

INITIAL CHARACTERIZATION OF FINDINGS

Effective Date: 10/25/2024

0609.04-01 PURPOSE

The framework described in this attachment to the Significance Determination Process (SDP) is designed to provide guidance to NRC inspectors and management for use in the initial characterization of safety or security findings within the seven safety cornerstones of the Reactor Oversight Process (ROP). The initial characterization of findings is designed to perform three functions:

- a. Provide an opportunity to the inspector to document all applicable information regarding the finding, and its associated impact on safety or security, in a consolidated format (Table 1).
- b. Support the identification of safety cornerstone(s) affected by the degraded condition or programmatic weakness resulting from the finding (Table 2).
- c. Direct the inspector to the appropriate SDP appendix of Inspection Manual Chapter (IMC) 0609 for further evaluation (Table 3).

0609.04-02 GUIDANCE

Each finding entering the SDP, regardless of the cornerstone under which it is identified, is by definition a performance deficiency that is “more than minor” as prescribed in IMC 0612. Performance deficiencies that are determined to be “minor” are not findings, and therefore, not subjected to the SDP.

02.01 Finding Consolidated Information Sheet (Table 1)

The objective of Table 1 is to provide the inspector and management the opportunity to document and review all the supporting information pertaining to a finding in a concise format. Below are detailed descriptions of the table sections to facilitate documentation:

- a. Clearly Articulated Finding. Describe the identified performance deficiency and the “more than minor” determination in accordance with applicable IMC 0612 guidance. Each finding is treated independently in the SDP.
- b. Factual Description of Degraded Condition or Programmatic Weakness. State the facts pertaining to the degraded condition or programmatic weakness without any hypothetical situations, failures, or occurrences. For conditions that involve degraded equipment, include the affected system(s), structure(s), component(s) (SSCs), and/or train(s), to include their associated function(s), and how they impacted safety or security. The Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones primarily deal

with degraded conditions. For a programmatic weakness, include the affected program(s) and describe how the programmatic weakness impacted safety or security. Other pertinent information to consider are root/apparent/proximate cause evaluations, extent of condition assessments, interdependencies with other systems, perspectives from the licensee, and the duration of the degraded condition or programmatic weakness (i.e., exposure time).

- c. Logical Link(s) that Connect(s) the Finding to the Degraded Condition or Programmatic Weakness. Clearly articulate the nexus (i.e., logical link(s)) between the inspection finding and the degraded condition or programmatic weakness. The finding should most often be identified as the proximate cause of the degraded condition or programmatic weakness. The determination of cause need not be based on a rigorous root cause evaluation, but rather on a reasonable assessment and judgment of the staff. If the proximate cause of multiple degraded conditions or programmatic weaknesses is the same, there may be just one independent finding provided that the finding is not defined at a level associated with a cross-cutting area as defined in IMC 0310.
- d. Supporting Documentation and References. List the documents used during the inspection process. Examples include, but are not limited to, inspection procedures, plant status, licensee event reports, and condition reports.

NOTE: If Table 1 is used to document information pertaining to a security finding, then the table will have to be properly labeled as Safeguards or Official Use Only - Security Related Information.

02.02 Cornerstones Affected by Degraded Condition or Programmatic Weakness (Table 2)

The objective of Table 2 is to support the identification of safety cornerstones affected by the degraded condition or programmatic weakness resulting from the finding. The affected cornerstones may already have been identified previously (e.g., scope of the inspection procedure, inspector experience and knowledge of the ROP); however, Table 2 helps to support this determination. Below is a description to facilitate filling out Table 2:

- a. Read through the degraded conditions and programmatic weaknesses listed in all seven cornerstones and check all that are applicable. For the degraded conditions, many of the options are associated with SSCs and events.
- b. Review all the checked boxes and determine which cornerstone(s) are affected by the degraded condition or programmatic weakness.

02.03 SDP Appendix Router (Table 3)

Typically, one affected cornerstone is identified in Table 2. The inspector should use the SDP Appendix Router (Table 3) to determine the appropriate SDP appendix for further evaluation of the finding. If more than one cornerstone is affected, and Table 3 results in direction to one (or multiple) SDP appendices, the inspector and management need to ultimately identify one cornerstone based on reasonable judgment of the situation. If the finding progresses to a detailed risk evaluation, the inspector, Senior Reactor Analyst (SRA), and management should confirm the identified cornerstone based on the proportional contribution from each cornerstone to the total risk estimation.

NOTE: If the SDP Appendix Router directs the user to a particular appendix, and upon further evaluation that SDP appendix is not capable of evaluating the finding and associated degraded condition or programmatic weakness, the inspection staff and applicable SRA, with support from management, should determine if IMC 0609, Appendix M is an appropriate tool. A planning Significance and Enforcement Review Panel (SERP) is required before transitioning to Appendix M other than when directed explicitly by procedure. Refer to IMC 0609, Attachment 1 for additional guidance.

0609.04-03 REFERENCES

IMC 0310, "Aspects Within The Cross-Cutting Areas"

IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power"

IMC 0609, Appendix B, "Emergency Preparedness SDP"

IMC 0609, Appendix C, "Occupational Radiation Safety SDP"

IMC 0609, Appendix D, "Public Radiation Safety SDP"

IMC 0609, Appendix E, "Security SDP for Power Reactors"

IMC 0609, Appendix F, "Fire Protection SDP"

IMC 0609, Appendix G, "Shutdown Operations SDP"

IMC 0609, Appendix I, "Licensed Operator Requalification Program SDP"

IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management SDP"

IMC 0609, Appendix L, "**Extensive Damage Mitigation Guidelines SDP**"

IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria"

IMC 0609, Attachment 1, "Significance and Enforcement Review Panel (**SERP**) Process"

IMC 0612, "Issue Screening"

END

List of Tables:

Table 1: Finding Consolidated Information Sheet

Table 2: Cornerstones Affected by Degraded Condition or Programmatic Weakness

Table 3: SDP Appendix Router

List of Attachments:

Attachment 1: Revision History for IMC 0609 Attachment 4

Table 1 – FINDING CONSOLIDATED INFORMATION SHEET
Clearly Articulated Finding:
Factual Description of Degraded Condition or Programmatic Weakness:
Logical link(s) that Connect(s) the Finding to the Degraded Condition or Programmatic Weakness:
Supporting Documentation and References:

Table 2 – CORNERSTONES AFFECTED BY DEGRADED CONDITION OR PROGRAMMATIC WEAKNESS

(✓) Check the appropriate boxes

INITIATING EVENTS CORNERSTONE	MITIGATING SYSTEMS CORNERSTONE	BARRIER INTEGRITY CORNERSTONE
☐ A. Primary System LOCA initiator contributor (e.g., RCS leakage from pressurizer heater sleeves, RPV piping penetrations, CRDM nozzles, PORVs, SRVs, ISLOCA issues, etc.) ☐ B. Transient initiator contributor (e.g., reactor/turbine trip, loss of offsite power, main steam/feedwater piping degradations, internal fires or flooding, etc.) ☐ C. Support System initiator contributor (loss of service water, loss of instrument air, DC power, etc.) ☐ D. Steam Generator Tube Rupture (SGTR) ☐ E. External Event initiators (limited to fire and internal flooding)	☐ A. Mitigating Systems and PRA Functionality ☐ Core Decay Heat Removal Degraded ☐ Short Term Heat Removal Degraded ☐ Primary (e.g., Safety Injection–PWR only; main feedwater, HPCI, and RCIC - BWR only) High Pressure–Both Types Low Pressure–Both Types ☐ Secondary - PWR only (e.g. AFW, main feedwater, ADVs) ☐ Long Term Heat Removal Degraded (e.g., ECCS sump recirculation, suppression pool) ☐ B. External Event Mitigating Systems (Seismic/ Flood/Severe Weather Protection Degraded) ☐ C. Reactor Protection System (RPS) ☐ D. Fire Brigade ☐ E. Flexible Coping Strategies (FLEX)	☐ A. Fuel Cladding Integrity ☐ Reactivity Management (e.g., exceed licensed power limit, command and control, uncontrolled control rod movement, inadvertent RCS dilution or cold water injection) ☐ Mismanagement of foreign material exclusion program (e.g. loose parts) ☐ B. RCS Boundary as a mitigator following plant upset (e.g., pressurized thermal shock) Note: All other RCS boundary issues, such as leaks, will be considered under the Initiating Events Cornerstone. ☐ C. Reactor Containment / Drywell Barrier Degraded ☐ Actual Breach or Bypass (e.g., leakage past penetration seals, isolation valves that can contribute to ISLOCA, vent and purge system. Failure of SSCs critical to suppression pool integrity) ☐ Heat Removal, Hydrogen or Pressure Control Systems Degraded ☐ D. Control Room, Auxiliary, Reactor, or Spent Fuel Building Barrier Degraded ☐ E. Spent Fuel Pool (SFP) ☐ Maintaining subcritical conditions ☐ Spent Fuel Pool Water Inventory and/or Temperature (i.e., cooling)

EMERGENCY PREPAREDNESS CORNERSTONE	OCCUPATIONAL RADIATION SAFETY CORNERSTONE	PUBLIC RADIATION SAFETY CORNERSTONE
☐ Failure to Comply with a Planning Standard or Risk-Significant Planning Standard ☐ Actual Event Implementation Problem	☐ ALARA Planning or Work Controls ☐ Exposure or Over-exposure problem ☐ Ability to Assess Dose Compromised	☐ Radioactive Effluent Release Program ☐ Radioactive Environmental Monitoring Program ☐ Radioactive Material Control Program ☐ Transportation or Part 61
SECURITY CORNERSTONE		
☐ Findings identified under the IMC 2201, Security and Safeguards Inspection Program		

Table 3 – SDP APPENDIX ROUTER

If the finding and associated degraded condition or programmatic weakness is in the licensee's:

1. Emergency Preparedness cornerstone, STOP. Go to IMC 0609, Appendix B.
2. Occupational Radiation Safety cornerstone, STOP. Go to IMC 0609, Appendix C.
3. Public Radiation Safety cornerstone, STOP. Go to IMC 0609, Appendix D.
4. Security cornerstone, STOP. Go to IMC 0609, Appendix E.
5. Initiating Events, Mitigating Systems, or Barrier Integrity cornerstones, CONTINUE below.

Read sections A through F and answer the YES or NO questions. If NO is answered to all the questions in sections A through F, the user is directed to IMC 0609, Appendix A.

A. Shutdown, Refueling, and Forced Outages:

1. Does the finding pertain to operations, an event, or degraded condition while the reactor vessel is defueled, relate to fuel handling issues, or involve spent fuel pool issues?

a. If YES → STOP. Go to IMC 0609, Appendix A.

b. If NO, Continue.

2. Does the finding pertain to operations, an event, or a degraded condition while the plant was shut down ?

NOTE: Appendix G is applicable during refueling, forced, and maintenance outages starting when the licensee has met the entry conditions for the system used to remove residual heat and ends when this system has been secured during plant heat-up.

a. If YES → STOP. Go to IMC 0609, Appendix G.

b. If NO, Continue.

B. Licensed Operator Requalification:

Does the finding involve the operator licensing requalification program or simulator fidelity?

a. If YES → STOP. Go to IMC 0609, Appendix I.

b. If NO, Continue.

C. Maintenance Rule Risk Assessments:

Does the finding involve the licensee's assessment and management of risk associated with performing maintenance activities under all plant (operating or shutdown) conditions in accordance 10 CFR 50.65(a)(4) and the Baseline Inspection Procedure (IP) 71111.13, "Maintenance Risk Assessment and Emergent Work Control"?

- a. If YES → STOP. Go to IMC 0609, Appendix K.
- b. If NO, Continue.

D. PRA Configuration Risk Associated with RICT, 10 CFR 50.69, or NFPA 805:

Is the finding associated with the underestimation of PRA configuration risk associated with Risk Informed Completion Times (RICT), 10 CFR 50.69, or National Fire Protection Association (NFPA) 805 for issues not directly associated with degradation of plant equipment or other physical conditions in the plant that resulted in the need to invoke the licensee risk-informed program?

- a. If YES → STOP. Go to IMC 0609, Appendix K.
- b. If NO, Continue.

E. 10 CFR 50.54(hh)(2) Mitigating Strategies:

Is the finding associated with the mitigating strategies to maintain or restore core cooling, containment, and spent fuel pool cooling?

- a. If YES → STOP. Go to IMC 0609, Appendix L.
- b. If NO, Continue.

F. Fire Protection:

1. Does the finding involve discrepancies with the fire brigade?

- a. If YES → STOP. Go to IMC 0609, Appendix A.
- b. If NO, Continue.

2. Does the finding involve: (1) A failure to adequately implement fire prevention and administrative controls for transient combustible materials, transient ignition sources, or hot work activities? (2) Fixed fire protection systems or the ability to confine a fire? (3) Or affect the ability to reach and maintain safe shutdown conditions in case of a fire?

- a. If YES → STOP. Go to IMC 0609, Appendix F.
- b. If NO → STOP. Go to IMC 0609, Appendix A.

Attachment 1: Revision History for IMC 0609 Attachment 4

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
N/A	ML063060347 01/10/08 CN 08-002	Revision History reviewed for last four years. IMC0609 Attachment 4 has been created to remove Phase 1 - Characterization and Initial Screening of Findings of the significance determination process (SDP) from IMC0609 Appendix A.	NO	ML073460588
N/A	ML101400531 06/19/12 CN 12-010	Removed the Phase 1 screening criteria pertaining to the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones and placed the screening criteria in IMC 0609, Appendix A. Revised Table 1 so it is applicable to all cornerstones. Updated Table 2 to add some more items to the Reactor Safety Performance area. Revised Table 3 to clarify which SDP appendices are applicable given the cornerstones of interest and details of the finding. Incorporated feedback from ROPFF 0609.04-1458, 0609.04-1372, and 0609.04-1678. This is a complete reissue no red line.	Senior Reactor Analysts and headquarters staff provided detailed instructor-led training to resident inspectors, region-based inspectors, and other regional staff. June 2012	ML110240265 Closed FBF: 0609.04-1372 ML12171A239 0609.04-1678 ML12171A241
N/A	ML16056A317 10/07/16 CN 16-026	Table 3, SDP Appendix Router was revised to accommodate SDP IMC 0609, Appendix O, "Significance Determination Process for Mitigating Strategies and Spent Fuel Pool Instrumentation" (Orders EA-12-049 and EA-12-051).	No training is required.	ML16060A285
N/A	ML19198A195 7/17/19	Made draft publicly available to discuss at the July 31, 2019, ROP monthly public meeting.	N/A	N/A

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
N/A	ML19011A326 12/13/19 CN 19-040	Revised document to reflect retirement of IMC 0609 Appendix O, "Significance Determination Process for Mitigating Strategies and Spent Fuel Pool Instrumentation" and to align with changes to IMC 0609 Appendix A (ROPFF 0609.04-2295). Table 2 was modified to include support system initiators (ROPFF 0609.04-2289) and move reactivity management issues to the barrier integrity cornerstone (ROPFFs 0609.04-2133 and 0609.04-2201). Table 3 was modified to direct users to IMC 0609 Appendix A for spent fuel pool issues during shutdown (ROPFF 0609.04-2084). Document was reviewed and minor changes were made to allow for use with new reactor designs (AP1000). In accordance with Management Directive 8.13 and COMSECY-16-0022, the Commission was notified of the described changes via SECY-19-0037, "Reactor Oversight Process Self-Assessment for Calendar Year 2018," (ML19042A100). The Commission was also notified of the revisions in a Commissioner Assistants' Note (ML19302F254).	No training is required.	ML19014A064 Closed FBFs: 0609.04-2084 ML19014A099 0609.04-2295 ML19014A103 0609.04-2133 ML19014A100 0609.04-2201 ML19014A101 0609.04-2289 ML19064A974
N/A	ML24155A201 10/25/24 CN 24-031	Added direction to Appendix K for PRA configuration control issues. Updated document styles consistent with IMC 0040 guidance and reset the 5-year review requirement. No open feedback forms to address.	No training is required.	ML24156A091