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Subject: Comments on Draft Regulatory Guide DG-1128, Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants

Dear Sir or Madam:

The following comments on the draft regulatory guide DG-1128 are submitted by the IEEE Nuclear Power Engineering Committee (NPEC).

The NRC has issued Draft Regulatory Guide DG-1128 for comment. This draft guide proposes a revision to Regulatory Guide 1.97 that endorses IEEE Std. 497-2002, "IEEE Standard Criteria for Accident Monitoring Instrumentation for Nuclear Power Generating Stations." Working Group 6.1 of Subcommittee 6 of the Nuclear Power Engineering Committee developed IEEE Std. 497-2002. The following comments are provided from members of Subcommittee 6 and the Nuclear Power Engineering Committee:

1. In Section B of DG-1128 the discussion of IEEE Std. 497-2002 Annex A (first bullet) states:

   "Specifically, Clause A.3 states, in part, "Historically, the required accuracy for instrument channels relied upon to monitor containment pressure and hydrogen concentration has been +/- 10 percent of full span." However, the NRC staff notes that this example may not be applicable to all nuclear power plants. Traditionally, the required accuracy of accident monitoring instrument channels is established based on the assigned function and the plant's safety analysis and licensing basis."

   This wording implies a possible conflict between IEEE Std. 497-2002 and the draft regulatory guide on sources of accuracy requirements. The historical source alluded to in Clause A.3 is ANS Std. 4.5-1980, Sections 6.3.5.2 and 6.3.5.3. ANS Std. 4.5 may or may not be part of a specific plant's licensing basis. To preserve the historical basis of Clause A.3, the working group suggests the following sentence be added after the quoted Clause A.3 passage and before the word "However,"

   "The historical source for this accuracy value is ANS Std. 4.5-1980, which the IEEE working group carried forward into IEEE Std. 497-2002."

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In addition the working group suggests at the end of the last sentence after "licensing basis" to add:

"which may or may not include ANS Std. 4.5-1980."

2. Regulatory position C. (1) imposes an unnecessarily restrictive requirement by requiring a plant's entire accident monitoring program to meet the requirements of Revision 4 of the regulatory guide during a voluntary conversion of a current operating reactor to the new criteria. It is agreed that the analysis of variables should cover all variables. However, the design and qualification criteria should recognize the acceptability of the plant's current licensing basis. For example, the electrical separation requirements specified in section 6.3.d of IEEE Std. 497-2002 require use of IEEE 384-1992. Current licensees meet electrical separation requirements per the current licensing basis of the plant but do not meet IEEE Std. 384-1992. There is no benefit in requiring licensees to justify deviations from IEEE Std. 384-1992 and in requiring NRC review of these deviations when voluntarily converting to revision 4 of the accident monitoring regulatory guide. Therefore, it is suggested that regulatory position C. (1) be revised to read, "If a current operating reactor licensee voluntarily converts to the criteria in Revision 4 of this guide, the licensee should perform the conversion by evaluating all accident monitoring variables. When alternate requirements applicable to a design or qualification criteria are provided in the plant's current licensing basis, it is acceptable to apply these requirements to the voluntary conversion."

3. Revision 4 of Regulatory Guide 1.97 should provide guidance for current plants that are implementing digital upgrades to existing accident monitoring instrumentation while maintaining their current licensing basis.

The discussion for Regulatory Position C. (1) and the last sentence on page 13 include the sentence, "Therefore, Revision 4 is not intended for current operating reactor licensees." This statement along with the discussions about partial conversions in Regulatory Position C. (1) and on page 14 could be misinterpreted to imply that current plants should not perform digital upgrades unless they convert the plant's entire accident monitoring program to the variable selection, variable type definitions, and qualification criteria in IEEE Std. 497-2002. In reality, existing accident monitoring instrumentation at current plants can be replaced by digital instrumentation and still remain in compliance with the existing licensing basis (Revision 2 or 3 of Regulatory Guide 1.97). However, Revisions 2 and 3 do not provide guidance concerning the proper use of digital instrumentation.

Since current plants would be allowed to voluntarily convert to Revision 4, the sentence, "Therefore, Revision 4 is not intended for current operating reactor licensees." is incorrect and should be removed from both Regulatory Position C. (1) and the last paragraph on page 13.

Additionally, Revision 4 of Regulatory Guide 1.97 should address the issue of digital upgrades, by defining a digital upgrade and providing guidance as to the appropriate regulatory guides and standards that should be used for a digital upgrade while at the same time maintaining the current variable selection, variable type definitions, and qualification criteria that are part of the plant's current licensing basis. Although this guidance may not be appropriate in a Regulatory Position, it could be included as part of the Regulatory Analysis.

4. Regulatory Position C. (2) modifies the first sentence in the second paragraph of Clause 6.7 in IEEE Std. 497-2002 as follows:

"To the maximum extent possible, considering instrument accessibility, means shall be provided for maintaining instrument calibration during the accident."

The working group concurs with the intent of the NRC in relaxing the standard's requirement. However, the use of the word "maximum" in this context implies use of extreme and even beyond extreme measures to achieve accessibility. The working group suggests replacing "To the maximum extent possible..." with "To the extent practical...".

5. IEEE Std. 497-2002 provides guidance for the selection of Type A variables in Section 4.1. The last paragraph in the section states the following:

> "Type A variables provide information essential for the direct accomplishment of specific safety-related functions that require manual action. These variables are a subset of those necessary to implement the plant specific emergency procedure guidelines (EPGs) or the plant specific emergency operating procedures (EOPs) or the plant abnormal operating procedures (AOPs). Type A variables do not include those variables that are associated with contingency actions that may also be identified in written procedures."

In Regulatory Position C. (4), the draft regulatory guide deletes the final sentence of this paragraph and replaces it with the following in Section 1.3:

> "This standard also does not apply to instrumentation required to support plant shutdown from outside the control room."

The concern is with the elimination of the sentence in IEEE Std.497-2002 excluding contingency actions. DG-1128 states the basis for this regulatory position. During the variable selection process instruments associated with all actions, including contingencies, should be considered and then associated instruments eliminated from consideration if the contingency action takes place beyond the plant's licensing basis. IEEE Std. 497-2002 excluded contingencies because actions credited in the licensing basis would be primary actions in plant operating procedures or guidelines, not contingencies. Furthermore Rev. 3 of

Regulatory Guide 1.97 excluded contingency actions from consideration for Type A variables, yet did not have a prescriptive list of Type A variables (only for other types of variables).

It is suggested that either (1) the exclusion of contingency actions be removed from the regulatory positions to make Reg. Guide 1.97 Rev. 4 consistent with IEEE Std. 497-2002 in this regard or (2) a statement be added in Regulatory Position C. (4) such as "Contingency actions that are part of the plant's licensing basis shall be considered in selecting Type A variables" as a modification to Clause 4.1 of IEEE Std. 497-2002.

Thank you for the opportunity to comment on this draft regulatory guide.

Very truly yours,

John J. Disosway
Chairman
Nuclear Power Engineering Committee

cc: J. S. Malcolm, NPEC Vice Chairman
J. D. MacDonald, NPEC Secretary
M. H. Miller, Subcommittee 6 Chairman
D. L. Harmon, Working Group 6.1 Chairman