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Serial: MNS-15-099

10 CFR 50.90

January 14, 2016

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Duke Energy Carolinas, LLC (Duke Energy)  
McGuire Nuclear Station (MNS), Units 1 and 2  
Docket Numbers 50-369, 50-370  
Renewed License Numbers NPF-9 and NPF-17

**Subject:** Submittal Regarding License Amendment Request to Implement a Risk-Informed Performance-Based Fire Protection Program (TAC Nos. MF2934 and MF2935).

**References:**

1. MNS Letter, License Amendment Request (LAR) to Adopt National Fire Protection Association (NFPA) 805 Performance-Based Standard for Fire Protection for Light-Water Reactor Generating Plants, dated September 26, 2013, Agencywide Document and Management System (ADAMS) Accession Number ML13276A126.
2. NRC Letter, McGuire Nuclear Station, Units 1 and 2 - Acceptance Review Results RE: License Amendment Request to Adopt National Fire Protection Association 805 Performance-Based Standard for Fire Protection for Light-Water Reactor Generating Plants, (TAC Nos. MF2934 and MF2935), dated December 31, 2013, ADAMS Accession Number ML13354B879.
3. MNS Letter, Supplemental Information For License Amendment Request (LAR) to Adopt National Fire Protection Association (NFPA) 805 Performance-Based Standard for Fire Protection for Light-Water Reactor Generating Plants, dated January 8, 2014, ADAMS Accession Number ML14016A097.
4. NRC Letter, McGuire Nuclear Station, Units 1 and 2 - Acceptance of Requested Licensing Action RE: License Amendment Request to Adopt National Fire Protection Association (NFPA) 805 Performance-Based Standard for Fire Protection for Light-Water Reactor Generating Plants (TAC Nos. MF2934 and MF2935), dated January 15, 2014, ADAMS Accession Number ML14014A279.

ADD  
NRR

5. NRC Letter, Request for Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program (TAC Nos. MF2934 and MF2935), dated August 28, 2014, ADAMS Accession Number ML14233A366.
6. MNS Letter, Response to August 28, 2014, NRC Request for Additional Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program, dated October 13, 2014, ADAMS Accession Number ML14297A162.
7. NRC Letter, Request for Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program (TAC Nos. MF2934 and MF2935), dated October 27, 2014, ADAMS Accession Number ML14295A307.
8. MNS Letter, Response to August 28, 2014, NRC Request for Additional Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program, dated November 12, 2014, ADAMS Accession Number ML14328A628.
9. MNS Letter, Response to August 28, 2014, NRC Request for Additional Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program, dated December 12, 2014, No ADAMS Number.
10. MNS Letter, Response to August 28, 2014, NRC Request for Additional Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program, dated January 26, 2015, ADAMS Accession Number ML15036A084.
11. MNS Letter, Response to August 28, 2014, NRC Request for Additional Information Regarding License Amendment Request to Implement A Risk-Informed Performance-Based Fire Protection Program, dated February 27, 2015, No ADAMS Number.
12. MNS Letter, Response to August 28, 2014, NRC Request for Additional Information Regarding License Amendment Request to Implement A Risk-Informed Performance-Based Fire Protection Program, dated March 13, 2015, No ADAMS Number.
13. NRC Letter, Request for Additional Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program, dated May 8, 2015, ADAMS Accession Number ML15125A328.
14. NRC Letter, Request for Additional Information Regarding License Amendment Request To Implement A Risk-Informed Performance-Based Fire Protection Program, dated June 18, 2015, ADAMS Accession Number ML15147A628.
15. MNS Letter, Response to June 18, 2015, NRC Request for Additional Information Regarding License Amendment Request to Implement a Risk-Informed Performance-Based Fire Protection Program, dated July 15, 2015.
16. NRC Letter, Request for Additional Information Regarding License Amendment Request To Implement a Risk-Informed Performance-Based Fire Protection Program, dated August 18, 2015.
17. MNS Letter, Response to June 18, 2015, and May 8, 2015, NRC Requests for Additional Information Regarding License Amendment Request to Implement a Risk-Informed Performance-Based Fire Protection Program, dated August 20, 2015.

18. MNS Letter, Response to August 18, 2015, NRC Request for Additional Information Regarding License Amendment Request to Implement a Risk-Informed Performance-Based Fire Protection Program, dated September 9, 2015.
19. MNS Letter, Administrative Changes to LAR Submittal Package Made at NRC Request, dated October 1, 2015.

By letter dated September 26, 2013 (Reference 1), Duke Energy submitted a LAR to adopt a new, risk-informed, performance-based (RI-PB) fire protection licensing basis for the MNS Units 1 and 2.

On December 31, 2013 (Reference 2), the NRC requested supplemental information in order to make the September 26, 2013, LAR complete and acceptable for review by the NRC. By letter dated January 8, 2014 (Reference 3), Duke Energy provided the requested supplemental information to the NRC. By letter dated January 15, 2014 (Reference 4), the NRC accepted the September 26, 2013, LAR for review.

By letters dated August 28, 2014, and October 27, 2014 (References 5 and 7, respectively), the NRC requested additional information (RAI) in order to complete their review of the September 26, 2013, LAR. Those letters grouped the RAIs into 60-day, 90-day, 120-day, and radiation release responses. Duke Energy provided the 60-day, 90-day, and some of the 120-day RAI responses by letters dated October 13, 2014, November 12, 2014, and December 12, 2014 (References 6, 8, and 9, respectively). Responses to the radiation release RAIs and some of the remaining 120-day RAIs were provided by letter dated January 26, 2015 (Reference 10).

By letter dated February 27, 2015 (Reference 11), Duke Energy submitted responses to all remaining first-round RAIs, excluding Probabilistic Risk Assessment (PRA) RAI 03. This submittal also included revised responses to PRA RAI 12 and PRA RAI 17. By letter dated March 13, 2015 (Reference 12), Duke Energy submitted response to PRA RAI 03.

By letters dated May 8, 2015, June 18, 2015, and August 18, 2015 (References 13, 14, and 16, respectively), the NRC submitted second-round RAIs to complete their review of the September 26, 2013, LAR.

By letters dated July 15, 2015 (Reference 15), August 20, 2015 (Reference 17), and September 9, 2015 (Reference 18), Duke Energy submitted responses to the second-round RAIs.

By letter dated October 1, 2015 (Reference 19), Duke Energy submitted several administrative changes to the LAR submittal package.

By email dated October 28, 2015, the NRC requested a clean copy of Attachment S of the LAR and requested final administrative changes to Attachment M of the LAR. See Enclosures 1 and 2 for this information. Additionally, Enclosure 3 resubmits Attachment W of the LAR with the request that it be submitted as Security-Related Information to be withheld from public disclosure under 10 CFR 2.390. When Enclosure 3 is separated from the rest of the letter, this submittal is de-controlled.

This submittal does not contain any new or revised regulatory commitments.

Please direct any questions on this matter to Brian Richards at (980) 875-5171.

I declare under penalty of perjury that the foregoing is true and correct. Executed on  
January 14, 2016.

Sincerely,

A handwritten signature in black ink, appearing to read "S.D. Capps", written in a cursive style.

Steven D. Capps

Enclosures 1, 2, and 3

xc:

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## **ENCLOSURE 1**

### **Duke Energy MNS NFPA 805 LAR Attachment M Revisions**

Note: The revised LAR pages in this enclosure replace the corresponding pages in the September 26, 2013, LAR in their entirety. The revised content of the LAR pages is denoted by a revision bar in the margin of the page.

**M. LICENSE CONDITION CHANGES**

8 Pages Attached

Replace the current MNS fire protection license condition 2.C.(4) for both Unit 1 and Unit 2 with the standard license condition in Regulatory Position 3.1 of RG 1.205, modified as shown below.

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Duke Energy Carolinas, LLC shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated September 26, 2013, as supplemented by letters dated January 8, 2014, October 13, 2014, November 12, 2014, December 12, 2014, January 26, 2015, February 27, 2015, March 13, 2015, July 15, 2015, August 20, 2015, September 9, 2015, October 1, 2015, and January 14, 2016, and as approved in the safety evaluation dated \_\_\_\_\_. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

#### **Risk-Informed Changes that May Be Made Without Prior NRC Approval**

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at MNS. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

- a) Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.
- b) Prior NRC review and approval is not required for individual changes that result in a risk increase less than  $1 \times 10^{-7}$ /year (yr) for CDF and less than  $1 \times 10^{-8}$ /yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

#### **Other Changes that May Be Made Without Prior NRC Approval**

##### 1) Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is



functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to an NFPA 805, Chapter 3, element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3, elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- Fire Alarm and Detection Systems (Section 3.8);
- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and,
- Passive Fire Protection Features (Section 3.11).

## 2) Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluation report dated \_\_\_\_\_ to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

### Transition License Conditions

- 1) Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.
- 2) The licensee shall implement the modifications to its facility, as described in Attachment S, Table S-2, "Plant Modifications Committed," of Duke Energy letter dated January 14, 2016, to complete the transition to full compliance with 10 CFR 50.48(c) by the end of the Unit 1 refueling outage currently scheduled for Spring 2016 (1EOC24). The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

- 3) The licensee shall implement the items as listed in Attachment S, Table S-3, "Implementation Items," of Duke Energy letter dated January 14, 2016, within 180 days after issuance of the license amendment unless that date falls within a scheduled refueling outage, then, implementation will occur within 60 days after startup from that scheduled refueling outage. Implementation Item 12 is associated with modifications in Table S-2 and will be completed 180 days after completion of the last risk related modification. Implementation Item 19 is associated with thermoplastic cable analysis and will be completed by June 30, 2017.

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License condition 2.C.(4) for both Unit 1 and Unit 2 shall be superseded:

2.C.(4) Fire Protection Program

Duke Energy Carolinas, LLC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility and as approved in the SER dated March 1978 and Supplements 2, 5, and 6 dated March 1979, April 1981, and February 1983, respectively, and the safety evaluation dated May 15, 1989, subject to the following provisions:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

It is Duke Energy's understanding that implicit in the revocation of this license condition, all prior Fire Protection Program Safety Evaluations and commitments have been superseded in their entirety by the revised license condition.

No other license conditions need to be revised or superseded.

MNS implemented the following process for determining that these are the only license conditions required to be either revised or superseded to implement the new fire protection program which meets the requirements in 10 CFR 50.48(a) and 50.48(c):

- A review was conducted of the MNS Renewed Facility Operating License NPF-9 and NPF-17, by MNS licensing staff and the NFPA 805 Transition Team. The review was performed by reading the Operating License and performing electronic searches. Outstanding LARs that have been submitted to the NRC were also reviewed for potential impact on the license conditions.

**Proposed Changes to Facility Operating License – Markup**

The current version of Renewed Facility Operating Licenses NPF-9 and NPF-17 have been marked up to reflect the proposed change.

~~(4) Fire Protection Program~~ INSERT ATTACHMENT

~~Duke Energy Carolinas, LLC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility and as approved in the SER dated March 1978 and Supplements 2, 5 and 6 dated March 1979, April 1981, and February 1983, respectively, and the safety evaluation dated May 15, 1989, subject to the following provision:~~

~~Duke may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.~~

(5) Additional Conditions

The Additional Conditions contained in Appendix B, as revised through Amendment No. 200, are hereby incorporated into this renewed operating license. Duke Energy Carolinas, LLC shall operate the facility in accordance with the Additional Conditions.

(6) Antitrust Conditions

The licensee shall comply with the antitrust conditions delineated in Appendix C of this renewed operating license.

(7) Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- A) Fire fighting response strategy with the following elements:
  - 1. Pre-defined coordinated fire response strategy and guidance
  - 2. Assessment of mutual aid fire fighting assets
  - 3. Designated staging areas for equipment and materials
  - 4. Command and control
  - 5. Training of response personnel
  
- B) Operations to mitigate fuel damage considering the following:
  - 1. Protection and use of personnel assets
  - 2. Communications
  - 3. Minimizing fire spread
  - 4. Procedures for implementing integrated fire response strategy
  - 5. Identification of readily-available pre-staged equipment
  - 6. Training on integrated fire response strategy
  - 7. Spent fuel pool mitigation measures
  
- C) Actions to minimize release to include consideration of:
  - 1. Water spray scrubbing
  - 2. Dose to onsite responders

Renewed License No. NPF-9  
Amendment No. 264

~~(4) Fire Protection Program INSERT ATTACHMENT~~

~~Duke Energy Carolinas, LLC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility and as approved in the SER dated March 1978 and Supplements 2, 5, and 6 dated March 1979, April 1981, and February 1983, respectively, and the safety evaluation dated May 15, 1989, subject to the following provisions:~~

~~The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.~~

(5) Protection of the Environment

Before engaging in additional construction or operational activities which may result in a significant adverse environmental impact that was not evaluated or that is significantly greater than that evaluated in the Final Environmental Statement dated April 1976, the licensee shall provide written notification to the Office of Nuclear Reactor Regulation.

(6) Additional Conditions

The Additional Conditions contained in Appendix B, as revised through Amendment No. 481, are hereby incorporated into this renewed operating license. Duke Energy Carolinas, LLC shall operate the facility in accordance with the Additional Conditions.

(7) Antitrust Conditions

The licensee shall comply with the antitrust conditions delineated in Appendix C of this renewed operating license.

(8) Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- A) Fire fighting response strategy with the following elements:
  - 1. Pre-defined coordinated fire response strategy and guidance
  - 2. Assessment of mutual aid fire fighting assets
  - 3. Designated staging areas for equipment and materials
  - 4. Command and control
  - 5. Training of response personnel
  
- B) Operations to mitigate fuel damage considering the following:
  - 1. Protection and use of personnel assets
  - 2. Communications
  - 3. Minimizing fire spread

## Attachment – Replacement Fire Protection License Condition

Duke Energy Carolinas, LLC shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated September 26, 2013, as supplemented by letters dated January 8, 2014, October 13, 2014, November 12, 2014, December 12, 2014, January 26, 2015, February 27, 2015, March 13, 2015, July 15, 2015, August 20, 2015, September 9, 2015, October 1, 2015, and January 14, 2016, and as approved in the safety evaluation dated \_\_\_\_\_. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

### **Risk-Informed Changes that May Be Made Without Prior NRC Approval**

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at MNS. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

- a) Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.
- b) Prior NRC review and approval is not required for individual changes that result in a risk increase less than  $1 \times 10^{-7}$ /year (yr) for CDF and less than  $1 \times 10^{-8}$ /yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

### **Other Changes that May Be Made Without Prior NRC Approval**

#### 1) Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to an NFPA 805, Chapter 3, element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3, elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall

## Attachment – Replacement Fire Protection License Condition

perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- Fire Alarm and Detection Systems (Section 3.8);
- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and,
- Passive Fire Protection Features (Section 3.11).

### 2) Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC safety evaluation report dated \_\_\_\_\_ to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

### Transition License Conditions

- 1) Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.
- 2) The licensee shall implement the modifications to its facility, as described in Attachment S, Table S-2, "Plant Modifications Committed," of Duke Energy letter dated January 14, 2016, to complete the transition to full compliance with 10 CFR 50.48(c) by the end of the Unit 1 refueling outage currently scheduled for Spring 2016 (1EOC24). The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
- 3) The licensee shall implement the items as listed in Attachment S, Table S-3, "Implementation Items," of Duke Energy letter dated January 14, 2016, within 180 days after issuance of the license amendment unless that date falls within a scheduled refueling outage, then, implementation will occur within 60 days after startup from that scheduled refueling outage. Implementation Item 12 is associated with modifications in Table S-2 and will be completed 180 days after completion of the last risk related modification. Implementation Item 19 is associated with thermoplastic cable analysis and will be completed by June 30, 2017.

## **ENCLOSURE 2**

### Duke Energy MNS NFPA 805 LAR Attachment S

Note: The LAR pages in this enclosure constitute a clean copy of Attachment S of the LAR. They may replace the version of Attachment S found in the September 26, 2013, LAR in its entirety, but no revision bars are shown. All changes are traceable in previous correspondence letters.



**S. MODIFICATIONS AND IMPLEMENTATION ITEMS**

8 Pages Attached

Tables S-1, Plant Modifications Completed, and S-2, Plant Modifications Committed, provided below, include a description of the modifications along with the following information:

- A problem statement,
- Risk ranking of the modification,
- An indication if the modification is currently included in the Fire PRA,
- Compensatory Measure in place, and
- A risk-informed characterization of the modification and compensatory measure.

Table S-1 Plant Modifications Completed							
Item	Rank	Unit	Problem Statement	Proposed Modification	In Fire PRA	Comp Measure	Risk Informed Characterization
1	N/A	1, 2	Current Transformers associated with a non-safety power monitoring system in the Turbine Buildings created a situation in which a fire could potentially disable both safety related trains of the respective unit.	The Current Transformers were permanently bypassed by shorting them out.	N	N	N/A
2	N/A	1, 2	Fire area conflict analysis determined that a control device in the circuit supplying assured electrical power to each of the two (2) Technical Specification required groups of pressurizer heaters received control power from a non-diesel generator backed power source.	The control power is now derived from the same source as the pressurizer heaters.	N	N	N/A

Table S-2 Plant Modifications Committed

Item	Rank	Unit	Problem Statement	Proposed Modification	In Fire PRA	Comp Measure	Risk Informed Characterization
1	Med	1, 2	<p>Turbine Driven Auxiliary Feedwater Pump Suction Isolation Valve, which is normally open, required open for HSB, is affected by spurious operation due to cable failures. FAs 4 (U2), 14 (U2), and 21 (U2) have possible IN 92-18 concerns, also. The credited TDCAP, which starts on loss of offsite power, will be damaged if the suction valve goes closed.</p> <p>Component: 1CA VA0007AC</p> <p>VFDRs: 04-040, 14-014 19-10, 21-012, and 24-008</p> <p>Component: 2CA VA0007A</p> <p>VFDRs: 04-024, 14-078, 14-079, 20-7, 21-071, 21-072, and 24-082</p>	<p>Engineering Change (EC) will resolve spurious operation. Details/scope being developed.</p> <p>Unit 1 will be completed: 1EOC24 (Spring 2016) Unit 2 will be completed: 2EOC23 (Fall 2015)</p>	N	Y	<p>The modification will eliminate potential spurious operation and is required as a result of the DID evaluation.</p> <p>Appropriate compensatory measures needed for any outstanding NFPA 805 related compliance modifications will be in place at the time of NFPA 805 program implementation and will be maintained until associated modifications are complete.</p>
2	High	1, 2	<p>The Unit 2 overall LERF value is above the acceptable threshold.</p>	<p>Reduce WL inlet or vent to have a pipe restriction of 4 inches or less.</p> <p>Unit 1 will be completed: 1EOC24 (Spring 2016) Unit 2 will be completed: 2EOC23 (Fall 2015)</p>	Y	Y	<p>This modification improves overall LERF values.</p> <p>Appropriate compensatory measures needed for any outstanding NFPA 805 related compliance modifications will be in place at the time of NFPA 805 program implementation and will be maintained until associated modifications are complete.</p>
3	High	1, 2	<p>The following cabinets have unsealed penetrations: 1MLC,</p>	<p>Seal the top surface of the Unit 1 Fire Area 19, cabinets 1MLC,</p>	Y	Y	<p>This activity is considered a maintenance activity and being</p>

Table S-2 Plant Modifications Committed

Item	Rank	Unit	Problem Statement	Proposed Modification	In Fire PRA	Comp Measure	Risk Informed Characterization
			1SCTC1, 1SCTC2, 1UCTC1, 1UCTC2, 1UCTC3, and 2MLC.	1SCTC1, 1SCTC2, 1UCTC1, 1UCTC2, and 1UCTC3.  Seal the top surface of the Unit 2 Fire Area 20, cabinet 2MLC.  Unit 1 will be completed: 1EOC24 (Spring 2016) Unit 2 will be completed: 2EOC23 (Fall 2015)			performed by work orders. This activity is required to be done due to credit taken in the Fire PRA for sealed cabinets. This activity will reduce risk.  Appropriate compensatory measures needed for any outstanding NFPA 805 related compliance modifications will be in place at the time of NFPA 805 program implementation and will be maintained until associated modifications are complete.
4	Low	1, 2	Valves 1(2) CA161C and 1(2) CA162C are a rising stem concern in Fire Area 03, 04, and 14.  Component: 1CA161C VFDR: 04-092, 14-030  Component: 2CA161C VFDR: 03-01  Component: 1CA162C VFDR: 04-093, 14-031  Component: 2CA162C VFDR: 03-02	Engineering Change (EC) will install a bypass around both valves. Manual butterfly valves will be installed around these valves.  Unit 1 will be completed: 1EOC23 (Fall 2014) Unit 2 will be completed: 2EOC23 (Fall 2015)	N	N	This modification will eliminate impact of a hot gas layer impairing operation of the rising stem valve.  Appropriate compensatory measures needed for any outstanding NFPA 805 related compliance modifications will be in place at the time of NFPA 805 program implementation and will be maintained until associated modifications are complete.

Table S-3, Items provided below are those items (procedure changes, process updates, and training to affected plant personnel) that will be completed prior to the implementation of new NFPA 805 fire protection program. This will occur within 180 days after issuance of the license amendment unless that date falls within a scheduled refueling outage. Then, implementation will occur within 60 days after startup from that scheduled refueling outage. Note that Implementation Item 12 is associated with modifications in Table S-2 and will be completed 180 days after completion of the last risk related modification. Implementation Item 19 is associated with thermoplastic cable analysis and this item will be completed by June 30, 2017.

<b>Table S-3 Implementation Items</b>			
Item	Unit	Description	LAR Section / Source
1	1, 2	Perform the following recommendations from the Radiological Release Evaluation: <ol style="list-style-type: none"> <li>1. Within each yard area fire strategy, identify RCA boundaries within the strategy and any potential escape paths. This includes building sumps and storm drains, where applicable. For consistency, it is recommended that even hardened barriers are identified. Examples of these would include: the containment hatch, fuel handling access hatch, water tight doors to the outside, as well as passage doors and roll-up doors.</li> <li>2. Enhance Fire Brigade Guidelines (Procedure RP/0/A/5700/025, Fire Brigade Response) to include more detail on the control measures used to maintain radioactive release limits where monitoring cannot be accomplished. Examples include:                             <ul style="list-style-type: none"> <li>▪ Water fog streams used for smoke scrubbing.</li> <li>▪ Controlling water runoff during fire suppression activities.</li> <li>▪ Covering drains and other similar containment measures.</li> </ul> </li> <li>3. Enhance Fire Brigade Guidelines (Procedure RP/0/A/5700/025, Fire Brigade Response) to instruct Radiation Protection personnel to respond to all fires within RCAs inside and outside the Protected Area.</li> <li>4. Enhance Fire Brigade Guidelines (Procedure RP/0/A/5700/025, Fire Brigade Response) to include guidance for crossing RCA/RCZ boundaries including escape routes.</li> <li>5. Develop a Standard Operating Guideline (SOG) for fires involving contaminated material outside of the power block.</li> <li>6. Create new fire strategies for yard areas that contain RCAs. This includes Radwaste Facility, Warehouse 7, and the open yard areas where tanks and land-sea containers are stored.</li> </ol>	4.4.2 and Attachment E

Table S-3 Implementation Items

Item	Unit	Description	LAR Section / Source
		<ol style="list-style-type: none"> <li>7. Within each fire strategy, identify the RCA or Radioactive Control Zone in the written text.</li> <li>8. Fire Brigade training will be revised to ensure the new guidance included in Procedure RP/0/A/5700/025, Fire Brigade Response for radioactive release is covered during the established training interval.</li> <li>9. Add a standard statement for water runoff to all RCA fire strategies similar to the caution contained for smoke removal.</li> <li>10. Incorporate all fire fighting strategies into the electronic records management retrieval system (internally referred to as NEDL). This will provide consistency for current users and the ability to conduct effective reviews to ensure all radioactive release recommendations have been incorporated.</li> <li>11. Add an appendix to the fire strategies for building sump drainage and site storm drains. This is NOT intended to be a detailed plan, but a site overview that identifies areas where runoff has the potential to route to a storm drain or an automatic sump that will pump without radiation monitoring.</li> <li>12. Develop a SOG to address owner controlled area RCAs. This would include, for example, Warehouse 7 and outage equipment stored there.</li> <li>13. Develop administrative guidance, in collaboration with radiation protection, to support ensuring that radioactive release(s) do not exceed limits in the event of a fire in areas where engineering controls will not contain the potential release.</li> </ol>	
2	1, 2	After the approval of the LAR, in accordance with 10 CFR 50.71(e), the MNS UFSAR will be revised. The format and content will be consistent with NEI 04-02 FAQ 12-0062.	5.4
3	1, 2	Revise station documentation (Design Basis Specification for Fire Protection) to state the NRC is the AHJ for fire protection changes requiring approval.	4.1.2 and Attachment A, 3.2.2.4

Table S-3 Implementation Items			
Item	Unit	Description	LAR Section / Source
4	1, 2	Revise appropriate fire protection program document(s) to provide a requirement that if a plant elects to implement the methodologies in EPRI Report TR-1006756, that the methodologies will be implemented in their entirety as they pertain to the fire protection systems or features being evaluated.	4.1.2 and Attachment A, 3.2.3(1)
5	1, 2	The monitoring program required by NFPA 805 Section 2.6 will be implemented after the LAR approval as part of the fire protection program transition to NFPA 805, in accordance with NFPA 805 FAQ 10-0059, and will include a process that reviews the fire protection performance and trends in performance.	4.1.2 and Attachment A, 3.2.3(3) 4.6.2
6	1, 2	Revise station procedures/directives to comply with NFPA 805 Section 3.3.1.2(1).	4.1.2 and Attachment A, 3.3.1.2(1)
7	1, 2	Revise appropriate station documentation to include the requirements for installation of cable above suspended ceilings.	4.1.2, Attachment A, 3.3.5.1, and Attachment L, Approval Request #2
8	1, 2	Review MNS fire strategies for compliance with NFPA 805 requirements and update as applicable.	4.1.2 and Attachment A, 3.4.2.1
9	1, 2	The Fire Protection Design Basis Document described in Section 2.7.1.2 of NFPA 805 and necessary supporting documentation described in Section 2.7.1.3 of NFPA 805 will be created as part of transition to 10 CFR 50.48(c) to ensure program implementation following receipt of the safety evaluation. Appropriate cross references will be established to supporting documents as required by MNS processes.	4.7.1
10	1, 2	Ensure the MNS configuration control process follows the requirements in NFPA 805 and the guidance outlined in RG 1.174 which requires the use of qualified individuals, procedures that require calculations be subject to independent review and verification, record retention, peer review, and a corrective action program that ensures appropriate actions are taken when errors are discovered. The configuration control requirements should be implemented in accordance with FAQ 12-0061.	4.7.2
11	1, 2	Develop Engineering training guidelines to identify and document required training and mentoring to ensure individuals are appropriately qualified per the requirements of NFPA 805 Section 2.7.3.4 to perform assigned work.	4.7.3

Table S-3 Implementation Items			
Item	Unit	Description	LAR Section / Source
12	1, 2	Following installation of the risk related modifications and the as-built installation details, additional refinements surrounding the modifications and procedural implementation items (Table S-3 Items 13 and 14) will be incorporated into the Fire PRA model and Internal Events model, as required. In addition, a verification will be performed to confirm that the risk results are not appreciably changed. If the as-built change-in-risk estimates exceed the RG 1.174 acceptance guidelines, the responsible feature will be identified and evaluated. Actions taken to address such a case may be one or more of the following: 1) implementing additional modifications, 2) refining the analytical estimates, or 3) requesting that exceeding the guidelines be deemed acceptable in a new LAR.	4.8.2
13	1, 2	Revise Shutdown Risk Management procedures to reflect the appropriate recommendations noted in FAQ 07-0040, as determined in the calculation entitled, "NFWA 805 Transition – NPO".	4.3.2 Attachment D
14	1,2	Implementation items resulting from the feasibility evaluation include: <ul style="list-style-type: none"> <li>▪ Corrective action to add hard hat lights in control room and operation's kitchen to procedure, IP/O/B/3260/031.</li> <li>▪ Add 60 minutes time to throttle Turbine Driven Auxiliary Feedwater valves to "Time Critical" program.</li> <li>▪ Add 60 minutes time to trip NC Pumps (for FA-13(Units 1 and 2)) to "Time Critical" program (this is not a loss of seal cooling event).</li> </ul>	Attachment G
15	1, 2	Revise the QA Topical, as appropriate, to update the definition of QA 3 to match post NFWA 805 criteria. QA Topical currently defines QA 3 as:  <i>"QA Condition 3 covers those systems, components, items, and services which are important to fire protection as defined in the Hazards Analysis for each station. The Hazards Analysis is in response to Appendix A of NRC Branch Technical Position APCS 9.5-1."</i>	4.7.3
16	1,2	Update the transient combustible control procedure to reflect the requirements in NFWA 805 analysis documentation.	Attachment C, FRE, PIP 13-6092.



Table S-3 Implementation Items			
Item	Unit	Description	LAR Section / Source
17	1, 2	The following MCCs where one or more external failures involved components with a RAW greater than 10 were flagged for increased PM frequency: 1EPEMXEMXA2, 1EPEMXEMXA3, 1EPEMXEMXD, 1EPEMXEMXH, 2EPEMXEMXA2, 2EPEMXEMXB5, and 2EPEMXEMXD. Revise the PMs associated with these MCCs to increase the PM frequency.	Attachment V
18	1, 2	Update station documentation to indicate requirements for interior floor finishes.	Attachment A, 3.3.3
19	1, 2	Revise the MNS Fire PRA analysis to reflect the quantities of thermoplastic cable installed in the plant. Guidance in NUREG/CR-6850 and other NRC accepted documents will be used to perform the analysis. The impact on the Fire CDF/LERF and the delta CDF/LERF will be reviewed to verify the results are within RG 1.174 acceptance guidelines. An MSO Expert Panel will also be conducted as part of the Fire PRA update. MNS will complete this analysis by June 30, 2017.  If the impact on risk estimates exceed the RG 1.174 acceptance guidelines, actions taken to address this case may be one or more of the following: 1) refining the analytic estimates, 2) communicating to the NRC the need and proposed schedule to implement additional modifications, or 3) requesting that exceeding the guidelines be deemed acceptable in a new LAR." Until the post Fire PRA reanalysis is complete and the results are within the RG 1.174 acceptance guidelines, the use of the Fire PRA for self-approval of plant changes affecting the fire protection program will be restricted to changes that are not greater than minimal for the fire areas with greater than 5% thermoplastic cable.	RAI FM-02a, RAI FM-02b, RAI FM-01.j.01, RAI PRA-03.d