
INSPECTION PROCEDURE 71153

EVENT FOLLOWUP

PROGRAM APPLICABILITY: 2515

CORNERSTONES: ALL

71153-01 INSPECTION OBJECTIVE

01.01 Evaluate licensee events and degraded conditions for plant status and mitigating actions in order to provide input to determining the need for an Incident Investigation Team (IIT), Augmented Inspection Team (AIT), or Special Inspection (SI).

01.02 Screen event reports that licensees are required to submit to the NRC for significance and obvious violations.

71153-02 INSPECTION REQUIREMENTS

02.01 Event Follow Up

- a. Observe plant parameters and status, including mitigating systems/trains and fission product barriers.
- b. Evaluate performance of mitigating systems and licensee actions.
- c. Confirm that the licensee properly classified the event in accordance with emergency action level procedures and made timely notifications to NRC and state/county governments, as required (10 CFR Parts 20, 50.9, 50.72).
- d. Communicate details regarding the event to risk analysts and others in the Region and Headquarters for their use in determining risk significance and NRC reactive response to the event.

02.02 Event Report Review. Review written event reports.

71153-03 INSPECTION GUIDANCE

General

Management Directive (MD) 8.3, "NRC Incident Investigation Program" defines a significant operational event 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. MD 8.3 provides deterministic and risk criteria for determining the level of NRC investigatory response to events, i.e., IIT, AIT, or SI. Upon receipt of licensee notifications, in accordance with 10 CFR 50.72, NRC should use the guidance in this procedure to assist in evaluating the event based on the MD 8.3 criteria.

Immediately following a power reactor event, on-site inspectors provide details regarding plant status and performance of equipment and operators to regional and headquarters risk analysts, event review staff, and management for their use in determining risk significance of the event. Appendix A is an extract from MD 8.3 which requires that significant operational power reactor events, which includes significant unplanned degraded conditions, be evaluated based on both deterministic criteria and risk in order to determine an appropriate investigatory response. Power reactor events meeting the deterministic criteria are the focus of IP 71153 in assisting risk analysts, as noted in Section 03.01.d.

Appendix B illustrates the relationship between event response and the reactor oversight process.

Appendix C provides guidance for limiting NRC's impact on licensees during an event.

Specific Guidance

03.01 Event Follow Up

- a. The inspector observes plant parameters and status, and determines alarms or conditions preceding or indicating the event.
- b. The event description and Significance Determination Process (SDP) Phase 2 worksheets indicate which mitigating systems or licensee actions should have been activated by the event. The inspector confirms that they were activated as required.

Evaluate whether the licensee has appropriately resolved event issues prior to restart, where applicable, such as by attending meetings of the Plant Oversight Review Committee.

- c. No specific guidance.

- d. Risk analysts estimate Conditional Core Damage Probability (CCDP) for the event based on best available information, and an evaluation of the most uncertain or influential assumptions. If a quantitative CCDP cannot be obtained, the risk analyst provides qualitative risk insights.

To assist risk analysts, inspectors provide input (in addition to a and b above), such as equipment malfunctions/unavailabilities and operator errors. Inspectors verify the availability of mitigation equipment not required to operate during the event, but which could contribute to increased risk if unavailable. SDP Phase 2 worksheets assist in this regard. See IMC 0609, "Significance Determination Process", regarding CCDP determination for events.

03.02 Event Report Review

Review Licensee Event Reports (LERs) to determine whether the cause of the event and corrective actions are consistent, and whether the event involved a violation of requirements, or a potential generic issue. Verify that LERs are consistent with NRC observations in any associated IITs, AITs, and SIs. LERs that involve operator errors are reviewed under IP 7111.14, "Personnel Performance Related to Nonroutine Plant Evolutions and Events". Licensee resolution of issues may be addressed under the Identification and Resolution of Problems sections of individual baseline inspection procedures.

LERs may reveal significant unplanned degraded conditions, which are evaluated in accordance with the criteria of MD 8.3 regarding the for potential implementing IITs, AITs, or SIs.

LERs will be closed in an inspection report, as discussed in MC 0610*, "Power Reactor Inspection Reports".

71153-04 RESOURCE ESTIMATE

Inspector effort is estimated as 12-24 hours for an event and 4-8 hours for an LER.

71153-05 REFERENCES

Management Directive 8.3, "NRC Incident Investigation Program"

Inspection Procedure 93800, "Augmented Inspection Team"

Inspection Procedure 93812, "Special Inspection"

Inspection Manual Chapter 0609, "Significance Determination Process"

Inspection Manual Chapter 0610*, "Power Reactor Inspection Reports"

END

Appendix A

SIGNIFICANT OPERATIONAL REACTOR EVENTS (FROM MANAGEMENT DIRECTIVE 8.3)

Significant operational power reactor events meeting the following deterministic criteria should be evaluated for risk to aid in determining the level of response, if any. These events may include significant unplanned degraded conditions identified by the licensee or NRC. Plant configurations due solely to planned maintenance need not be considered.

- Involved operations that exceeded, or were not included in, the design bases of the facility.
- Involved a major deficiency in design, construction, or operation having potential generic safety implications.
- Led to a significant loss of integrity of the fuel, the primary coolant pressure boundary, or the primary containment boundary of a nuclear reactor.
- Led to the loss of a safety function or multiple failures in systems used to mitigate an actual event.
- Involved possible adverse generic implications.
- Involved significant unexpected system interactions.
- Involved repetitive failures or events involving safety-related equipment or deficiencies in operations.
- Involved questions or concerns pertaining to licensee operational performance.

Significant operational power reactor events meeting the above deterministic criteria should be evaluated for risk as follows: Conditional Core Damage Probability (CCDP) best reflects loss of defense in depth due to the event, regardless of whether the cause is deficient licensee performance or otherwise. CCDP accounts for actual plant configuration, including equipment unavailable because of maintenance and testing. IMC 0609, "Significance Determination Process", addresses CCDP determination. Although CCDP represents a fundamentally different concept for events than for degraded conditions that do not initiate an event, the same guidelines may be applied to each in assisting management in its risk-informed decision making.

The lack of complete event information at the time of the NRC response decision focuses attention on the uncertainty of influential assumptions and their effect on the risk significance. Inspection Procedure 71153, "Event Followup", discusses inspector inputs to risk analyses that are needed to understand the risk significance. In determining risk significance of an operational

event, NRC should assess the potential influence on risk of the following:

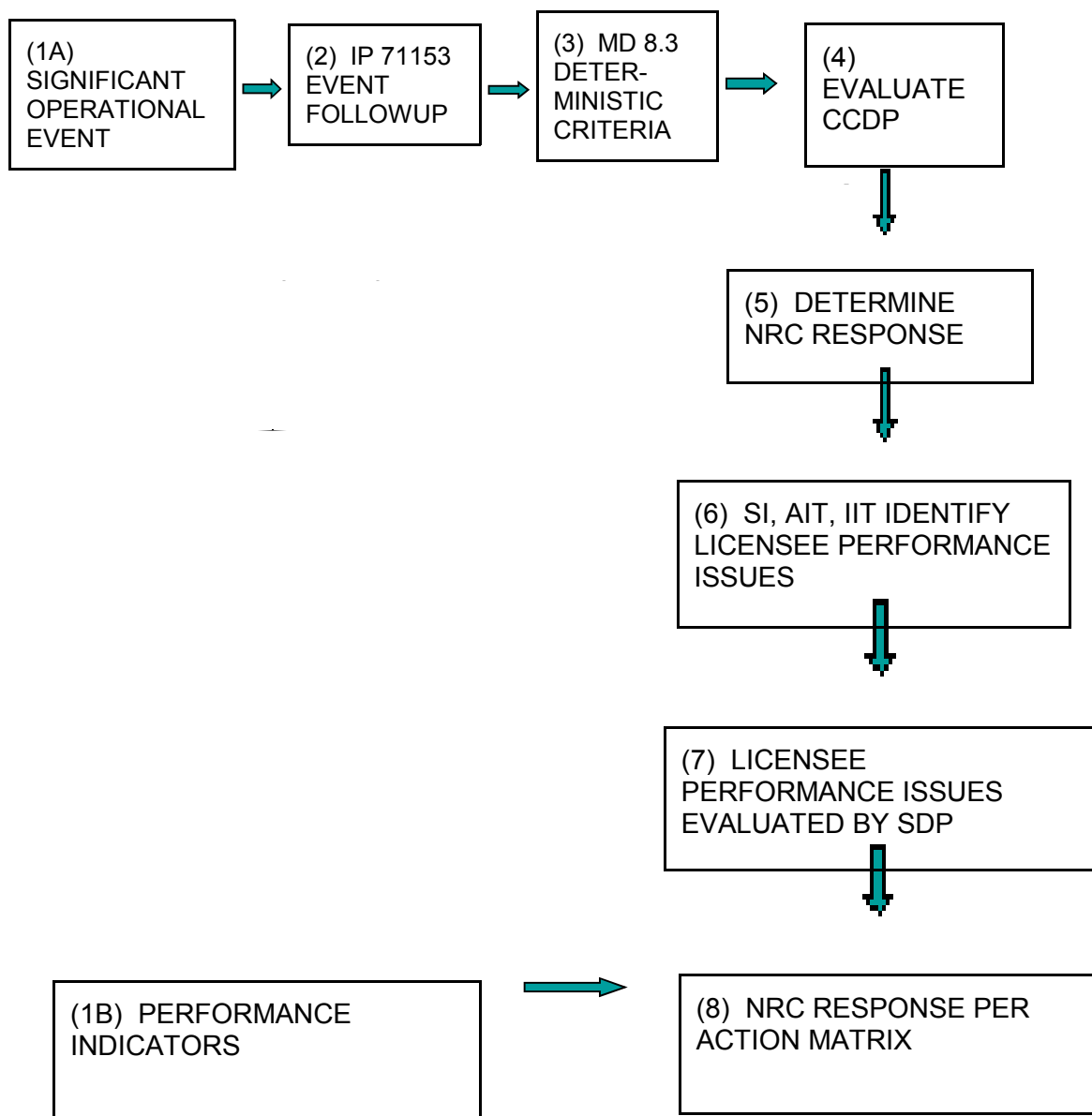
1. Dominant core damage sequence(s).
2. Level of confidence in failure/unavailability values assumed for the sequence(s).
3. Influence on the CCDP estimate of contributing factors where the confidence level is low.

The following table lists appropriate power reactor operational event response options as a function of CCDP. The overlap of options relative to CCDP levels provides the opportunity to select different inspection or investigation options on the basis of such factors as uncertainty of the risk estimate coupled with the deterministic insights. Risk insights should also be used in considering the number of inspectors, their expertise, and the areas of focus. In addition to risk, NRC should assess whether degraded conditions could increase the likelihood of a large early release resulting from containment failure.

Estimated Conditional Core Damage Probability (CCDP)				
CCDP <1E-6	1E-6 → 1E-5	1E-5 → 1E-4	1E-4 → 1E-3	CCDP >1E-3
No additional inspection				
	Special Inspection			
		AIT		
			IIT	

END

RELATIONSHIP OF EVENT FOLLOWUP TO REACTOR OVERSIGHT PROCESS



BLOCK 1A – A significant operational event is a radiological, safeguards, or other safety-related operational event that poses an actual or potential hazard to public health and safety, property, or the environment. Significant operational reactor events include plant transients that are complicated by loss of mitigation equipment or operator errors, and unplanned degraded conditions.

BLOCK 1B – Performance indicator (PI) thresholds are in units of change in annualized Core Damage Frequency (delta CDF). Some events, such as reactor trips may also be counted in PI data.

BLOCK 2 – Licensee notifications in accordance with 10 CFR 50.72 are one means of activating IP 71153 initial event followup by on-site NRC inspectors. If an on-site inspector is not immediately available this responsibility transfers to the Headquarters Operations Officer until regional personnel can respond.

BLOCK 3 – Management Directive 8.3, Part I includes deterministic criteria which identify significant operational reactor events to be evaluated for risk significance. See Appendix A of IP 71153.

BLOCK 4 – The risk analyst uses NRC's Standardized Plant Analysis of Risk (SPAR) models and other available tools to estimate event Conditional Core Damage Probability (CCDP), which accounts for equipment unavailability for reasons unrelated to performance. Initial estimates of CCDP can be made within 4-8 hours of receiving event information. IP 71153 requires inspectors to provide event details such as equipment malfunction or unavailability, operator errors, and equipment being out of service for maintenance. They verify availability of mitigation equipment not required during the event, but which could contribute to increased risk if unavailable. Inspectors use plant-specific SDP phase 2 worksheets to gain qualitative risk insights and provide these to the risk analyst.

BLOCK 5 – Management Directive 8.3, Part I (see Appendix A of IP 71153), lists appropriate reactor operational event response options (IIT, AIT, SI) as a function of CCDP. This determination considers the uncertainty of influential assumptions and their effect on risk significance.

BLOCK 6 – Special Inspections, Augmented Inspection Teams, and Incident Investigation Teams evaluate events and their root causes, and identify licensee performance issues.

BLOCK 7 – Licensee performance issues are evaluated with the SDP (considering only performance-related equipment unavailabilities), placing the issues in delta annualized CDF bands.

BLOCK 8 – Because PI thresholds are in units of delta annualized CDF, PIs and SDP results are combined in the NRC Action Matrix to determine agency responses to the performance issues identified by the event response.

Appendix C

LIMITING NRC IMPACT DURING EVENTS

I. Inspector Conduct While in the Control Room

The baseline inspection program does not include routine inspection of normal daily control room operations. However, for plant events inspectors must perform sufficient inspection to develop an independent assessment of plant conditions, which will be used in making decisions on NRC's responses to an event. Activities that form the basis for this assessment may include independent measurements, verifying the accuracy of information, control board walkdowns (to observe annunciators, process parameters, switch positions, and other instrumentation), or assessment of licensed operator performance during ongoing activities.

The NRC's goal is to monitor and assess with as little impact on the licensee as possible and at the same time ensure NRC evaluations are timely and accurate. During plant events, timely and independent inspector assessments are crucial; however, the degree of interaction with operators may be limited in light of ongoing control room activities. The inspector must use judgement in establishing a balance between obtaining necessary information and not being intrusive in licensee response activities. The appropriate balance involves numerous variables, including safety significance of the event, complexity of the event, time constraints, and available staff.

The following guidance is provided to establish consistency for inspector conduct in the control room. When the NRC activates its emergency response plan, inspectors should follow the guidance in the applicable emergency response procedure. This guidance is intended for use in situations where the NRC has not activated its emergency response plan; however an abnormal event has happened at the plant. Inspectors should note that some of the guidance, such as inspector location in the control room and not interrupting operators, apply to all emergency situations. While this guidance deals mainly with event responses, specific attributes are applicable to inspector interaction with operators during normal conditions both in and outside the control room.

- a. During the initial response to events, the assigned senior resident inspector (SRI) or the inspector acting in this capacity is in charge of all other NRC inspectors. These inspectors will take their direction from the SRI.
- b. The number of inspectors in the control room at any given time should be the minimum number needed to accomplish the agency's work. Typically there should be only one inspector in the control room during an event, unless special circumstances warrant additional inspectors. If several inspectors or other NRC personnel are in the control room during an event, the SRI or resident inspector will be in charge of them and will determine and communicate to the other inspectors and personnel what, if any, assistance is needed.

- c. Inspectors will adhere to the licensee's established administrative policies regarding entry into the restricted or "at the controls" area of the control room. For example, the inspector may need to ask the control room SRO or RO for permission to enter the restricted area. Under no circumstances should the inspector demand entry into the restricted area. If such entry is denied, the inspector should escalate the request to the licensee's management and inform NRC management of the problem. For general access to the control room, the licensee's policy should recognize that inspector access will be unannounced. Inspectors who do not routinely enter the control room should identify themselves to the operators when they enter the control room.
- d. While observing ongoing activities in the control room, the inspector should be in a location which is out of the way of operators and does not obstruct their view of the reactor controls and instrumentation, yet the location provides the inspector with a broad view of the control room. An acceptable location outside the restricted "at the controls" area is preferable. It is recognized that short amounts of time in the restricted area may be necessary at appropriate stable time periods to verify significant parameters.
- e. Operators should not be interrupted, questioned or otherwise distracted from performing their duties while responding to an event or while performing other duties where their attention must be focused on the task at hand. Also, inspectors should not interfere, interrupt, or otherwise disturb communications between operators and communications between operators and their supervision.
- f. If an inspector identifies a significant problem or question about plant or operator safety that needs to be addressed in an urgent manner, then the inspector should discuss it quickly and quietly at a time when it will not interrupt ongoing operator actions. This discussion should be held with the shift supervisor or emergency response manager. However, it may be appropriate to interrupt the operator if the inspector feels that an operator action may endanger plant personnel or the plant. Inspectors should hold their non-urgent questions for a more appropriate time.
- g. NRC personnel communicating with off-site organizations should generally do so from outside of the control room. Communication is possible from the NRC phone in the TSC or other phones outside the control room that have been agreed to with the licensee. It is acceptable for the inspector to make a phone call from the control room provided the licensee agrees to the use of the phone and the phone conversation will not disrupt control room activities.
- h. Because of the authoritative role of the NRC, licensees listen carefully to inspectors and may interpret statements, side remarks, or observations as directives or requirements. Consequently, open, clear, and direct communications between

inspectors and licensees are particularly important during events.

II. Conference Calls With Licensees During an Ongoing Event

When initially responding to an event, the NRC is dependent upon information provided by licensees and inspectors at the plant (typically resident inspectors). This information is used for initially assessing events and making decisions about how to respond to the event. The NRC typically gets this initial information from licensees through their notification to the NRC Operations Center pursuant to 10 CFR 50.72 or from conference calls between the NRC staff and the licensee. The NRC values conference calls as an efficient method of obtaining accurate and timely information. Such calls promote a mutual understanding of the facts and any concerns.

Caution is needed in scheduling and conducting conference calls when the calls are held during an ongoing event or situations where heightened licensee attention is being directed to a plant evolution. While information obtained in a conference call is extremely valuable to the NRC's overall understanding of a plant event, the overriding goal is that the call will not interfere or detract from the licensee's ability to safely operate the plant. The following guidance should be used for conducting conference calls with licenses during abnormal plant conditions. Examples of abnormal plant conditions would be the declaration of a Notification of Unusual Event (NOUE) or the use of an emergency operating procedure (EOP).

- a. NRC management should decide whether a conference call with the licensee is needed and if conducting a conference call is appropriate at that particular time. NRC management may want to discuss with senior licensee management the possibility of conducting a conference call. The stability of the plant is the primary factor in deciding on a conference call. Other factors to be considered in this decision include: the current level of NRC staff understanding and information available for the event; the safety significance of the event; the complexity of the event; and the current level of licensee activity in mitigating the event.
- b. Generally the licensee should be informed of the NRC's desire to have a conference call by the senior resident inspector or resident inspector if they are available. The licensee must be included in deciding the most appropriate time for the call so that the call does not interfere with plant response activities. Also the licensee should decide which individuals from their staff will participate in the call.

When requesting the conference call, the licensee must be clearly informed of the NRC's desire that the conference call not interfere with their response to plant conditions and that delaying the call is a valid option for them.

- c. NRC technical staff and management with the right background should participate in the conference call to ensure proper

questioning and understanding of the event and associated issues. The senior NRC manager on the call should identify his/her self and is responsible for ensuring that the conference call discussions are properly focused on important issues and that side issues are discussed at another time.

- d. If time allows, an agenda for the conference call should be developed to ensure the call remains properly focused. The licensee should be informed of the proposed discussion topics and planned NRC participants to allow the licensee to prepare for the call.
- e. Any follow-up actions resulting from the conference call should be summarized at the end of the call by an NRC manager to ensure the licensee clearly understands and agrees with the actions.

END