ATTACHMENT 0609.04

Phase 1 - Initial Screening and Characterization of Findings

I APPLICABILITY

The Phase 1 screening worksheet for the Significance Determination Process (SDP) described in this Attachment is designed to provide NRC inspectors and management with a framework for use in the initial screening and characterization of potentially risk-significant issues within the seven safety cornerstones. In addition, this process identifies findings of very low risk significance that do not warrant further NRC engagement, as long as the findings are entered into the licensee's corrective action program.

II ENTRY CONDITIONS

Each issue entering the SDP process, regardless of the cornerstone under which it is identified, must first be screened to determine its documentation threshold using Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening", and, as applicable, Appendix E, "Examples of Minor Findings." Issues screened as minor are not subjected to SDP Phase 1 screening.

III PHASE 1 SDP OVERVIEW

Phase 1 screening is used to characterize the important attributes of the inspection finding and to initially screen the finding to identify those with very low-significance (Green), which can be dispositioned by the licensee's corrective action program. Findings that are not initially screened as Green are evaluated using the appropriate SDP Appendix of IMC 0609. The SDP Appendices are tools that were developed to risk-inform and characterize the safety significance of findings associated with the seven cornerstones. These SDP tools either use a combination of quantitative and qualitative risk methods or were risk-informed processes developed by an expert panel consisting of staff and industry representatives. The SDP Appendices that are risk-informed processes developed by an expert panel include emergency preparedness, occupational and public radiation safety, and security. The plant-specific reactor safety SDP tools that use quantitative risk methods include at-power operations, fire protection, shutdown operations, containment integrity, operator requalification, steam generator tube integrity, and maintenance effectiveness.

Issues that screen greater than minor in Appendix B of IMC 0612 are then characterized for risk-significance using the Phase 1 screening worksheets described in this Attachment. An issue must have a performance deficiency to be an inspection finding assessed in the SDP process. Table 1 and Table 2 are applicable for all cornerstones and all plant types, and help the inspection staff to define the performance deficiency and the cornerstone affected as a result of the deficiency. If the finding impacts the Emergency Preparedness, Occupational or Public Radiation, or Security Cornerstones, then Table 3a will refer the inspector to the appropriate Appendix of IMC 0609 to assess and characterize the findings significance. If the finding impacts the Initiating Events, Mitigation Systems, or Barrier Integrity Cornerstone, then Table 3b will refer the inspector to the appropriate SDP

Appendix or will direct the inspector to the decision logic found in Table 4a to determine if the issue can be characterized as Green. For situations where existing SDP guidance is not adequate to provide reasonable estimates of the significance of inspection findings within the established SDP timeliness goal of 90 days, use Appendix M, "Significance Determination Process Using Qualitative Attributes."

Phase 1 is intended to be accomplished by the inspection staff, with the assistance of a Senior Reactor Analyst (SRA), if needed. Inspectors should collect information needed for determining the significance of the finding, such as the structure, system, or component affected, the nature of the degradation, and the duration of the degraded condition. Inspectors should obtain licensee risk perspectives as early in the SDP process as a licensee is prepared to offer them, and use the SDP framework to the extent possible to evaluate the adequacy of the licensee's input and assumptions.

The SDP for three of the seven safety cornerstones (reactor specific) uses a graduated three-phase process to differentiate performance deficiencies or inspection findings on the basis of their potential risk significance resulting in core damage frequency (ΔCDF). Each performance deficiency is evaluated to determine its risk significance and formulate an input to the assessment process. Performance deficiencies in a risk range of greater than 10^{-6} ΔCDF are evaluated as "significant" and are assigned the color White (10^{-6} to 10^{-5}), Yellow (10^{-5} to 10^{-4}), or Red (>10^{-4}) for assessment purposes. Performance deficiencies evaluated at less than 10^{-6} ΔCDF are not be considered significant and are assigned the color Green. Within the remaining four cornerstones (occupational radiation safety, public radiation safety, physical protection, and emergency preparedness), performance deficiencies are analyzed to categorize the significance of findings using a set process.

END

Exhibit 1 - User Guidance for Phase 1 - Initial Screening and Characterization of Findings

EXHIBIT 1

User Guidance for
Phase 1 - Initial Screening and Characterization of Findings

Step 1.1: Screen and characterize the inspection finding and describe the assumed impact.

(1) Record the performance deficiency and factually describe known observations associated with the deficiency in Table 1 - SDP Phase 1 Screening Worksheet for All Cornerstones. If Table 1 is used to document a security performance deficiency and the factual description of condition, the table will have to be properly labeled as Safeguards or Official Use Only - Security Related Information.

(2) Describe the known or assumed impact on affected plant program or safety function (e.g., high/low pressure injection, containment heat removal, power conversion system, etc). Note that for the Initiating Event, Mitagating Systems, and Barrier cornerstones, the safety functions affected must be those identified in the Site Specific Risk-Informed Inspection Notebooks, when applicable. Explain why the issue is not minor. Do not include hypothetical conditions (e.g., single failure criteria) or speculate on the "worst case" potential degradation as an input to an official SDP result. However, a bounding determination of significance may be made by assuming a worst-case condition. For example, assume complete loss of function, even if unsupported by the facts known at that time. However, if a bounding determination results in a White, Yellow, or Red characterization, greater factual detail will be necessary to complete the official SDP.

> CAUTION: The SDP is used to estimate the increase in CDF due only to deficient licensee performance. Therefore, the SDP evaluation should not include equipment unavailability due to planned maintenance and testing. The impact of this equipment not being available for mitigation purposes is included in the baseline CDF for each plant.

(3) Use Table 2 to determine the cornerstone and functions degraded as a result of the performance deficiency. If the finding affects multiple reactor cornerstones (initiating events, mitigating systems, and barrier integrity), the finding should be assigned to the cornerstone that best reflects the dominant risk of the finding.

(4) Table 3a and Table 3b identifies the appropriate appendix of IMC 0609 to use based on the cornerstone identified in Table 2.

Step 1.2: Perform an initial screening of the inspection finding.

(1) Use the decision logic in Table 4a and Table 4b of the Characterization Worksheet to determine if the issue can be characterized as Green. Note that the examples provided in the worksheet are not all inclusive.

(2) If the finding screens as Green, then document in accordance with IMC 0612.

(3) If the finding screens as other than Green, perform a Phase 2 analysis.

Table 1- SDP PHASE 1 SCREENING WORKSHEET FOR ALL CORNERSTONES
Reference/Title (LER #, Inspection Report #, etc):
Performance Deficiency (concise statement clearly stating deficient licensee performance):
Factual Description of Condition (statement of facts known about the condition that resulted from the performance deficiency, without hypothetical failures included.) Explain why issue is more than minor:
System(s)/Train(s) Degraded by Condition or Programmatic Weakness (note that the safety functions affected must be those identified in the Site Specific Risk-Informed Inspection Notebooks):
Licensing Basis Function of System(s)/Train(s) or Program:
Other Safety Function of System(s)/Train(s):
Maintenance Rule Category (check one): ____ risk-significant ____ non risk-significant
Time condition existed or is assumed to have existed:

Table 2 - CORNERSTONES AND FUNCTIONS DEGRADED AS A RESULT OF DEFICIENCY
(✔) Check the appropriate boxes

INITIATING EVENTS CORNERSTONE	MITIGATION SYSTEMS CORNERSTONE	BARRIERS CORNERSTONE
❒ Primary System LOCA initiator contributor - (e.g., RCS leakage from pressurizer heater sleeves, RPV piping penetrations, CRDM nozzles, PORVs, SRVs, ISLOCA issues, etc.) ❒ Transient initiator contributor (e.g., reactor/turbine trip, loss of offsite power, loss of service water, main steam/feedwater piping degradations, etc.) ❒ Fire initiator contributor (e.g., transient loadings and combustibles, hotwork) ❒ Internal/external flooding initiator contributor	❒ Core Decay Heat Removal Degraded ❒ Short Term Heat Removal Degraded ❒ Primary (e.g., Safety Inj, [main feedwater, HPCI, and RCIC - BWR only]) ____ High Pressure ____ Low Pressure ❒ Secondary - PWR only (e.g. AFW, main feedwater, ADVs) ❒ Long Term Heat Removal Degraded (e.g., ECCS sump recirculation, suppression pool) ❒ Reactivity Control Degraded ❒ Seismic/Fire/Flood/Severe Weather Protection Degraded	❒ 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. ❒ Containment Barrier Degraded ❒ Reactor Containment Degraded ___ Actual Breach or Bypass ___ Heat Removal, Hydrogen or Pressure Control Degraded ❒ Control Room, Aux Bldg/Reactor Bldg, or Spent Fuel Bldg Barrier Degraded ❒ Fuel Cladding Barrier Degraded ❒ Spent Fuel Pool ❒ Spent Fuel Pool Boiling ❒ Fuel Handling ❒ Spent Fuel Pool Inventory
EMERGENCY PREPAREDNESS CORNERSTONE	**OCCUPATION 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 3a - SDP PHASE 1 SCREENING WORKSHEET FOR EMERGENCY PREPAREDNESS, OCCUPATIONAL & PUBLIC RADIATION, AND SECURITY CORNERSTONES

IF the finding is in the licensee's:

1. emergency preparedness area, **THEN STOP. Go to** IMC 0609, Appendix B.

2. occupational radiation safety area, **THEN STOP. Go to** IMC 0609, Appendix C.

3. public radiation safety area, **THEN STOP. Go to** IMC 0609, Appendix D.

4. security area, **THEN STOP. Go to** IMC 0609, Appendix E.

Table 3b - SDP PHASE 1 SCREENING WORKSHEET FOR INITIATING EVENTS, MITIGATION SYSTEMS, AND BARRIERS CORNERSTONES

IF the finding affects:

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 using Appendix M.

2. the safety of a reactor during refueling outages, forced outages, and maintenance outages starting when the licensee has met the entry conditions for RHR and RHR cooling has been initiated, **THEN STOP. Go to** IMC 0609, Appendix G.

3. the operator licensing requalification program or simulator fidelity, **THEN STOP. Go to** IMC 0609, Appendix I.

4. steam generator tube integrity, **THEN STOP. Go to** IMC 0609, Appendix J.

5. the licensee's assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions in accordance with Baseline Inspection Procedure (IP) 71111.13, "Maintenance Risk Assessment and Emergent Work Control," **THEN STOP. Go to** IMC 0609, Appendix K.

6. SSCs where existing SDP guidance is not adequate to provide reasonable estimates of the findings significance within the established SDP timeliness goal of 90 days, **THEN STOP. Go to** IMC 0609, Appendix M.

7. the safety of an operating reactor, **THEN IDENTIFY** the degraded cornerstone(s):

   - □ Initiating Event
   - □ Mitigation Systems
   - □ RCS Barrier (e.g., PTS issues)
   - □ Fuel Barrier
   - □ Containment Barriers

CONTINUE to the appropriate column in Table 4a - Characterization 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.

Table 4a - CHARACTERIZATION WORKSHEET FOR IE, MS, and BI CORNERSTONES

Initiating Events Cornerstone	Mitigation Systems Cornerstone	RCS or Fuel Barrier	Containment Barrier
LOCA Initiators 1. Assuming worst case degradation, would the finding result in exceeding the Tech Spec limit for any RCS leakage or could the finding have likely affected other mitigation systems resulting in a total loss of their safety function. □ **If YES ➛Stop. Go to Appendix A.** □ If NO, screen as Green. Transient Initiators 1. Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available? □ **If YES➛Stop. Go to Appendix A.** □ If NO, screen as Green. External Event Initiators 1. Does the finding increase the likelihood of a fire or internal/external flood? □ **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. □ If NO, screen as Green.	1. Is the finding a design or qualification deficiency confirmed not to result in loss of operability or functionality.[1] □ **If YES, screen as Green.** □ If NO, continue. 2. Does the finding represent a loss of system safety function? □ **If YES ➛Stop. Go to Appendix A.** □ If NO, continue. 3. Does the finding represent actual loss of safety function of a single Train, for > its Tech Spec Allowed Outage Time? □ **If YES ➛ Stop. Go to Appendix A.** □ If NO, continue. 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 >24 hrs? □ **If YES ➛ Stop. Go to Appendix A.** □ If NO, continue. 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? □ **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. □ If NO, screen as Green.	RCS Barrier (e.g., pressurized thermal shock issues) □ **Stop. Go to Phase 3**. Fuel Barrier □ Stop. Screen as Green. Spent Fuel Pool Issues 1. Does the finding result in loss of cooling to the spent fuel pool, whereby operator or equipment failures could preclude restoration of cooling prior to pool boiling? □ **If YES** ➛ Stop. Go to **Appendix M**. □ If NO, continue. 2. Does the finding result from fuel handling errors that caused damage to fuel clad integrity or a dropped assembly (includes ISFSI)? □ **If YES** ➛ Stop. Go to **Appendix M**. □ If NO, continue. 3. Does the finding result in a loss of spent fuel pool inventory greater than 10% of SFP volume? □ **If YES** ➛ Stop. Go to **Appendix A**. □ If NO, screen as Green.	1. Does the finding only represent a degradation of the radiological barrier function provided for the control room, or auxiliary building, or spent fuel pool, or SBGT system (BWR)? □ **If YES** ➛ screen as Green. □ If NO, continue. 2. Does the finding represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere? □ **If YES ➛ Stop. Go to Phase 3.** □ If NO, continue. 3. Does the finding represent an actual open pathway in the physical integrity of reactor containment (valves, airlocks, containment isolation system (logic and instrumentation), and heat removal components? □ **If YES ➛ Stop. Go to Appendix H.** □ If NO, continue. 4. Does the finding involve an actual reduction in function of hydrogen ignitors in the reactor containment? □ **If YES ➛ Stop. Go to Appendix H.** □ If NO, screen as Green.

[1] per "Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment."

Table 4b - CHARACTERIZATION WORKSHEET FOR IE, MS, and BI 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 Table 4a - Characterization 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 Table 4a - Characterization 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:

Performed by: _____ Date: _____

ATTACHMENT 1
Revision History - MC 0609.04

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	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 - At Power.	NO	N/A	ML073460588