

## NRR-PMDAPEm Resource

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**From:** George, Andrea  
**Sent:** Friday, May 08, 2015 8:58 AM  
**To:** 'BICE, DAVID B (ANO)'  
**Cc:** Miller, Barry  
**Subject:** Corrections to ANO-1 NFPA 805 Requests for Additional Information - TAC NO MF3419  
**Attachments:** ANO-1 Corrected RAI response table.docx

Good morning,

Due to numbering/formatting changes after the onsite audit was complete, errors were introduced into the RAI response timeline table, as well as the introduction to PRA RAI 3. The corrected RAI response timeline table is attached, and it wholly supercedes Enclosure 2 to the NRC's letter dated May 5, 2015 (ADAMS Accession No. ML15091A431).

Additionally, regarding the introduction to PRA RAI 3, the following language is correct, and does not change any of the PRA RAI 3 requests for information that follow:

### **PRA RAI 03 – Integrated Analysis**

Section 2.4.4.1 of NFPA-805 states that the change in public health risk arising from transition from the current fire protection program to an NFPA-805 based program, and all future plant changes to the program, shall be acceptable to the NRC. RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 2, dated May 2011 (ADAMS Accession No. ML100910006), provides quantitative guidelines on CDF and LERF, and identifies acceptable changes to these frequencies that result from proposed changes to the plant's licensing basis and describes a general framework to determine the acceptability of risk-informed changes. The NRC staff review of the information in the LAR has identified additional information that is required to fully characterize the risk estimates.

The PRA methods currently under review in the LAR include:

- PRA RAI 1.a regarding spatial separation
- PRA RAI 1.b regarding fire barriers
- PRA RAI 1.c regarding fire propagation from electrical cabinets
- PRA RAI 1.e regarding circuit failure likelihood analysis
- PRA RAI 1.g regarding modeling new fire Human Error Events
- PRA RAI 1.h regarding state of knowledge correlation (SOKC)
- PRA RAI 2.a regarding impact of phenomenological conditions
- PRA RAI 2.d regarding counting operational demands
- PRA RAI 2.e regarding counting failures
- PRA RAI 4 regarding reduced transient HRRs
- PRA RAI 5 regarding treatment of sensitive electronics
- PRA RAI 7 regarding propagation of fire from >440 V electrical cabinets
- PRA RAI 8 regarding use of the transient frequency adjustment factors
- PRA RAI 9 regarding fire propagation in the MCR
- PRA RAI 11 regarding crediting MCR abandonment
- PRA RAI 12 regarding multiple versus single cables
- PRA RAI 14 regarding large reduction credit for modifications
- FM RAI 1.k regarding evaluation of MCR abandonment times

If you have any questions, please let me know.

Thank you,

Andrea George  
Project Manager  
Division of Operating Reactor Licensing  
U.S. Nuclear Regulatory Commission  
301-415-1081

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**From:** George, Andrea

**Created By:** Andrea.George@nrc.gov

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"Miller, Barry" <Barry.Miller@nrc.gov>  
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### **PRA RAI 03—Integrated Analysis**

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- ~~PRA RAI 1.j regarding modeling new fire Human Error Events~~
- ~~PRA RAI 1.k regarding state of knowledge correlation (SOKC)~~
- ~~PRA RAI 2.a regarding impact of phenomenological conditions~~
- ~~PRA RAI 2.d regarding counting operational demands~~
- ~~PRA RAI 2.e regarding counting failures~~
- ~~PRA RAI 4 regarding reduced transient HRRs~~
- ~~PRA RAI 5 regarding treatment of sensitive electronics~~
- ~~PRA RAI 7 regarding propagation of fire from >440 V electrical cabinets~~
- ~~PRA RAI 8 regarding use of the transient frequency adjustment factors~~
- ~~PRA RAI 9 regarding fire propagation in the MCR~~
- ~~PRA RAI 11 regarding crediting MCR abandonment~~
- ~~PRA RAI 12 regarding multiple versus single cables~~
- ~~PRA RAI 14 regarding large reduction credit for modifications~~
- ~~FM RAI 1.k regarding evaluation of MCR abandonment times~~

Please provide the following information:

- a) ~~Results of an aggregate analysis that provides the integrated impact on the fire risk (i.e., the total transition CDF, LERF,  $\Delta$ CDF,  $\Delta$ LERF) of replacing specific methods identified above with alternative methods which are acceptable to the NRC. In this aggregate analysis, for those cases where the individual issues have a synergistic impact on the results, a simultaneous analysis must be performed. For those cases where no synergy exists, a one-at-a-time analysis may be done. For those cases that have a negligible impact, a qualitative evaluation may be done. It should be noted that this list may expand depending on NRC's review of the responses to other RAIs in this document.~~
- b) ~~For each method (i.e., each bullet) above, please explain how the issue will be addressed in 1) the final aggregate analysis results provided in support of the LAR, and 2) the PRA that will be used at the beginning of the self-approval of post-transition changes. In addition, provide a method to ensure that all changes will be made, that a focused scope peer review will be performed on changes~~

that are PRA upgrades as defined in the PRA standard, and that any findings will be resolved before self-approval of post-transition changes.

- c) In the response, explain how the RG 1.205 risk acceptance guidelines are satisfied for the aggregate analysis. If applicable, include a description of any new modifications or operator actions being credited to reduce delta risk as well as a discussion of the associated impacts to the fire protection program.
- d) If any unacceptable methods or weaknesses will be retained in the PRA that will be used to estimate the change in risk of post-transition changes to support self-approval, explain how the quantification results for each future change will account for the use of these unacceptable methods or weaknesses.

### Timetable for Request for Additional Information Response

Request for Additional Information	Response Date
FPE 02, 03, 05, 08 SSA 01, 03, 04, 05 RR 01	05/26/2015 (*30 days)
FPE 01, 04, 06 SSA 02, 06, 08 FM 05 PRA 01.a, .b, <u>.c.</u> , <u>d.</u> , <u>f.</u> , <u>g.</u> , <u>h.</u> , <u>ij.</u> , <u>k.</u> , <u>l.</u> , 02.b, 04, 06, 12, 14	06/22/2015 (*60 days)
FPE07 SSA 07, 09, 10 FM 01, 02, 03, 04, 06 PRA 01. <u>e.</u> , <u>fh.</u> , <u>i.</u> , 02.a, .c, .d, .e, 05, 07, 08, 09, 16	07/22/2015 (*90 days)
SSA 11 PRA 03**, 10, 11, 13, 15, 17**, 18	08/21/2015 (*120 days)

\*From conclusion of audit on April 23, 2015

\*\*Final risk quantification information will be provided after the approaches outlined in all RAI responses that impact final risk quantification are acceptable to the NRC.

Abbreviation Key:

FPE - Fire Protection Engineering

SSA- Safe Shutdown Analysis

FM - Fire Modeling

PRA - Probabilistic Risk Assessment

RR - Radioactive Release