Resolution of Revised NRC Staff Comment #6 on
NEI 99-01, Revision 7, Draft G

The revised NRC staff comment:

> The currently endorsed NEI 99-01, Revision 6, included a threshold value for a loss of the fuel clad barrier that is based on containment radiation monitor readings reaching a value indicative of fuel clad damage. These readings are independent of system readings that operators would use in the performance of response procedures. To provide scheme diversity for the assessment of the fuel clad barrier, please provide a threshold value for fuel clad barrier loss that is does not rely on the solely on the operators appropriately implementing severe accident procedures or monitoring a specific indication such as core exit temperature. If possible, this threshold value should use existing methods of determining that fuel cladding damage has occurred.

In response to this comment, the NEI EAL task force added a new Fuel Clad Loss threshold to both the BWR and PWR FPB Matrices. The new threshold is shown below.

> **Threshold**: A core damage assessment indicates FUEL CLAD DAMAGE.
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> **Basis**:
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> This threshold addresses conditions or events that result in indications of FUEL CLAD DAMAGE, as determined by a core damage assessment. It is expected that this threshold would be met after another Fuel Clad Loss threshold is met; however, it is included for indication diversity. The 15-minute emergency classification period begins when a plant operator (i.e., an individual qualified to make an emergency classification and declaration) receives the results of a core damage assessment indicating FUEL CLAD DAMAGE.
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> **Developer Notes:**
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> When implementing this threshold, it is intended that a site use the existing core damage assessment process/methodology to assess it; there is no expectation to revise a current process/methodology. Depending on site-specific capabilities, a core damage assessment process/methodology may have a sample analysis component. Sites employing a sample analysis method should add this sentence (or similar wording) to the Basis: "The collection and analysis of a reactor coolant sample with highly elevated radioactivity levels could require many hours to complete; however, the sample analysis results should be considered if and when available."
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> As an alternative to the above, a site may use the following threshold:
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> Primary containment radiation monitor reading greater than (site-specific value).
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> The site-specific value should be determined assuming a) an RCS radioactivity concentration equal to that associated with the failure of 2% of the fuel cladding (and NOT 2% fuel failure), and b) the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory into the primary containment atmosphere. Alternatively, a site may specify a threshold value derived from an RCS radioactivity concentration corresponding to 300 μCi/gm dose equivalent I-131. Regardless of which basis is used, 2% fuel clad damage or

300 μCi/gm dose equivalent I-131, the developer will need to modify the basis section above to describe how the threshold was determined.

To support the addition of the above threshold, the following defined term was added to Appendix B, Definitions:

FUEL CLAD DAMAGE: Damage to the cladding of fuel rods that is well beyond failures associated with normal operations (e.g., from manufacturing defects, foreign material intrusion, or flow-induced vibrations). Such damage would typically arise from fuel overheating or extensive debris impingement from the catastrophic failure of a component.