

APPENDIX M

SIGNIFICANCE DETERMINATION PROCESS USING QUALITATIVE CRITERIA

1.0 SCOPE

This Appendix provides guidance to the NRC management and inspection staff for assessing significance of inspection findings when the probabilistic risk assessment (PRA) methods and tools, including other significance determination process (SDP) guidance is not adequate to provide reasonable estimates of the significance of inspection findings within the established SDP timeliness goal of 90 days or less.

2.0 BASIS

A relatively small number of inspection findings have challenged the staff in making timely assessments. In some cases, the safety significance of such findings was ultimately determined using qualitative engineering judgement and regulatory oversight experience, which is acceptable in a risk-informed process. In other cases, the significance evaluation of the findings attempted to determine significance using PRA tools that were not well suited for the specific application. In some instances, the uncertainties associated with the outcome using an existing SDP were too broad for decision-making. Thus, the evaluation process took significantly more time than was warranted. This Appendix provides guidance to allow the NRC to apply a consistent process using qualitative and quantitative attributes for risk-informed management decision making.

3.0 APPLICABILITY

In all cases, a clear and well understood licensee performance deficiency must be established. The issue must also be evaluated as having greater than minor significance using criteria in Inspection Manual Chapter (IMC) 0612, Appendix B and Appendix E. The guidance in this Appendix should be applied when SDP methods and tools are not available or are not adequate to determine the significance of the finding within the established SDP timeliness goal of 90 days.

The use of this qualitative review process may be identified by inspectors and/or senior reactor analysts (SRAs) and concurred upon by their immediate regional management. If the performance deficiency has potentially significant safety implications that could result in a significant regulatory action such as an order, or Red finding, the NRC staff should review of the applicability of the decision-making process contained in NRR Office Instruction LIC-504, "Integrated Risk-Informed Decision Making Process for Emergent Issues," to assist in determining the safety significance. (Reference: ADAMS accession number ML052060376).

4.0 EVALUATION PROCESS

4.1 Initial Screening by Inspectors and/or SRAs

- 4.1.1 Each issue must first be screened using IMC 0612, Appendix B, "Issue Screening," and Appendix E, "Examples of Minor Findings." Issues screened as minor are not subject to further evaluation by this Appendix.
- 4.1.2 A bounding quantitative and/or qualitative evaluation (i.e., worst case analysis) should be initially performed, if feasible, using best available information to determine the significance of the issue. If the bounding evaluation shows that the finding is of very low safety significance, the finding is Green and it can be documented in accordance with Step 4.3, below.
- 4.1.3 If the bounding evaluation indicates that the finding is potentially greater than Green, then proceed to Step 4.2.

4.2 Attributes

- 4.2.1 For potentially greater than Green findings, evaluate the following attributes to determine the significance of the finding. Consider only attributes which relate directly to the significance of the performance deficiency and document the basis for the consideration.
 - 4.2.1.1 The effectiveness of one or more Defense-in-Depth elements impacted.
 - 4.2.1.2 A reduction in Safety Margin can be quantified.
 - 4.2.1.3 The extent to which the condition of the performance deficiency affects other equipment (e.g., downstream equipment affected; identical or similar equipment affected).
 - 4.2.1.4 Degree of degradation of failed or unavailable components (assess in terms of functionality, if mission time can be met).
 - 4.2.1.5 Period of time the performance deficiency existed (exposure time); and if opportunity to identify the finding during such period was missed (operating experience, licensee's programs such as surveillance testing).
 - 4.2.1.6 The likelihood that the licensee's recovery actions would successfully mitigate the performance deficiency.

4.3 Process and Documentation

- 4.3.1 The decision-making logic should be documented using Table 4.1, "Qualitative Decision-Making Attributes for NRC Management

Review,” and should be included in the Significance and Enforcement Review Panel (SERP) package as described in IMC 0609, Attachment 01, “Significance and Enforcement Review Panel.”

- 4.3.2 For Green findings, document the quantitative or qualitative method used including the results in the inspection report.

END

**TABLE 4.1
Qualitative Decision-Making Attributes for NRC Management Review**

Decision Attribute	Applicable to Decision?	Basis for Input to Decision - Provide qualitative and/or quantitative information for management review and decision making.
Finding can be bounded using qualitative and/or quantitative information?		
Defense-in-Depth affected?		
Performance Deficiency effect on the Safety Margin maintained?		
The extent the performance deficiency affects other equipment.		
Degree of degradation of failed or unavailable component(s)		
Period of time (exposure time) affect on the performance deficiency.		
The likelihood that the licensee's recovery actions would successfully mitigate the performance deficiency.		
Additional qualitative circumstances associated with the finding that regional management should consider in the evaluation process.		

Result of management review (COLOR): _____

Revision History For
IMC 0609 Appendix M

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	12/22/06 CN 06-036	This new document has been issued to provide guidance to NRC management and inspection staff for assessing significance of inspection findings.	This procedure was developed by involved stakeholders. No training on the procedure recommended at this time. However, additional guidance may be developed based on experience gained.	N/A	ML063050646