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December 18, 2020

Jennifer Borges  
Office of Administration  
Mail Stop: TWFN-7-A60M  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**Subject:** Industry Comments on Draft Regulatory Guide (DG) 1359, "Fire Protection for Nuclear Power Plants," 85 FRN 73089-73090; Docket ID NRC-2020-0230

*Submitted via regulations.gov*

**Project Number: 689**

Dear Ms. Jennifer Borges:

The Nuclear Energy Institute (NEI)<sup>1</sup>, on behalf of its members, submits the following comments on DG-1359, "Fire Protection for Nuclear Power Plants." We are supportive of the effort to revise this regulatory guide to improve consistency with other regulatory guides, and appreciate the opportunity to comment on the draft revision.

In our review, we noted that the draft revision generally offers improvements in clarity and consistency. We noted an apparent error in the referenced revision of NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis." On December 17, 2019, NEI sent a revision of this document to NRC for endorsement (ADAMS accession number ML19351D276); however, DG-1359 references a 2016 version in error. Given the importance of basing regulatory guidance on the latest available technical information, NEI would like to underscore the importance of ensuring that the final regulatory guide references the correct version of NEI 00-01. Additional detailed comments on DG-1359 are attached.

We encourage NRC to consider all stakeholder comments prior to finalizing the revision to this regulatory guide. Please contact me at [vka@nei.org](mailto:vka@nei.org) or (202) 739-8101 with any questions about the content of this letter or the attached comments.

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<sup>1</sup> The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

Ms. Jennifer Borges

July 29, 2020

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Sincerely,

A handwritten signature in cursive script, appearing to read "Victoria K. Anderson".

Victoria K. Anderson

Attachment

c: Mr. Michael Franovich, NRR  
Mr. Greg Bowman, NRR  
Mr. Joshua Borromeo, NRR  
Mr. Shivani Mehta, NRR  
Mr. Charles Moulton, NRR  
Mr. Michael Eudy, RES

**Attachment: NEI Detailed Comments on DG-1359, "Fire Protection for Nuclear Power Plants"**

Section	Comment	Proposed Resolution
Section A, Page 4 (also Pages 20-21)	NUREG/CR-7135 CARMEN-FIRE is newly added to this section to discuss acceptable options for compensatory measures. This is not appropriate, as this is not an official staff position. Industry had substantial comments on NUREG/CR-7135, many of which were not resolved due to the document being a research report, and not official agency position.	Remove the references to NUREG/CR-7135.
Section B, Page 9 (also Ref. 27, Page 115)	The draft regulatory guide references the 2016 version of NEI 00-01, Revision 4, instead of the 2019 version.	Revise to refer to the December 2019 version (ML19351D276)
Section 1.6.4.2, Page 25	It is unclear what "broadened training for firefighting within buildings" is intended to convey.	Revise to provide clarity to this phrase.
Section 1.7.6, Page 28	"...document or identify items..." does not fully clarify the intent.	Revise to "...identify and document items..."
Section 1.8.1.2, Page 33	This section defines "not adversely affect safe shutdown" differently than GL 86-10 and GL 88-12 did, by inserting new language about "sufficient safety margins" that did not exist in GL 86-10 and GL 88-12.  Existing licensees are bound by the meaning of the words "not adversely affect safe shutdown" that were understood at the time of their adoption of their FP license conditions, and not bound by the new words here.	Revise the language to the previous version for consistency with GL 86-10 and GL 88-12.
Section 2.2.3, Page 43	In the second paragraph, the use of the phrase "Procedures and practices" is not consistent with language used in the document.	Replace with "administrative controls"
Section 2.4.b, Page 44	The use of "...where systems are disarmed" is not sufficiently comprehensive.	Revise to "...where systems are disarmed or impaired"
Section 3.5.1.4, Page 55	The first paragraph should specify that drills are to be conducted at least quarterly.	Revise the first paragraph to read "Drills should be performed at least quarterly"

<p>Section 3.5.1.4, Page 55</p>	<p>The second paragraph should include more information on conduct of unannounced drills.</p>	<p>“Unannounced drills should not be performed in a pattern such that the shift’s fire brigade can easily determine when the drill will occur (e.g. conducting a backshift drill after each day shift drill was conducted.)”</p>
<p>Section 3.5.1.4, Page 55</p>	<p>This section should more explicitly discuss the expectations for the drill team.</p>	<p>At end of first sentence of the fifth paragraph, add “...to include the performance of not only the fire brigade and response, but the ability of the drill team to provide adequate simulation to elicit desired fire team response.”</p>
<p>Section 3.5.2.1.b, Page 56</p>	<p>The role of offsite fire departments should be better articulated.</p>	<p>At the end of this section, add “...available and readily accessible to the offsite fire department.”</p>
<p>Section 4.1.6.2, Page 66</p>	<p>The emergency lighting and portable lighting sections discuss “sealed beam” lamps. The term “sealed beam” specifically describes a specific type of incandescent lamp manufacturing technology that was predominant prior to the 1990’s for automobile headlights. Retaining the term in the RG effectively prohibits modern lighting technology from being adopted. For example, “sealed beam” would not permit a replaceable halogen bulb in a reflector.</p>	<p>The term “sealed beam” should not be used in contemporary documents/standards, and a more inclusive term should be used.</p>
<p>Section 5.0, Page 75</p>	<p>This final paragraph of this section includes new language suggesting that there will be two redundant trains, that they will perform “the same” safe shutdown functions, and that they are only differentiated by electrical power division. That is not the case in BWRs, where ECCS system functions and capacities are very diverse, there are many possible safe shutdown success paths, and safe shutdown paths can be made from high-capacity high pressure systems, low-capacity high pressure systems, low pressure systems, etc.</p>	<p>Revise to remove the implication that there are only two paths to safely shutdown a reactor, and that those two paths must have “the same” capabilities.</p>
<p>Section 5.3, Page 76-77</p>	<p>Substantial discussion on MSOs has been added to Section 5.3 before the fundamental concepts of safe shutdown have even been discussed. Discussing MSO before discussing fundamental safe</p>	<p>Move the new MSO endorsements to a suitable point after the fundamental concepts of safe shutdown have been discussed.</p>

	shutdown criteria is very confusing to the reader.	
Section 5.3, Page 78	There is discussion on NEI 00-01, Revision 4, Chapter 3 in conjunction with the RG as being acceptable. A lot of the detail supporting Chapter 3 is in Appendix J of NEI 00-01, Revision 4, but there is no clear reference to Appendix J in this portion of the draft regulatory guide.	Make a clear reference to Appendix J in conjunction with Chapter 3 as it defines important and applicable concepts such as incredible, plausible, etc. for circuit types. Recommend moving the endorsement sentence of NEI 00-01 Chapter 3 and Appendix J to the beginning of Section 5.3 because of its importance.
Section 5.3, Page 78	In Section 5.3, last paragraph, the discussion in Section 5.3 contains criteria that has been refined and changed by the NUREG/CR-7150 Vol. 3 criteria, and by the NEI 00-01, Revision 4, criteria in Chapter 3 and Appendix J, such that the stated criteria are no longer comprehensive or fully accurate.	These criteria should either be removed or described as one acceptable approach, along with NEI 00-01 Chapter 3 and Appendix J as another acceptable approach.:  <i>“For circuits not sealed in or latched for equipment important to safe shutdown, licensees should consider multiple fire-induced circuit failures in at least two separate cables. For circuits not sealed in or latched for equipment important to safe shutdown that involves high-low pressure interfaces, licensees should consider circuit failures in at least three cables. This applies when there are defense-in-depth features, such as automatic suppression and limits on ignition sources and combustibles. When there are no defense-in-depth features, the number of cables to consider should not be limited to two or three as described above. In addition, for</i>

		<i>multiconductor cables, all circuit faults that could occur within the cable should be assumed to occur. The analysis should address all circuits for which fire-induced failure could prevent safe shutdown, and appropriate protection should be provided."</i>
Section 5.3.2, Page 82-83	Section 5.3.2 does not explicitly include DC compound motors.	Include an explicit reference to DC compound motors in Section 5.3.2.
Section 5.3.2, Page 82-83	There is also discussion on high impact components in NUREG/CR-7150 and NEI 00-01, Revision 4, that provides more detailed guidance.	Include a reference to these treatments of high impact components and circuit failure criteria as "an acceptable approach."
Section 5.4.3, Page 87	The discussion on HLP circuit failures in the first paragraph of this section has not been updated to reflect the latest information available.	Include updates from NUREG/CR-7150 and NEI 00-01, Revision 4, based on credibility determinations on three-phase AC/DC motors and guidance in Appendix J of NEI 00-01 R4.
Section 5.4.3, Page 87	There is also discussion on high impact components in NUREG/CR-7150 and NEI 00-01, Revision 4, that provides more detailed guidance.	Include a reference to these treatments of high impact components and circuit failure criteria as "an acceptable approach."
Section 5.4.3, Page 87	The Section 5.4.3 discussion on hot short duration is not consistent with DG-1359 Section 5.3, Item e.	Update the second paragraph of this section to reflect 20 min/40 min AC/DC from NUREG/CR-7150 and NEI 00-01, Revision 4.
Section 5.5.2, Page 90	This section mentions HIFs in two places. With the addition of Section 5.3.3 providing blanket endorsement of NEI 00-01 Appendix B.1 for MHIFs, it should no longer be necessary to discuss HIFs in Section 5.5.2.	Remove reference to HIFs in Section 5.5.2.
Section 6.1.1.3, Page 92	This section calls for detection in containment, however it provides no exception for plants with inerted containments. This puts this section in direct conflict with section 3.1.i, which says	Clarify that this is for non-inerted containments only.

	that detection is only required in non-inerted containments.	
Table of Contents, Section 1.8.3, Appendix A	Section 1.8.3 refers to Appendix A, which has been removed from DG-1359. Appendix A contains important information on engineering evaluations to demonstrate equivalency and situations that are "adequate for the hazard" that are very important concepts with origin in GL 86-10.	Retain the relevant information in Appendix A to avoid potential misinterpretation of this guidance in the future.

SUNI Review  
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ADD: Shivani Mehta,  
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# PUBLIC SUBMISSION

**Docket:** NRC-2020-0230  
 Fire Protection for Nuclear Power Plants

**Comment On:** NRC-2020-0230-0001  
 Fire Protection for Nuclear Power Plants

**Document:** NRC-2020-0230-DRAFT-0005  
 Comment on FR Doc # 2020-25175

## Submitter Information

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## General Comment

This is a CORRECTION submission for previously submitted comment:  
 12-18-20\_NEI Industry Comments on Draft Regulatory Guide (DG) 1359, "Fire Protection for Nuclear Power Plants," 85 FRN 73089-73090; Docket ID NRC-2020-0230

## Attachments

12-18-20\_NEI Industry Comments on Draft Regulatory Guide (DG) 1359, "Fire Protection for Nuclear Power Plants," 85 FRN 73089-73090; Docket ID NRC-2020-0230