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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

ANP-10281P, "U.S. EPR Digital Protection System Topical Report," Proposed Alternative to Satisfy 10 CFR 50.55a(h) Requirements – Use of IEEE Std 603-1998 in Lieu of IEEE Std 603-1991

Ref. 1: Letter, Ronnie L. Gardner (AREVA NP Inc.) to Document Control Desk (NRC), "Response to Third Request for Additional Information Regarding ANP-10281P, 'U.S. EPR Digital Protection System Topical Report' (TAC MD4977)," NRC:09:033, March 31, 2009.

In Reference 1, AREVA NP Inc. (AREVA NP) submitted a response to a Request for Additional Information (RAI) regarding topical report ANP-10281P, "U.S. EPR Digital Protection System Topical Report." As noted in the response to RAI-40 of Reference 1, by this letter, AREVA NP formally requests NRC authorization to use IEEE Std 603-1998 as an alternative to the requirement in 10 CFR 50.55a(h)(3) to use IEEE Std 603-1991. In accordance with 10 CFR 50.55a(a)(3)(i), this proposed alternative provides an acceptable level of quality and safety.

The technical basis for this proposed alternative was previously provided in Section 14.1 of ANP-10281P. AREVA NP has performed a technical comparison of IEEE Std 603-1991 to IEEE Std 603-1998. This comparison is presented in Appendix B of ANP-10281P and demonstrates that the requirements contained in IEEE Std 603-1998 meet or exceed the requirements contained in the 1991 version. Specifically, IEEE Std 603-1998 incorporates other IEEE Standards that have been reviewed and endorsed by Regulatory Guides (e.g., Regulatory Guide 1.152, Revision 2). Therefore, from both a design and regulatory perspective, use of Std 603-1998 for the U.S. EPR digital safety systems, including the protection system, is appropriately justified.

10 CFR 50.55a(h) requires protection and safety systems to meet the guidance of IEEE Std 603-1991, which is endorsed by Regulatory Guide 1.153. The 1991 version of this IEEE standard has been upgraded to IEEE Std 603-1998. The purpose of this revision was to "clarify the application of this standard to computer-based safety systems and to advanced nuclear power generating station designs." The U.S. EPR nuclear plant design contains computer-based safety systems; therefore, it is appropriate to apply the guidance of IEEE Std 603-1998 to the U.S. EPR design. Furthermore, Regulatory Guide (RG) 1.152, Revision 2, which endorses IEEE Std 7.4.3.2-2003, also makes numerous references to the 1998 version of IEEE Std 603. For example, NRC endorsed Annex A of IEEE Std 7.4.3.2-2003 which provides a mapping of IEEE Std 603-1998 to IEEE Std 7-4.3.2-2003.

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Additionally, as explained in NUREG-0800 Appendix 7.1-D, "Guidance for the Evolution of the Application of IEEE Std 7-4.3.2":

"IEEE Std 603-1998, was evolved from IEEE Std 603-1991. The 1998 version of IEEE Std 603, was revised to clarify the application of the standard to computer-based safety systems and to advanced nuclear power generating station designs. IEEE Std 603-1998 provides criteria for the treatment of electromagnetic and radio frequency interferences (EMI/RFI) and includes common-cause failure of digital computers in the single failure criterion. However, IEEE Std 603-1998 has neither been incorporated into the regulations nor endorsed by a regulatory guide. Therefore, the use of criteria from IEEE Std 603-1998 by licensees and applicants may be acceptable, if appropriately justified, consistent with current regulatory practice."

AREVA NP requests authorization for use of this proposed alternative in conjunction with the NRC issuance of the safety evaluation regarding ANP-10281P.

If you have any questions related to this submittal, please contact Ms. Sandra M. Sloan, Regulatory Affairs Manager for New Plants, by telephone at 434-832-2369 or by e-mail to sandra.sloan@areva.com.

Sincerely,



Ronnie L. Gardner, Manager
Corporate Regulatory Affairs
AREVA NP Inc.

Enclosures

cc: G. Tesfaye
Docket No. 52-020