

Sdp \ Exercise1 \  
Exercise1tables.pdf

**SDP PHASE 1 SCREENING WORKSHEET FOR INITIATING EVENTS, MITIGATION SYSTEMS,  
AND BARRIERS CORNERSTONES**

Reference/Title (LER #, Inspection Report #, etc):

**Performance Deficiency** (concise statement clearly stating deficient licensee performance):  
**Failure to follow vendor recommendations, included in the maintenance manual,  
for setting the seal oil backup differential pressure regulator.**

**Factual Description of Condition** (statement of facts known about the condition that resulted from  
the performance deficiency, without hypothetical failures included):  
**Incorrect setting of backup differential pressure regulator resulted in a  
reactor/turbine trip.**

**System(s)/Train(s) Degraded by Condition: Turbine/generator.**

**Licensing Basis Function of System(s)/Train(s): Generate electrical power.**

**Other Safety Function of System(s)/Train(s): None.**

**Maintenance Rule Category (check one):**

risk-significant       non risk-significant

**Time condition existed or is assumed to have existed: < 3 days.**

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**CORNERSTONES AND FUNCTIONS DEGRADED AS A RESULT OF DEFICIENCY**

(✓) Check the appropriate boxes

INITIATING EVENTS CORNERSTONE	MITIGATION SYSTEMS CORNERSTONE	BARRIERS CORNERSTONE
<p><input type="checkbox"/> Primary System LOCA initiator contributor - (e.g., RCS leakage from pressurizer heater sleeves, RPV piping penetrations, CRDM nozzles, PORVs, SRVs, ISLOCA issues, etc.)</p> <p><input checked="" type="checkbox"/> Transient initiator contributor (e.g., reactor/turbine trip, loss of offsite power, loss of service water, main steam/feedwater piping degradations, etc.)</p> <p><input type="checkbox"/> Fire initiator contributor (e.g., transient loadings and combustibles, hotwork)</p> <p><input type="checkbox"/> Internal/external flooding initiator contributor</p>	<p><input type="checkbox"/> Core Decay Heat Removal Degraded</p> <p><input type="checkbox"/> Short Term Heat Removal Degraded</p> <p><input type="checkbox"/> Primary (e.g., Safety Inj, [main feedwater, HPCI, and RCIC - BWR only] )              ___ High Pressure              ___ Low Pressure</p> <p><input type="checkbox"/> Secondary - PWR only (e.g. AFW, main feedwater, ADVs)</p> <p><input type="checkbox"/> Long Term Heat Removal Degraded (e.g., ECCS sump recirculation, suppression pool)</p> <p><input type="checkbox"/> Reactivity Control Degraded</p> <p><input type="checkbox"/> Seismic/Fire/Flood/Severe Weather Protection Degraded</p>	<p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Containment Barrier Degraded</p> <p><input type="checkbox"/> Reactor Containment Degraded              ___ Actual Breach or Bypass              ___ Heat Removal, Hydrogen or Pressure Control Degraded</p> <p><input type="checkbox"/> Control Room, Aux Bldg/Reactor Bldg, or Spent Fuel Bldg Barrier Degraded</p> <p><input type="checkbox"/> Fuel Cladding Barrier Degraded</p>

## SDP PHASE 1 SCREENING WORKSHEET FOR IE, MS, and B CORNERSTONES

Check the appropriate boxes ✓

**IF** the finding is assumed to degrade:

1. fire protection defense-in-depth strategies involving: detection, suppression (equipment for both manual and automatic), barriers, fire prevention and administrative controls, and post fire safe shutdown systems, **THEN STOP. Go to IMC 0609, Appendix F.** Issues related to performance of the fire brigade are not included in Appendix F and require NRC management review.
2. steam generator tube integrity, **THEN STOP. Go to IMC 0609, Appendix J.**
3. the safety of an operating reactor, **THEN IDENTIFY** the degraded cornerstone(s):

- Initiating Event
- Mitigation Systems
- RCS Barrier (PTS issues only)
- Fuel Barrier
- Containment Barriers

**IF TWO OR MORE** of the above cornerstones are degraded → **THEN STOP. Go to Phase 2.**

**IF ONLY ONE** of the above cornerstones is degraded, **THEN CONTINUE** in the appropriate column on page 4 of 5 of this worksheet.

NOTE: When assessing the significance of a finding affecting multiple cornerstones, the finding should be assigned to the cornerstone that best reflects the dominant risk of the finding.

Initiating Events Cornerstone	Mitigation Systems Cornerstone	RCS Barrier/ Fuel Barrier Cornerstones	Containment Barriers Cornerstone
<p><u>LOCA Initiators</u></p> <p>1. Assuming worst case degradation, would the finding result in exceeding the Tech Spec limit for identified RCS leakage or could the finding have likely affected other mitigation systems resulting in a total loss of their safety function.</p> <p><input type="checkbox"/> <b>If YES → Stop. Go to Phase 2.</b></p> <p><input type="checkbox"/> If NO, screen as Green.</p> <p><u>Transient Initiators</u></p> <p>1. Does the finding contribute to <u>both</u> the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?</p> <p><input type="checkbox"/> <b>If YES → Stop. Go to Phase 2.</b></p> <p><input checked="" type="checkbox"/> If NO, screen as Green.</p>	<p>1. Is the finding a design or qualification deficiency confirmed <u>not</u> to result in loss of operability per Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functional Assessment"?</p> <p><input type="checkbox"/> <b>If YES, screen as Green.</b></p> <p><input type="checkbox"/> If NO, continue.</p> <p>2. Does the finding represent a loss of safety function?</p> <p><input type="checkbox"/> <b>If YES → Stop. Go to Phase 2</b></p> <p><input type="checkbox"/> If NO, continue.</p> <p>3. Does the finding represent actual loss of safety function of a single Train, for &gt; its Tech Spec Allowed Outage Time?</p> <p><input type="checkbox"/> <b>If YES → Stop. Go to Phase 2.</b></p> <p><input type="checkbox"/> If NO, continue.</p> <p>4. Does the finding represent an actual loss of safety function of one or more non-Tech Spec Trains of equipment designated as risk-significant per 10CFR50.65, for &gt;24 hrs?</p> <p><input type="checkbox"/> <b>If YES → Stop. Go to Phase 2.</b></p> <p><input type="checkbox"/> If NO, continue.</p> <p>5. Does the finding screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event, using the criteria on page 5 of this Worksheet?</p> <p><input type="checkbox"/> <b>If YES → Use the IPEEE or other existing plant-specific analyses to identify core damage scenarios of concern and provide this input for Phase 3 analysis.</b></p> <p><input type="checkbox"/> If NO, screen as Green.</p>	<p>1. <u>RCS Barrier</u> (e.g., pressurized thermal shock issues)</p> <p>Stop. Go to Phase 3.</p> <p>2. <u>Fuel Barrier</u></p> <p>Screen as Green.</p>	<p>1. Does the finding <u>only</u> represent a degradation of the radiological barrier function provided for the control room, or auxiliary building, or spent fuel pool, or SGBT system (BWR)?</p> <p><input type="checkbox"/> <b>If YES → screen as Green.</b></p> <p><input type="checkbox"/> If NO, continue.</p> <p>2. Does the finding represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere?</p> <p><input type="checkbox"/> <b>If YES → Stop. Go to Phase 3.</b></p> <p><input type="checkbox"/> If NO, continue.</p> <p>3. Does the finding represent an actual open pathway in the physical integrity of reactor containment, or involve an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment?</p> <p><input type="checkbox"/> <b>If YES → Stop. Go to Appendix H of IMC 0609.</b></p> <p><input type="checkbox"/> If NO, screen as Green.</p>
<p><u>External Event Initiators</u></p> <p>1. Does the finding increase the likelihood of a fire or internal/external flood?</p> <p><input type="checkbox"/> <b>If YES → Use the IPEEE or other existing plant-specific analyses to identify core damage scenarios of concern and factors that increase the frequency. Provide this input for Phase 3 analysis.</b></p> <p><input type="checkbox"/> If NO, screen as Green.</p>			

**SDP PHASE 1 SCREENING WORKSHEET FOR IE, MS, and B CORNERSTONES**

**Seismic, Flooding, and Severe Weather Screening Criteria**

1. Does the finding involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event (e.g., seismic snubbers, flooding barriers, tornado doors)?
  - If YES** → continue to question 2
  - If NO → skip to question 3
  
2. If the equipment or safety function is assumed to be completely failed or unavailable, are ANY of the following three statements TRUE? The loss of this equipment or function by itself, during the external initiating event it was intended to mitigate
  - a) would cause a plant trip or any of the Initiating Events used by Phase 2 for the plant in question;
  - b) would degrade **two or more** Trains of a multi-train safety system or function;
  - c) would degrade one or more Trains of a system that supports a safety system or function.
  - If YES** → the finding is potentially risk significant due to external initiating event core damage sequences - return to page 4 of this Worksheet
  - If NO, screen as Green
  
3. Does the finding involve the total loss of any safety function, identified by the licensee through a PRA, IPEEE, or similar analysis, that contributes to external event initiated core damage accident sequences (i.e., initiated by a seismic, flooding, or severe weather event)?
  - If YES** → the finding is potentially risk significant due to external initiating event core damage sequences - return to page 4 of this Worksheet
  - If NO, screen as Green

**Result of Phase 1 screening process:**

- Screen as Green**       **Go to Phase 2**       **Go to Phase 3**

Important Assumptions: