk significance. However, the evaluation forms would not typically be considered pre-decisional documents<sup>9</sup> (by their terms, the forms reflect NRC decisions), and oftentimes the forms do not contain other types of sensitive information. In these cases, there is no apparent basis for the NRC's failure to make the evaluation forms publicly available. Additionally, the failure to publicly share non-sensitive decision-making information can result in the appearance of a lack of transparency when questions arise regarding actions taken by the agency.

### **Recommendation**

The OIG recommends that the Executive Director for Operations:

- 1.1 Update agency policies to require that staff provide complete information on screening evaluation forms, correctly profile evaluation forms in

---

<sup>8</sup> Licensees typically report incidents through 10 Code of Federal Regulations 50.72 "Immediate Notification Requirements for Operating Nuclear Power Reactors" or 50.73 "Licensee Event Report System." These incidents usually result in a MD 8.3 evaluation. Therefore, the public is usually already notified of the incident, and it would be beneficial for the NRC to publicize their review of the incident to enhance the public's confidence in NRC's oversight.

<sup>9</sup> See Appendix B, which includes a Branch Chief and Division Director review of the response decision.

ADAMS, and publicly share non-sensitive reactive inspection screening decision-making, whenever possible.

## **2. The NRC Should Develop Clear and Consistent Reactive Inspection Screening Guidance**

The NRC currently does not have clear and consistent reactive inspection screening guidance, and such should be developed. This occurs because the NRC has not recently updated its reactive inspection screening guidance. As a result, the NRC's reactive inspection screening guidance could lead to inconsistencies in screening reactor safety and security events.

### **What Is Required**

#### **The NRC Needs Clear and Consistent Reactive Inspection Screening Guidance**

According to the GAO Green Book, management is responsible for internally communicating the necessary quality information to achieve the entity's objective. The GAO Green Book also states that management should implement control activities through policies, specifically by including periodic reviews of policies, procedures, and related control activities for continued relevance and effectiveness in achieving the entity's objectives or addressing related risks.

Additionally, one of the NRC's Principles of Good Regulation, "Clarity," states that agency positions should be readily understood and easily applied.

### **What We Found**

#### **The NRC Does Not Have Clear and Consistent Reactive Inspection Screening Guidance**

NRC staff do not have clear and consistent guidance to ensure reactive inspection screenings related to operating nuclear power reactors are consistent across all NRC regions.

The guidance in MD 8.3 and IMC 0309 lacks clarity and does not provide specific examples to staff. For example, regional office staff expressed their

concerns that the deterministic criteria questions on the evaluation form are not risk-informed, and are also overly broad and subjective.<sup>10</sup> Therefore, answering the deterministic criteria questions could vary across regions, leading to regional inconsistencies. Additionally, several regional office staff interviewed by the OIG stated that they are confused by the following terminology used in the evaluation form:

- Significant event vs. significant operational event;
- Exceeded the design basis;
- Led to a loss of barrier integrity;
- Degraded condition;
- Loss of safety function;
- Major deficiency/potential generic safety implication;
- Repeat failures; and,
- Licensee operational performance.

## Why This Occurred

### **The NRC has Outdated Reactive Inspection Screening Guidance**

The NRC last updated its primary reactive inspection screening guidance—MD 8.3 and IMC 0309—in June 2014 and October 2011, respectively.

The NSIR has primary responsibility for MD 8.3, which is an agency-level guidance document applicable to the NRC staff's oversight of commercial power reactors and other regulatory programs. The NSIR established an informal working group to assess and update MD 8.3 in 2020. The working group made minor editorial changes to the directive during this assessment. However, the working group was also deliberating over other changes to MD 8.3, such as eliminating the term AIT and modifying the deterministic criteria. During our audit, one senior NRC manager stated there was not alignment between MD 8.3 and IMC 0309, and that staff were trying to reconcile differing views. Moreover, the NRR is responsible for implementing MD 8.3, and must wait for a final version of the document before updating IMC 0309.

---

<sup>10</sup> Since 2018, the NRC has solicited staff input through three open Reactor Oversight Process feedback forms. The NRC uses these forms to identify and resolve problems, concerns, or difficulties encountered in implementing its inspection programs. The NRC staff's responses to these forms have highlighted their confusion about the deterministic criteria questions.

## Why This Is Important

### **Unclear and Outdated Guidance Could Lead to Inconsistent Incident Screening**

Without controls to ensure guidance is clear and up to date, regional office staff may not readily understand the reactive inspection screening process, and in turn, may not consistently risk-inform their screening of reactor safety incidents. This could lead to inconsistent judgments regarding the appropriateness of reactive inspections following safety incidents at nuclear power plants.

### **Recommendation**

The OIG recommends that the Executive Director for Operations:

- 2.1 Update agency policies so that they provide a well-defined incident screening process with examples for screening reactor safety and security events.

## **3. The NRC Should Periodically Assess the Effectiveness of Reactive Inspection Screening Guidance**

The NRC should periodically assess the effectiveness of reactive inspection screening guidance, but it has not done so. This occurs because NRC managers are not aware of the assessment requirement. Periodic effectiveness reviews are important to determine whether inspection screening guidance effectively helps staff meet program objectives.

## What Is Required

### **Assess the Effectiveness of Reactive Inspection Screening Guidance**

IMC 0307, *Reactor Oversight Process Self-Assessment*, stipulates that staff are required to assess the effectiveness of inspection manual chapters and inspection procedures. Additionally, MD 8.3 states that management is responsible for assessing the effectiveness of incident investigation program activities and recommending actions, as appropriate, to improve the program.

## What We Found

### **The NRC has Not Assessed the Effectiveness of Reactive Inspection Screening Guidance**

The NSIR and the NRR, which are responsible for providing reactive inspection screening guidance to agency staff, have not assessed the effectiveness of MD 8.3 and IMC 0309. Staff at three of the four NRC regional offices (regions I, III, and IV) have voluntarily and independently conducted Reactor Oversight Process self-assessments on the implementation of IMC 0309. However, the NRR has not completed a comprehensive review on the implementation of IMC 0309.

## Why This Occurred

### **Some NRC Managers are Unaware of Assessment Requirements**

Not all NRC managers are aware of the assessment requirements for MD 8.3 and IMC 0309. Specifically, the OIG interviewed three managers responsible for assessing the implementation of MD 8.3 and IMC 0309. Two of these managers were not aware of the MD 8.3 assessment requirements.

## Why This Is Important

### **Effectiveness Reviews Ensure Guidance Meets Reactor Oversight Process Goals**

The NRC needs assessments to monitor the effectiveness of reactive inspection screening. Periodic effectiveness reviews can help agency managers assess whether the guidance effectively helps staff screen reactor safety incidents in a consistent, risk-informed manner in accordance with program objectives and higher-level Reactor Oversight Process goals.

### **Recommendation**

The OIG recommends that the Executive Director for Operations:

- 3.1 Periodically assess the effectiveness of MD 8.3 and IMC 0309 implementation.

## IV. CONSOLIDATED LIST OF RECOMMENDATIONS

The OIG recommends that the Executive Director for Operations:

- 1.1 Update agency policies to require that staff provide complete information on screening evaluation forms, correctly profile evaluation forms in ADAMS, and publicly share non-sensitive reactive inspection screening decision-making, whenever possible;
- 2.1 Update agency policies so that they provide a well-defined incident screening process with examples for screening reactor safety and security events; and,
- 3.1 Periodically assess the effectiveness of MD 8.3 and IMC 0309 implementation.

## V. NRC COMMENTS

The OIG held an exit conference with the agency on May 1, 2023. Before the exit conference, agency management reviewed and provided comments on the discussion draft version of this report, and the OIG discussed these comments with the agency during the conference. Following the conference, agency management stated their general agreement with the findings and recommendations in this report and opted not to provide additional comments. The OIG has incorporated the agency's comments into this report, as appropriate.

## OBJECTIVE, SCOPE, AND METHODOLOGY

### Objective

The audit objective was to assess the consistency with which the NRC follows agency guidance for deploying special, augmented, and incident inspection teams in response to safety and security incidents at operating nuclear power plants.

### Scope

This audit focused on the consistency with which the NRC follows agency guidance for screening significant events at operating nuclear power reactors. The OIG scoped its analysis to focus on operating power reactor incidents because they represent the single largest share of incidents screened, and because power reactor incidents present potentially greater safety and security risks than incidents at non-power reactors and materials facilities. We conducted this performance audit at NRC headquarters in Rockville, Maryland, from May 2022 to January 2023.

We assessed the reliability of the data by comparing the 112 reactive inspection evaluation forms downloaded from ADAMS to the regional SharePoint sites, special inspection reports, and by confirming with NRC regional offices that the 112 evaluation forms were complete and accurate. Through these efforts, the OIG identified 28 additional evaluation forms that were not profiled correctly in ADAMS.

Internal controls related to the audit objective were reviewed and analyzed. Specifically, the OIG reviewed the components of control environment, risk assessments, control activities, information and communication, and monitoring. Within those components, the OIG reviewed the principles of exercise oversight responsibility; establish structure, responsibility and authority; evaluate performance and hold individuals accountable; define objectives and risk tolerances; identify, analyze, and respond to risks; design information system and control activities; implement control activities; use of quality information; communicate internally and externally; and, perform monitoring activities.

The OIG conducted analyses to determine whether the agency staff consistently followed reactive inspection screening guidance for evaluating significant events at operating power reactors. The OIG analyzed all 112 reactive inspection evaluation forms conducted between January 1, 2018, and July 31, 2022, for documentation consistency. However, the OIG did not evaluate the additional 28 reactive inspection evaluations forms for documentation consistency because they were not profiled correctly in ADAMS as, “MD 8.3 Reactive Inspection Evaluation,” and the initial data call.

Additionally, the OIG interviewed NRC staff and management from the NRR, the NSIR, and regional offices to understand how agency staff use MD 8.3 and IMC 0309 to screen incidents at operating nuclear power reactors.

## **Methodology**

The OIG reviewed relevant criteria for this audit, including, but not limited to:

- U.S. Government Accountability Office, *Standards for Internal Control in the Federal Government*, GAO-14-704G, dated September 2014;
- Management Directive 8.3, *NRC Incident Investigation Program*, dated June 25, 2014;
- Management Directive 3.4, *Release of Information to the Public*, dated February 6, 2009;
- Inspection Manual Chapter 0307, *Reactor Oversight Process Self-Assessment Program*, dated May 3, 2022;
- Inspection Manual Chapter 0309, *Reactive Inspection Decision Basis for Reactors*, dated October 28, 2011;
- Inspection Procedure 71153, *Follow-Up of Events and Notices of Enforcement Discretion*, dated September 16, 2020;
- Inspection Procedure 93800, *Augmented Inspection Team*, dated April 2, 2019; and,

- Inspection Procedure 93812, *Special Inspection Team*, dated April 28, 2021.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Throughout the audit, auditors considered the possibility of fraud, waste, and abuse in the program.

The audit was conducted by Paul Rades, Team Leader; Avinash Jaigobind, Team Leader; Chanel Stridiron, Senior Auditor; Brigit Larsen, Senior Auditor; and, Andy Hon, Senior Technical Advisor.

**Decision Documentation for Reactive Inspection**

Decision Documentation for Reactive Inspection (Deterministic-only Criteria Analyzed)	
PLANT:	EVENT DATE:
EVALUATION DATE:	
Brief Description of the Significant Operational Event or Degraded Condition:	
REACTOR SAFETY	
Y/N	IIT Deterministic Criteria
	Led to a Site Area Emergency
	Remarks:
	Exceeded a safety limit of the licensee's technical specifications
	Remarks:
	Involved circumstances sufficiently complex, unique, or not well enough understood, or involved safeguards concerns, or involved characteristics the investigation of which would best serve the needs and interests of the Commission
	Remarks:
Y/N	SI Deterministic Criteria
	Significant failure to implement the emergency preparedness program during an actual event, including the failure to classify, notify, or augment onsite personnel
	Remarks:
	Involved significant deficiencies in operational performance which resulted in degrading, challenging, or disabling a safety system function or resulted in placing the plant in an unanalyzed condition for which available risk assessment methods do not provide an adequate or reasonable estimate of risk.
	Remarks:

<b>RADIATION SAFETY</b>	
<b>Y/N</b>	<b>IIT Deterministic Criteria</b>
	Led to a significant radiological release (levels of radiation or concentrations of radioactive material in excess of 10 times any applicable limit in the license or 10 times the concentrations specified in 10 CFR Part 20, Appendix B, Table 2, when averaged over a year) of byproduct, source, or special nuclear material to unrestricted areas
	Remarks:
	Led to a significant occupational exposure or significant exposure to a member of the public. In both cases, "significant" is defined as five times the applicable regulatory limit (except for shallow-dose equivalent to the skin or extremities from discrete radioactive particles)
	Remarks:
	Involved the deliberate misuse of byproduct, source, or special nuclear material from its intended or authorized use, which resulted in the exposure of a significant number of individuals
	Remarks:
	Involved byproduct, source, or special nuclear material, which may have resulted in a fatality
	Remarks:
	Involved circumstances sufficiently complex, unique, or not well enough understood, or involved safeguards concerns, or involved characteristics the investigation of which would best serve the needs and interests of the Commission
	Remarks:
<b>Y/N</b>	<b>AIT Deterministic Criteria</b>
	Led to a radiological release of byproduct, source, or special nuclear material to unrestricted areas that resulted in occupational exposure or exposure to a member of the public in excess of the applicable regulatory limit (except for shallow-dose equivalent to the skin or extremities from discrete radioactive particles)
	Remarks:
	Involved the deliberate misuse of byproduct, source, or special nuclear material from its intended or authorized use and had the potential to cause an exposure of greater than 5 rem to an individual or 500 mrem to an embryo or fetus
	Remarks:

	Involved the failure of radioactive material packaging that resulted in external radiation levels exceeding 10 rads/hr or contamination of the packaging exceeding 1000 times the applicable limits specified in 10 CFR 71.87
	Remarks:
	Involved the failure of the dam for mill tailings with substantial release of tailings material and solution off site
	Remarks:
<b>Y/N</b>	<b>SI Deterministic Criteria</b>
	May have led to an exposure in excess of the applicable regulatory limits, other than via the radiological release of byproduct, source, or special nuclear material to the unrestricted area; specifically <ul style="list-style-type: none"> <li>• occupational exposure in excess of the regulatory limits in 10 CFR 20.1201</li> <li>• exposure to an embryo/fetus in excess of the regulatory limits in 10 CFR 20.1208</li> <li>• exposure to a member of the public in excess of the regulatory limits in 10 CFR 20.1301</li> </ul>
	Remarks:
	May have led to an unplanned occupational exposure in excess of 40 percent of the applicable regulatory limit (excluding shallow-dose equivalent to the skin or extremities from discrete radioactive particles)
	Remarks:
	Led to unplanned changes in restricted area dose rates in excess of 20 rem per hour in an area where personnel were present or which is accessible to personnel
	Remarks:
	Led to unplanned changes in restricted area airborne radioactivity levels in excess of 500 DAC in an area where personnel were present or which is accessible to personnel and where the airborne radioactivity level was not promptly recognized and/or appropriate actions were not taken in a timely manner
	Remarks:

	<p>Led to an uncontrolled, unplanned, or abnormal release of radioactive material to the unrestricted area</p> <ul style="list-style-type: none"> <li>• for which the extent of the offsite contamination is unknown; or,</li> <li>• that may have resulted in a dose to a member of the public from loss of radioactive material control in excess of 25 mrem (10 CFR 20.1301(e)); or,</li> <li>• that may have resulted in an exposure to a member of the public from effluents in excess of the ALARA guidelines contained in Appendix I to 10 CFR Part 50</li> </ul>
	Remarks:
	<p>Led to a large (typically greater than 100,000 gallons), unplanned release of radioactive liquid inside the restricted area that has the potential for ground-water, or offsite, contamination</p>
	Remarks:
	<p>Involved the failure of radioactive material packaging that resulted in external radiation levels exceeding 5 times the accessible area dose rate limits specified in 10 CFR Part 71, or 50 times the contamination limits specified in 49 CFR Part 173</p>
	Remarks:
	<p>Involved an emergency or non-emergency event or situation, related to the health and safety of the public or on-site personnel or protection of the environment, for which a 10 CFR 50.72 report has been submitted that is expected to cause significant, heightened public or government concern</p>
	Remarks:

<b>SAFEGUARDS/SECURITY</b>	
<b>Y/N</b>	<b>IIT Deterministic Criteria</b>
	Involved circumstances sufficiently complex, unique, or not well enough understood, or involved safeguards concerns, or involved characteristics the investigation of which would best serve the needs and interests of the Commission
	Remarks:
	Failure of licensee <b>significant</b> safety equipment or adverse impact on licensee operations as a result of a safeguards initiated event (e.g., tampering).
	Remarks:
	Actual intrusion into the protected area
	Remarks:
<b>Y/N</b>	<b>AIT Deterministic Criteria</b>
	Involved a significant infraction or repeated instances of safeguards infractions that demonstrate the ineffectiveness of facility security provisions
	Remarks:
	Involved repeated instances of inadequate nuclear material control and accounting provisions to protect against theft or diversions of nuclear material
	Remarks:
	Confirmed tampering event involving <b>significant</b> safety or security equipment
	Remarks:
	Substantial failure in the licensee's intrusion detection or package/personnel search procedures which results in a significant vulnerability or compromise of plant safety or security
	Remarks:
<b>Y/N</b>	<b>SI Deterministic Criteria</b>
	Involved inadequate nuclear material control and accounting provisions to protect against theft or diversion, as evidenced by inability to locate an item containing special nuclear material (such as an irradiated rod, rod piece, pellet, or instrument)
	Remarks:

	Involved a significant safeguards infraction that demonstrates the ineffectiveness of facility security provisions
	Remarks:
	Confirmation of lost or stolen weapon
	Remarks:
	Unauthorized, actual non-accidental discharge of a weapon within the protected area
	Remarks:
	Substantial failure of the intrusion detection system (not weather related)
	Remarks:
	Failure to the licensee's package/personnel search procedures which results in contraband or an unauthorized individual being introduced into the protected area
	Remarks:
	Potential tampering or vandalism event involving significant safety or security equipment where questions remain regarding licensee performance/response or a need exists to independently assess the licensee's conclusion that tampering or vandalism was not a factor in the condition(s) identified
	Remarks:

<b>RESPONSE DECISION</b>	
<p>USING THE ABOVE INFORMATION AND OTHER KEY ELEMENTS OF CONSIDERATION AS APPROPRIATE, DOCUMENT THE RESPONSE DECISION TO THE EVENT OR CONDITION, AND THE BASIS FOR THAT DECISION</p>	
<p>DECISION AND DETAILS OF THE BASIS FOR THE DECISION:</p>	
BRANCH CHIEF REVIEW:	DATE:
DIVISION DIRECTOR REVIEW:	DATE:
<p>ADAMS ACCESSION NUMBER:  EVENT NOTIFICATION REPORT NUMBER (as applicable):  E-mail to <a href="mailto:NRR_Reactive_Inspection@nrc.gov">NRR_Reactive_Inspection@nrc.gov</a></p>	

Source: Inspection Manual Chapter 0309

## TO REPORT FRAUD, WASTE, OR ABUSE

### **Please Contact:**

Email: [Online Form](#)

Telephone: 1.800.233.3497

TTY/TDD: 7-1-1, or 1.800.201.7165

Address: U.S. Nuclear Regulatory Commission  
Office of the Inspector General  
Hotline Program  
Mail Stop O12-A12  
11555 Rockville Pike  
Rockville, Maryland 20852

## COMMENTS AND SUGGESTIONS

If you wish to provide comments on this report, please email the OIG using this [link](#).

In addition, if you have suggestions for future OIG audits, please provide them using this [link](#).