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Proposed Revisions to Environmental Qualification of Mechanical and Electrical Equipment

Comment On: NRC-2017-0229-0001
Proposed Revisions to Environmental Qualification of Mechanical and Electrical Equipment; Request for Comment on Standard Review Plan-Draft Section Revision

Document: NRC-2017-0229-DRAFT-0002
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Submitter Information

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Organization: Southern Nuclear

General Comment

See attached file(s)

Attachments

NL-18-0113

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Southern Nuclear Operating Company Comments on Draft Revision 4 of NUREG-0800, Section 3.11, "Environmental Qualification of Mechanical and Electrical Equipment," Docket ID NRC-2017-0229

Dear Ms. Ma:

In response to Federal Register Notice 82 FR 57625 released on December 6, 2017, Southern Nuclear Operating Company (SNC) is hereby providing comments on draft revision 4 of NUREG-0800, section 3.11, Environmental Qualification of Mechanical and Electrical Equipment (Docket ID NRC-2017-0229).

SNC has reviewed the draft regulatory guide and has comments as detailed in the attachment to this letter.

This letter contains no NRC commitments. If you have any questions, please contact Justin Wheat at 205.992.5998.

Respectfully submitted,

J. T. Wheat
Nuclear Licensing Manager

JTW/lkb/cag

Attachment: SNC Comments on Docket ID NRC-2017-0229

cc: Southern Nuclear Operating Company
Mr. M. D. Meier, Vice President – Regulatory Affairs
Mr. B. J. Adams, Vice President – Engineering
SNC Document Services RType: CGA02.001

Southern Nuclear Operating Company Comments on Draft Revision 4 of NUREG-0800, Section 3.11, "Environmental Qualification of Mechanical and Electrical Equipment," Docket ID NRC-2017-0229

Attachment

SNC Comments on Docket ID NRC-2017-0229

#	Identifier (Section, Page, Paragraph)	Comment	Proposed Resolution
1	Page 3.11-2	"The regulation defined a "mild" environment as an environment that would at no time be significantly more severe than the environment that would occur during normal plant operation, including anticipated operational occurrences. The NRC stated in 10 CFR 50.49 that environmental qualification of electric equipment located in a "mild" environment was not included within the scope of 10 CFR 50.49. For the purposes of this SRP section, an environment that exceeds NRC's definition of "mild" will be termed "harsh."" This is just ambiguous enough to allow different interpretations. Does "including anticipated operation occurrences" link to "normal plant operation" or to "more severe than?" "Abnormal operating environments" that are usually anticipated should not be considered harsh for EQ purposes.	The regulation defined a "mild" environment as an environment that would at no time be significantly more severe than the environment that would occur during normal plant operation (normal plant operation includes any normal operational occurrences or anticipated operational occurrences). The NRC stated in 10 CFR 50.49 that environmental qualification of electric equipment located in a "mild" environment was not included within the scope of 10 CFR 50.49. For the purposes of this SRP section, an environment that exceeds NRC's definition of "mild" will be termed "harsh." The proposed wording clearly defines the occurrences that are considered normal plant operation.

#	Identifier (Section, Page, Paragraph)	Comment	Proposed Resolution
2	Page 3.11-6 #5	"The staff's review for design certification (DC) consists of an evaluation of the description of the applicant's Environmental Qualification Program (i.e., approach and methodology) for selecting and identifying mechanical, electrical, and I&C equipment (i.e., providing the equipment list) important to safety required to be environmentally qualified for the certified design for compliance with 10 CFR Part 50, Appendices A and B, and 10 CFR 50.49, as applicable, and specifying the duration of which its function is required." In many cases, the approach and methodology for selecting which components were included in the original Master Lists is not well documented. Master Lists were typically compiled by an AE such as Bechtel, and their historic methodology for inclusion (or even more importantly – exclusion) of certain components is not documented or not readily available nor retrievable. Continued on next page.	"The staff's review for design certification (DC) consists of an evaluation of the description of the applicant's Environmental Qualification Program; reviewing the equipment list (mechanical, electrical, and I&C equipment) important to safety required to be environmentally qualified for the certified design for compliance with 10 CFR Part 50, Appendices A and B, and 10 CFR 50.49, as applicable, and reviewing the adequacy of the duration of the stated maximum Post-Accident Operating Time requirement for the components." Since design certification is not defined it is not clear whether this section is applicable to plants licensed under Part 50. Either the scope should be revised to reflect the historical aspects of existing programs, or the paragraph should be revised to remove any ambiguity that it only applies to design certifications being reviewed in accordance with Part 52.

#	Identifier (Section, Page, Paragraph)	Comment	Proposed Resolution
2	Page 3.11-6 #5	Continued from previous page. Typically, the only duration of functionality that exists in the EQ documentation (unless there has been a more precise evaluation for specific components which was borne out of some specific necessity) is the determination of qualified life; plus the Design basis Accident period; plus the Maximum Post-Accident Operating time (30, 60, 90, 180, or 365 days, for example). The more specific information suggested on safety functions and mission times is available from Design, System Engineers, Operators, and System Functional Descriptions or other documents, but as a general rule, the specific safety related functions, and onsets and mission times aren't documented in EQ Program documentation. To require this would be a burdensome back-fit for existing EQ Programs.	

#	Identifier (Section, Page, Paragraph)	Comment	Proposed Resolution
3	Page 3.11-16 #25	"Consistent with the requirements of 10 CFR 50.49(e)(4) and 10 CFR 50.49(e)(6), and the guidance contained within RG 1.206 subsection C.I.3.11.5, the applicant shall identify the type of radiation dose and dose rate used to determine the radiation environment and indicate the extent to which estimates of radiation exposures are based on a radiation source term that is consistent with NRC staff-approved source terms and methodology. The applicant shall identify whether the equipment is subject to being submerged. The applicant should tabulate the pre-DBE neutron (inside containment, where applicable), beta and gamma exposures separately for each item of equipment and list the average energy of each type of radiation, and beta and gamma exposures post DBE." Normal and accident doses are inputs to the EQ program provided by the group that performs these calculations (Safety Analysis for SNC). Typically, these are worst-case room doses and are not necessarily component specific unless we need a fine-tuned calculation to achieve qualification. Contribution to the normal and accident doses consider the sources and types of radiation, but typically these are not tabulated for each component tag number in the EQ documentation.	"Consistent with the requirements of 10 CFR 50.49(e)(4) and 10 CFR 50.49(e)(6), and the guidance contained within RG 1.206 subsection C.I.3.11.5, the applicant shall identify the type of radiation dose and dose rate used to determine the radiation environment and indicate the extent to which estimates of radiation exposures are based on a radiation source term that is consistent with NRC staff-approved source terms and methodology. The applicant shall identify whether the equipment is subject to being submerged. The applicant should tabulate Total Integrated Dose assumed for each component; address beta radiation as appropriate; and demonstrate adherence to IEEE 323-1974 recommended margins, or otherwise justify any deviation. Normal and Accident doses may be differentiated and documented in the EQ documentation or in supporting calculations." The expectation imposed by the proposed acceptance criteria would be a burdensome back-fit for the EQ Programs while providing no safety benefit. This proposed resolution provides acceptance criteria that address the relevant program elements without imposing new requirements.

#	Identifier (Section, Page, Paragraph)	Comment	Proposed Resolution
4	Page 3.11-15 (mark up copy) Item 16	Similar to the discussions/sections pertaining to IEEE 323, there are different versions of the 344 Seismic standard and different Revisions of the Reg Guide.	Add a sentence to the end of the section as follows: "RG 1.100 Revisions 1, 2 and 3 should be used in conjunction with IEEE 344-75, 87, and 2004 as appropriate for satisfying the seismic qualification of equipment as outlined in section 3.10 of the SRP."
5	Page 3.11-15 (mark up copy) Item 16	3rd line, "Power Plants," endorses, with exceptions and clarificaitons, IEEE Std 344...."	Change spelling from "clarificaitons" to "clarifications"
6	Page 3.11-27 (mark up copy) Ref #9	Reference #3 (IEEE 323) refers to two versions of the Standard. Reference #9 (IEEE 344) should also refer to the various versions.	Add reference to IEEE 344-1975 and 1987.
7	Page 3.11-29 mark up copy) Ref #37	The exact title/wording of the Reg Guide 1.100 is consistent with only Rev 3.	Edit the Reference so that RG 1.100 Revisions 1 and 2 and 3 can all be listed.