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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DEC 6 1983

MEMORANDUM FOR: Wilbur Morrison, Acting Chief
Instrumentation and Control Branch, DFO, RES

FROM: Bill Morris, Chief
Electrical Engineering Branch, DET, RES

SUBJECT: DRAFT REGULATORY GUIDE ENDORSING IEEE STANDARD 603-1980

With reference to your memorandum to G. A. Arlotto, dated November 10, 1983, requesting review and comments on the subject draft guide, Mr. Arlotto has asked me to reply on behalf of DET.

We have the following comments:

1. Section 6.3.1(1) on page 20 of the standard contains a serious typographical error which substantially alters its meaning. Specifically, the third line in 6.3.1(1) contains, in error, the words "detect the event and." These words should be effectively deleted by an appropriate "exception" in the guide, so that the line reads "provided to limit the con(sequences)."

   Detection of the event itself is a proper design provision only for the second option in 6.3.1(2). This correction also renders 6.3.1(1) consistent with Section 4.7.4.1 of IEEE Standard 279-1971 which is worded properly, and does not require the alternate channels to detect the event.

2. The upper left "diamond" in Figure 7 yields, by convention, two mutually exclusive alternatives designated by "yes" and "no." Consider an event where an instrument sensing line to a steam generator level instrument ruptures, simultaneously causing a loss of water from the steam generator and a controls malfunction that acts to lower the water level, based on false "high level" signals to the level controller. This event requires a safety function; specifically the introduction of additional feedwater. It also causes an action by the (non-safety) level control system. Figure 7, however, shows these two events as mutually exclusive, a contradiction. Thus, Figure 7 is confusing, and a recommendation should be made in the guide to the effect that Figure 7, if used, should be used with caution.

3. The paragraph at the bottom of page 4, which continues into page 5, should be deleted. It adds nothing. It is also confusing since it addresses matters not covered in the rest of the guide.

4. For clarification, the following sentence should be added to the first "basis" statement on page 5: "These recommendations, which are not included in IEEE Standard 497-1977, are also acceptable for the identification, design, installation, and maintenance of display instrumentation required for the manual actuation of safety functions for which there is no automatic actuation.

5. Item 3 on page 5 should be deleted. The current version of Regulatory Guide 1.53 does not "match" IEEE Std 603-1977 and is, therefore, out of date. IEEE Std 379-1977 is not endorsed by a regulatory guide and is covered in the present C.5 on page 6.

6. Page 6, Item 1: Insert "the provisions for Type A instruments in" between "IEEE Std 603-1980," and "Regulatory Guide 1.97" in the second line.

   (Only the "Type A" provisions are applicable.)

7. Page 7: The statement, "For additional guidance with regard to equipment qualification refer to Regulatory Guide 1.89," should be deleted and replaced with a new provision C(x), as follows:

   > All references to "IEEE Std. 323-1974" should be replaced by "Revision 1 to Regulatory Guide 1.89, Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants."

8. A new section, C(y), should be added as follows:

   > All references to IEEE Std 338-1977 should be replaced by "Revision 2 to Regulatory Guide 1.118, Periodic Testing of Electric Power and Protection Systems."

If you have any questions, please contact D. F. Sullivan, EEBR, X37946.

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