



Industry Perspective on IEEE-1819

BWROG, PWROG, NEI
NRC Public Meeting
March 16, 2022

Overview

- Scope of industry evaluation of IEEE-1819
- Industry concern with potential NRC endorsement of IEEE-1819
- Path forward

Scope of Industry Evaluation of IEEE-1819

- NEI, BWROG, and PWROG conducted comprehensive survey
 - All currently operating reactors
 - ALWR, SMR, and ANLWR vendors
 - Future operators
- No currently operating reactor, reactor vendor, or future operator indicated any intent to use IEEE-1819
- NRC endorsement would be detrimental to predictable and stable regulatory environment
 - Reduces clarity in 50.69 implementation
 - Unnecessarily uses NRC staff resources with no end users

Industry Concerns with Endorsement of IEEE-1819

- Ineffective use of NRC resources
 - Staff time devoted to endorsement of standard with no end users
 - Complication of training inspection teams on inapplicability of endorsed standard at sites
- IEEE-1819 does not contain anything specific to electrical components
- Would result in NRC endorsement of two incompatible categorization processes
 - NEI 00-04 is already endorsed
 - IEEE-1819 is not referenced in any approved LARs
 - PRA sensitivity differences could lead to conflicting outcomes

IEEE-1819 and NEI 00-04 Differences

IEEE-1819	NEI 00-04	Comments
5.2.3.a Supplementary analyses that are used to compensate for PRA limitations in quantifying the risk during plant shutdown and the risk of hazards such as fire risks, seismic risks, and other external risks (tornadoes, external floods, etc.)	No Requirements	The non-PRA portions of NEI 00-04, including the IDP, adequately address the limitations of a quantitative PRA
5.2.3.b Deterministically derived risk assessments that consider, like the PRA, the impact and likelihood of failure of the EESC under consideration	No Requirements	The non-PRA portions of NEI 00-04, including the IDP, adequately address the limitations of a quantitative PRA
5.2.3.c Plant design bases	No Requirements	The non-PRA portions of NEI 00-04, including the IDP, adequately address the limitations of a quantitative PRA

IEEE-1819 and NEI 00-04 Differences

IEEE-1819	NEI 00-04	Comments
5.2.3.d Maintenance of defense-in-depth	Section 6 Defense in Depth Assessment	Fully covered by Section 6 and IDP Review
5.2.3.e Maintenance of sufficient safety margins	General Considerations	Fully covered by IDP Review
5.2.3.f Plant and industry operating experience	Section 9 IDP Review	Fully covered by IDP Review
5.2.3.g Operational and maintenance processes	No Requirements	The non-PRA portions of NEI 00-04, including the IDP, adequately address the limitations of a quantitative PRA
5.3.3.5 Increasing the failure rate of LSS EESCs simultaneously by a common multiplier	8. Increase failure rate of all RISC-3 SSCs	Increasing the failure rate of RISC-4 SSCs is inappropriate as there are changes to the requirements for RISC-4 SSCs

IEEE-1819 and NEI 00-04 Differences

IEEE-1819	NEI 00-04	Comments
5.3.3.5 Removal of credit for all operator recovery actions associated with LSS EESCs	Table 2 – Set HEPs to 95 th and 5 th percentile	Complete removal of HEPs for LSS equipment is inappropriate as the operator actions should not be impacted by alternate treatment. Exploring the impact of the range of realistic HEPs as identified in NEI 00-04 provides assurance that reliability of equipment is not be masked by undo reliance on operator actions
5.3.3.5 Increasing the common cause failure contributions of the LSS EESCs by a common multiplier	Table 2 – Change CCF events to 95 th & 5 th percentiles	Limiting the sensitivity study to LSS components is non-conservative and addressed by the importance measures used to determine potential LSS/HSS components
5.3.3.5 Increasing the planned maintenance unavailability by an appropriate multiplier	Table 2 – Set all maintenance terms to 0.0	

IEEE-1819 and NEI 00-04 Differences

IEEE-1819	NEI 00-04	Comments
<p>5.3.4.1 a) List all components in the system. Remove from the list any identified components that are considered spared, abandoned, or simply represent an empty space in a cubicle.</p> <p>b) Sort the scoped components by type and current flow order. For example, identify a particular component as a bus that receives power from a supply circuit breaker and distributes power to various loads through individual load circuit breakers. The supply circuit breaker would be listed first, then the bus, and finally the load circuit breakers, with all of these components grouped under the bus name.</p> <p>c) Identify each end load that is powered from this system. Obtain the relevant end load information, such as identification number, description, and risk data, where available. End loads may be powered directly from a load breaker, or from a distribution panel that is fed by a load breaker, or from a relay panel that is fed from a distribution panel that is itself fed from a load breaker</p>	No Requirement	Could be one way to document, but shouldn't be perceived as a requirement

IEEE-1819 and NEI 00-04 Differences

IEEE-1819	NEI 00-04	Comments
<p>5.3.4.5.2 Busbars may be categorized as LSS even if there are HSS loads powered from that bus, because of the passive and inherently reliable nature of a busbar, as demonstrated by facility-specific operating experience. Cables shall be categorized the same as the equipment they support. Transformers shall be categorized as HSS if they are the only source of power for one or more downstream electrical component(s) that are classified as HSS.</p>	<p>Not Applicable</p>	<p>NEI 00-04 does not allow for categorization SSCs as LSS because they are inherently reliability</p>
<p>6 Alternate Treatment Requirements</p>	<p>No Applicable</p>	<p>50.69 does not require NRC approval or endorsement of alternate treatment requirements. Each utility may use the information related to alternat treatment in IEEE-1819 if it meets there needs, but endorsement would imply utilities should use this guidance</p>
<p>Annex B</p>	<p>No Requirement</p>	<p>Completing this information for each SSC is cumbersome with no commensurate value. To our knowledge, it has not been piloted to determine the level of effort or how the results would vary from the endorsed NEI 00-04 process</p>

Path Forward

- Industry strongly recommends cessation of activities related to NRC endorsement of IEEE-1819 consistent with multiple letters
 - NEI, October 6, 2021
 - BWROG and PWROG, October 27, 2021
- Continue implementation of 50.69 via NEI 00-04 as endorsed in RG 1.201