

**NEI 99-02 FAQ 16-01 (Final)  
Cook PRA Error Affecting MSPI**

**Plant:** D. C. Cook  
**Date of Event:** 03/06/2014  
**Submittal Date:** 12/23/2015  
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**Performance Indicator:**

1. Mitigating System Performance Index (Emergency AC Power Systems) (MS06)
2. Mitigating System Performance Index (High Pressure Injection Systems) (MS07)
3. Mitigating System Performance Index (Heat Removal Systems) (MS08)
4. Mitigating System Performance Index (Residual Heat Removal Systems) (MS09)
5. Mitigating System Performance Index (Cooling Water Systems) (MS10)

**Site-Specific FAQ (Appendix D)?** No [This is generic]

**FAQ requested to become effective:** When approved

## **Question Section**

**NEI 99-02, Rev. 7 Guidance needing interpretation (include page and line citation):**

*Page number and line citations are from the copy of NEI 99-02, Revision 7 posted on the ROP Program Document page of the NRC website.*

- Section 1 Introduction, page 3 lines 20-22, “Guidance for Correcting Previously Submitted Performance Indicator Data”
- Section 2.2 Mitigating Systems Cornerstone, page 36 lines 7-13, “Plant-specific PRA”
- Section 2.2 Mitigating Systems Cornerstone, page 37 lines 5-13, “PRA Model Revisions”
- Appendix G, Section G2. PRA Requirements, pages G4-G5

**Event or circumstances requiring guidance interpretation:**

In March 2014, an error was discovered in the DC Cook PRA model related to test and maintenance values. The error was introduced into the model in 2008 and had a non-conservative impact on the MSPI coefficients. Upon discovery, the error was entered into the corrective action process to track resolution during the next PRA model update. No additional notification/briefing on the PRA error was provided to the Resident Inspectors and no comments were included in the INPO Consolidated Data Entry (CDE) software with the quarterly MSPI submittal at the time of discovery. The updated PRA model of record was approved in June 2015 and the MSPI basis document and coefficients were revised to support MSPI submittal for the third quarter 2015. Previously submitted indicator values were not revised.

DC Cook’s understanding is that the MSPI guidance contained in NEI 99-02 requires the indicators be reported based on the approved PRA model of record that was in effect at the beginning of the reporting quarter and PRA parameters are not to be changed until the quarter following approval of a revision to the PRA model of record. The “Clarifying Notes” for PRA Model Revisions under Mitigating System Performance Index description beginning on page 36 provide the basis for this interpretation. DC Cook also understands that the “Guidance for Correcting Previously Submitted Performance Indicator Data” on page 3 does not require previously submitted data to be reconsidered based on corrections/changes to the PRA model. This section provides the process for amending indicator data for data errors and newly identified faulted conditions through the “change report” feature of CDE and states “(PRA) model changes are the exception to this guidance” with a reference to the “Clarifying Notes” on pages 36-39.

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Previously, the guidance in the “Clarifying Notes” for PRA Model Revisions contained a definition of PRA model change that stated “Any PRA model changes will take effect the following quarter (model changes include error, corrections, updates, etc.)” This statement was removed based on FAQ 477, but the FAQ question and response do not appear to change the intended definition of a PRA model change as it relates to errors.

The Resident Inspectors have indicated that they may not agree with the interpretation that the “Guidance for Correcting Previously Submitted Performance Indicator Data” provides exception from correcting previously submitted indicator values for PRA model errors since the section uses the term PRA model changes and not PRA model errors. They have also questioned how the guidance for Plant-specific PRA on page 36 lines 7 through 13 applies to PRA Model errors. This guidance states:

*7 Specific requirements appropriate for this PRA application are defined in Appendix G. Any  
8 questions related to the interpretation of these requirements, the use of alternate methods to meet  
9 the requirements or the conformance of a plant-specific PRA to these requirements will  
10 be arbitrated by an Industry/NRC expert panel. If the panel determines that a plant-  
11 specific PRA does not meet the requirements of Appendix G such that the MSPI would be  
12 adversely affected, an appropriate remedy will be determined by the licensee and approved by  
13 the panel. The decisions of this panel will be binding.*

The Inspectors have stated it is unclear whether this guidance is used only when changes are made to the PRA model to establish technical adequacy or if it requires licensees to re-evaluate technical adequacy and make changes to MSPI coefficients when model errors are identified based on the thresholds listed for F&O impacts in Appendix G.

DC Cook documents the basis for PRA model technical adequacy to support MSPI as specified in Appendix G Section G 2 in the MSPI Basis Document. The identified PRA model error did not cause the station to question the overall technical adequacy of the PRA model to support the MSPI application. In response to a question from the Resident Inspectors, a review of the impact of the error on the previous MSPI coefficients was performed. This review indicated that some Birnbaum values would have changed by more than a factor of 3, but all MSPI values would have remained within the Green band.

**If licensee and NRC resident/region do not agree on the facts and circumstances explain:**

DC Cook and the NRC Resident Inspectors agree on the facts and circumstances related to this FAQ.

The Resident Inspectors would like to emphasize that the guidance in NEI 99-02 cannot supersede the requirements of federal regulations, specifically 10CFR50.9 in this case.

**Potentially relevant existing FAQ numbers:** FAQ 14-01 (MSPI PRA Technical Adequacy), FAQ 434 (LaSalle PRA model error)

## **Response Section**

### **Proposed Resolution of FAQ**

1. Re-incorporate the definition of PRA model changes to include errors, corrections, updates, etc that were removed from NEI 99-02 under FAQ 477.

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2. Clarify whether identification of a PRA model error requires the conformance of a plant-specific PRA model to be considered against the requirements of Appendix G, the threshold at which such errors would require changes be made to MSPI parameters, and when an Industry/NRC expert panel should be convened to determine if identified PRA model errors affect conformance to the requirements of Appendix G.

**If appropriate, provide proposed rewording of guidance for inclusion in next revision:**

1. Return the following statement to the “Clarifying Notes” for PRA Model Revisions:  
“Any PRA model changes will take effect the following quarter (model changes include error, corrections, updates, etc.)”
2. No proposed rewording is being provided for the second bullet as this requires the current guidance to be interpreted. Any necessary clarification would be left to the ROP Task Force/NRC if determined appropriate.

**PRA update required to implement this FAQ? No**

**MSPI Basis Document update required to implement this FAQ? No**

**NRC Response**

The staff reviewed the proposed resolutions and compared it to the new revision of Appendix G approved by FAQ 14-01. Proposed resolutions:

1. Re-incorporate the definition of PRA model changes to include errors, corrections, updates, etc. that were removed from NEI 99-02 under FAQ 477.
2. Clarify whether identification of a PRA model error requires the conformance of a plant-specific PRA model to be considered against the requirements of Appendix G, the threshold at which such errors would require changes be made to MSPI parameters, and when an Industry/NRC expert panel should be convened to determine if identified PRA model errors affect conformance to the requirements of Appendix G.

Section G 2.1.2 of the new Appendix G states:

- a) *Pending model changes to be considered for MSPI are those related to implemented plant design and operational changes, identified errors in the PRA model, and F&Os characterized as findings related to those supporting requirements identified in Table G 5. NEI 05-04 defines a finding as an observation (an issue or discrepancy) that is necessary to address to ensure: 1) the technical adequacy of the PRA (relative to a Capability Category), 2) the capability/robustness of the PRA update process, or 3) the process for evaluating the necessary capability of the PRA technical elements (to support applications). Note that F&Os characterized as findings related to model changes required to meet Capability Category II are not considered pending model changes for MSPI if Table G 5 indicates that Capability Category I is sufficient.*

Section G 2.1.3 of the new Appendix G states:

*If an evaluation of the cumulative impact of proposed resolutions for the pending model changes results*

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*in greater than or equal to a predicted factor of three change 1 in the corrected Birnbaum value of an MSPI monitored train or component, the MSPI basis document should be updated to include revised CDE inputs the quarter following identification of the increased impact. The use of supplemental analysis to estimate the revised MSPI inputs is allowed until the site PRA of record is revised. This may be the analysis used to determine the need for the change or a more refined model.*

The Industry/NRC expert panel referenced in the previous version of Appendix G has been superseded, now licensees are expected to adhere to the characteristics and attributes of a PRA Configuration Control program are described in ASME/ANS Standard Section 1-5.

The staff acknowledged the resident's concern that while it did not occur in this case, a performance deficiency on the part of the licensee could result in the failure to report a PI within the appropriate threshold with no allowance for it to be corrected. Specifically, the guidance states that corrected PRA errors do not require licensees to go back and update previously reported MSPI data, even if it would cause the licensee to have crossed a threshold. Rather than address this issue through revisions to the reporting guidance and complicating the process, the staff believes that this would be a rare circumstance that is best addressed on a case by case basis. Inspection governance documents will be updated to include guidance if inspectors discover a PI reported within the wrong threshold, but no clear process for correction exists within NEI 99-02, consultation with the Division of Inspection and Regional Support should be made to determine if an ROP deviation or other action is required to ensure the appropriate placement of the licensee within the Action Matrix.

The staff concludes that FAQ 14-01 addresses the concerns raised by this FAQ, however due to the implementation time period, the licensee was not required to adhere to the new requirements until after their next PRA update. Corrective actions have been implemented for this situation going forward. As such, no revision to NEI 99-02 or licensee action is required for this FAQ.

To avoid confusion, NEI 99-02 page 37 line 1 shall be changed from:

Changes to the site PRA of record, the site basis document, and the CDE database should be made in accordance with the following:

To:

Changes to the site PRA of record (including errors and other types of changes as discussed in Appendix G as revised by FAQ 14-01), the site basis document, and the CDE database should be made in accordance with the following:

*Revision History*  
*Reformatted 1/6/2016, J. Slider, NEI*  
*Revised per ROPTF feedback 1/13/2016, AEP*  
*Draft NRC answer provided 3/18/2016, Z. Hollcraft, NRC*  
*Editorial change above offered 4/12/2016, J. Slider, NEI*