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NUCLEAR ENERGY INSTITUTE

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Mr. Sunil D. Weerakkody
Chief, PRA Operations and Human Factors Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Industry Comments on Revisions to IMC 0609, Appendix F, *Fire Protection Significance Determination Process*

Project Number: 689

Dear Mr. Weerakody:

The Nuclear Energy Institute (NEI)[1] is pleased to submit the attached comments regarding recently released draft revisions to IMC 0609, Appendix F, *Fire Protection Significance Determination Process*.[2] Given the increasing emphasis on consideration of risk insights in matters related to fire protection, particularly during the transition of many plants to risk-informed, performance-based fire protection programs under NFPA 805, the industry supports the enhancements to Fire PRA realism incorporated into this revision. Specifically, many recently-finalized methods, tools, and data related to Fire PRA were incorporated to more realistically reflect the impact of inspection findings evaluated using IMC 0609 Appendix F. While these changes will help better focus NRC resources on the most risk-significant findings related to fire protection, additional improvements to realism are available, and should be incorporated. The attachment to this letter details additional improvements that should be incorporated to best reflect the significance of inspection findings evaluated using this guidance.

[1] The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.
[2] Inspection Manual Chapter 0609, Appendix F, main body, document date October 11, 2017, available under ADAMS accession number ML17089A417; and Attachments 1-8 with accession numbers ML17089A418, ML17089A419, ML17089A420, ML17089A421, ML17089A422, ML17089A423, ML17089A425, ML17089A426; and IMC 0308, Att. 3, Appendix F with accession number ML17144A273.

We look forward to working with the NRC on continuing to improve realism in Fire PRAs in support of all regulatory activities. If you have any questions concerning the industry's comments, please contact me.

Sincerely,

Victoria K. Anderson

Attachment 1 – Detailed Comments on IMC 0609, Appendix F

c: Mr. Russell N. Felts, NRR
Mr. Michael X. Franovich, NRR
Mr. Jay E. Robinson, NRR
Mr. Christopher G. Miller, NRR
NRC Document Control Desk

Attachment: Specific Comments on IMC 0609 Appendix F, *Fire Protection Significance Determination Process*

Attachment	Page	Comment
Main Document	N/A	Recommend adding discussion of FAQ 14-0009 guidance for modeling MCC fires to relevant sections, including the discussion of separation and distance of targets from the individual MCC buckets in the determination of ZOI and time to damage.
Main Document	N/A	Recommend more realistically crediting Very Early Warning Fire Detection Systems.
Main Document	N/A	Recommend including explicit credit for very low hot work.
Main Document	11	In Step 1.4.8-A, the criteria should be two or more redundant components. If the component impacts are functionally equivalent, then it should be considered a single impact. It is unclear of the purpose of the separation term.
Main Document	11	In Step 1.4.8-B, the criteria should be two or more redundant components. If the component impacts are functionally equivalent, then it should be considered a single impact.
Main Document	11	In Step 1.4.8-C, better define “single fire scenario.”
3	93	Recommend removing conservative factor of 2 and 4 for wall corner effects within 2’ (analyst can optionally neglect wall effects). Note that the latest NRC testing showed that the effect is significantly overestimated until within 6 inches of wall.
3	7	Fire PRA FAQ 13-0005 should be followed for self-ignited cable fires, such that damage is limited to the tray of origin.
5	3	Recommend mentioning the electrical fire split fraction for pump fires here.
5	3	Recommend incorporating the method for oil fire spills involving very small oil spills provided in NEI letter dated June 21, 2012 (ML12171A583) page 4
5	6	Discuss how fires spreading into vertical tray stacks affect the radiant ZOI and damage to targets that may be in cable trays or conduit located radially from the fire.
5	6	Self-ignited cable fires. Section does not clarify that this only applies to thermoplastic cables. Attachment 3, page 75 and Attachment 4, Page 1 only show TP cable, but it is never explicitly stated.
6	1	Recommend mentioning sensitive electronics and their lower damage criteria in the opening paragraph along with TS and TP cables.
6	N/A	Recommend more clearly addressing damage to targets that are not the first tray in a stack of trays.
6	1	Recommend using the damage temperature from FAQ 08-0053 or KATE-Fire not used for Kerite cable

7	11-17	These figures should have figure numbers so that they can be referenced as needed.
7	4	Recommend mentioning the effect that spread to secondary combustibles can have on HRR and thus detection timing.
7	6	It would be clearer to define the variable "t" visually in the equation as it is described in the paragraph below the equation to ensure the net time available for suppression is accounted for properly. Similar to the way it is defined in Table A7.2
7	N/A	The new guidance for manual detection timing by General Plant Personnel, in Step 2.7.2, is ambiguous. It states that detection by plant personnel can be assumed but does not provide guidance on what time should be assumed nor does it provide a bounding alternative for assumed manual detection timing. More guidance is needed for manual detection to ensure consistent application.
7	3	The guidance in this section states that "fire detection time is 5 minutes if the fire area is continuously occupied" This is different than the Fire PRA method in NUREG/CR-6850, appendix P, table P-1, sequences A through E, which states prompt detection is applicable when an area is continuously occupied. NUREG/CR-6850 page P-6 defines prompt detection as “prompt detection assumes a negligible time to detection”.
8	25	The time to peak HRR of most fire profiles is 12 minutes. Recommend including these sprinkler activation tables for time up to 12 minutes.
8	N/A	Recommend including the HRRs in the tables along with D and V values.
8	N/A	Recommend including the HRRs in the tables along with the ignition source classification.