

## NRR-PMDAPEm Resource

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**From:** Wilkins, Lynnea  
**Sent:** Friday, November 15, 2013 3:56 PM  
**To:** HANSHER, BILL R (bhansher@oppd.com)  
**Cc:** Sebrosky, Joseph; EDWARDS, MICHAEL L (medwards@oppd.com); Burkhardt, Janet  
**Subject:** Fort Calhoun Station RAIs Re: NFPA-805 (ME7244)

Bill,

By letter dated September 28, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML112760660), as supplemented by letters dated December 19 and 22, 2011, and March 20, 2012 (ADAMS Accession Nos. ML113540334, ML11363A077, and ML12083A147, respectively), Omaha Public Power District, (the Licensee), submitted a license amendment request (LAR) to transition their fire protection licensing basis at the Fort Calhoun Station, Unit 1, from Title 10 of the Code of Federal Regulations (CFR), Section 50.48(b), to 10CFR50.48(c), National Fire Protection Association Standard NFPA 805 (NFPA 805). A review team, consisting of U.S. Nuclear Regulatory Commission (NRC) staff and contractors from Pacific Northwest National Laboratory (PNNL) and the Center for Nuclear Waste Regulatory Analyses (CNWRA) participated in a regulatory audit of Fort Calhoun in Blair, NE from March 5 -9, 2012. By letter dated April 26, 2012, (ADAMS Accession No. ML12198A406) the NRC issued requests for additional information (RAIs). By letters dated July 24, 2012 (ADAMS Accession No. ML12208A131), August 24, 2012 (ADAMS Accession No. ML12240A151), and September 27, 2012 (ADAMS Accession No. ML12276A046) the licensee provided responses to the RAIs. The NRC staff reviewed the information provided by the licensee in response to the first set of RAIs and determined that additional information was needed for the staff to complete its evaluation. Consequently, the staff issued additional RAIs on February 22, 2013, (ADAMS Accession No. ML13053A226), June 27, 2013 (ADAMS Accession No. ML13178A035), August 14, 2013 (ADAMS Accession No. ML13226A122) and September 27, 2013 (ADAMS Accession No. ML13270A287). The licensee responded to these RAIs in letters dated April 23, 2013 (ADAMS Accession No. ML13116A015), May 21, 2013 (ADAMS Accession No. ML13144A814), July 29, 2013 (ADAMS Accession No. ML13211A055), September 12, 2013, October 11, 2013 (ADAMS Accession No. ML13288A139 ), and November 11, 2013.

The U.S. NRC staff has reviewed the information provided in your application and determined that additional information is required in order to complete its review. These RAIs can be found below. Please contact me if a clarifying call is needed.

Thanks  
Lynnea

*Lynnea Wilkins*, Project Manager  
Fort Calhoun Station, Unit 1  
Cooper Nuclear Station  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation  
US Nuclear Regulatory Commission  
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REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT REQUEST TO ADOPT  
NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805

PERFORMANCE-BASED STANDARD FOR FIRE PROTECTION FOR LIGHT WATER REACTOR  
GENERATING PLANTS  
FORT CALHOUN STATION, UNIT 1  
(TAC NO. ME7244)

**Probabilistic Risk Assessment (PRA) Request for Additional Information (RAI) 01.j.04**

By letter dated October 11, 2013 (ADAMS Accession No. ML13288A139) the licensee responded to PRA RAI 01.j.02 and provided a summary description of the Human Reliability Analysis (HRA) process leading to a Human Error Probability (HEP) of 0.015 for main control room (MCR) abandonment. The conditional core damage probability (CCDP) for MCR abandonment includes the equipment unreliability and is 0.141. It appears from the licensee's response that this single value is used for every MCR abandonment scenario.

- a. If any values other than 0.141 are used as the CCDP, (e.g., 1.0) please provide the other values, a characterization of the scenarios where these values are used, and a summary of how each value is developed. This information should include explanations of how the following scenarios i, ii, and iii are addressed. A method based on these scenarios is discussed in the Safety Evaluation for the Duane Arnold Energy Center, Amendment No. 286, issued on September 10, 2013 (ADAMS Accession No. ML13210A449).
  - i. Scenarios where the fire fails few functions aside from MCR habitability and successful shutdown is straightforward.
  - ii. Scenarios where the fire could cause some recoverable functional failures or spurious operations that complicate the shutdown but successful shutdown is likely.
  - iii. Scenarios where the fire induced failures cause great difficulty for shutdown by failing multiple functions and/or causing complex spurious operations that make successful shutdown unlikely.
- b. If no values other than 0.141 are used, please explain how scenarios characterized under a.i, a.ii, and a.iii above are included in the MCR abandonment evaluations.
- c. Evaluate the impact of any changes to the MCR abandonment evaluation as part of the aggregate change in risk requested in PRA RAI 24. If the result of any change is negligible with respect to your current CDF/LERF/delta CDF/delta LERF estimates in PRA RAI 24, a qualitative evaluation would be consistent with RG 1.174 guidelines.

**PRA RAI 01.j.05**

With respect to the main control room abandonment human error probability (HEP) of 0.015 cited in PRA RAI 01.j.04 above, the licensee in its response to PRA RAI 01.j.01.a.iv dated May 21, 2013 (ADAMS Accession No. ML13144A814) stated that the abandonment probability is the result of "more of a bounding approach." An HEP of 0.015 is too small for a bounding approach according to the scoping fire HRA quantification approach (chapter 5.2) of NUREG-1921, "EPRI/NRC-RES Fire Human Reliability Analysis Guidelines – Final Report". The licensee has not described the analysis in detailed enough terms for the NRC staff to do a detailed review. Given NRC's observation about the low value estimated for the HEP for MCR abandonment, please provide assurance that the HRA for MCR abandonment will be included as a part of the fire HRA focused scope peer review and upgrade to be completed prior to self approval, as identified in the response to PRA RAI 23.01 dated October 11, 2013 (ADAMS Accession No. ML13288A139).

**PRA RAI 01.j.06**

In a letter dated October 11, 2013, (ADAMS Accession No. ML13288A139) the licensee responded to PRA RAI 01.j.02. Part b of that response referred to the loss of a key safety function, as opposed to loss of habitability, as a condition necessitating abandonment. However, RAI 01.j.02 issued on August 14, 2013, (ADAMS Accession No. ML13226A122) refers to abandonment due only to loss of habitability and implies that loss of control would be assigned a CCDP of 1.0. Given the licensee's response to PRA RAI 01.i.02 in the

October 11 letter that no credit will be taken for the CCDP for loss of control, please clarify whether the discussions on timing in the response to PRA RAI 01.j.02 apply to loss of habitability only.

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**From:** Wilkins, Lynnea

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