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NUCLEAR ENERGY INSTITUTE

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Ms. Andrea Veil
Director, Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NEI Comments on SECY-22-0076, "Expansion of Current Policy on Potential Common-Cause Failures in Digital Instrumentation and Control Systems"

Project Number: 689

Dear Ms. Veil:

On August 24, SECY-22-0076, "Expansion of Current Policy on Potential Common-Cause Failures in Digital Instrumentation and Control Systems," was made publicly available. On behalf of its members, the Nuclear Energy Institute (NEI)[1] is providing comments on the recommended digital instrumentation and control (DI&C) common cause failure (CCF) policy documented in SECY-22-0076 to help ensure that NEI understands the staff's recommended policy.

NEI is thankful for the staff's efforts to permit the use of some risk-informed insights in managing the potential for CCF in DI&C systems. However, the industry interprets the policy to require diverse and independent main control room displays and manual controls regardless of their contribution to DI&C system safety. This issue, referred to as Point 4 of the policy, was discussed at the numerous public meetings held by the NRC staff. Based on these meetings, the industry believed that the staff planned to recommend to the Commission an integrated risk-informed approach that determines the necessary scope of diverse and independent displays and manual controls through an integrated risk-informed defense-in-depth CCF analysis (the CCF analysis). In this way, all the protective and mitigation measures required by the policy would be determined by the CCF analysis. However, the wording is not consistent with this objective. Specifically, Point 4 of SECY-22-0076 states:

> *Main control room displays and controls that are independent and diverse from the proposed digital I&C systems (i.e., unlikely to be subject to the same CCF) shall be provided for manual, system-level*

[1] The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

> *actuation of critical safety functions and monitoring of parameters that support the safety functions. These main control room displays and control may be used to address point 3, above.*

The industry has largely interpreted this wording to require a diverse set of displays and manual controls that are independent of the DI&C system regardless of how safe the DI&C system is. This requirement reduces the flexibility of the DI&C design and could add unnecessary complexity. To permit a fully integrated risk-informed policy the industry recommends the following text:

> Diverse displays and manual controls, if credited in the defense-in-depth CCF analysis, shall be located such that the action can be accomplished within the time period required. The applicant shall demonstrate the adequacy of the credited diverse displays and manual controls commensurate with the risk significance of the associated postulated CCF.

NEI's proposed policy, if adopted, would specify that diverse displays and manual controls be required only if needed to ensure safety of the DI&C system. The use of an integrated defense-in-depth CCF analysis is the standard applied in designing DI&C systems in other safety-focused industries.

In SECY-22-0076 the NRC staff stated that the requirement to have independent and diverse displays and controls in the main control room to address DI&C CCF is already required by IEEE standards:

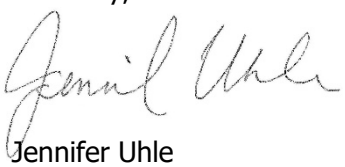
> *The position in point 4 of SRM-SECY-93-087, Item 18, is maintained in point 4 of the recommended expanded policy because (1) it clarifies the implementation of existing regulatory requirements (e.g., IEEE Std 279, clauses 4.1, 4.17, and 4.20, and IEEE Std 603-1991, clauses 4.10, 5.6.1, 6.2.1, 6.2.2, and 6.2.3) for addressing digital I&C CCFs and (2) the lack of independent and diverse displays and controls in the control room would prevent the manual operation of critical safety functions in the event that a CCF disables the digital I&C system.[…] Point 4 of the recommended expanded policy clarifies that it is intended to be addressed in the same assessment as the first three points.*

The industry disagrees with this statement. The IEEE 279 and IEEE 603-1991 clauses cited in SECY-22-0076 require manual controls for automated protection functions, not to protect against DI&C CCF. The SECY-22-0076 characterization of the IEEE requirements assumes that the applicant's defense-in-depth CCF analysis requires the use of displays and manual controls to mitigate a postulated CCF. Arbitrarily mandating a set of displays and manual controls, and their design criteria, in Point 4 is unnecessary unless they are required by the analysis. The need for diverse displays and manual controls should be determined by the CCF analysis.

In summary, the industry believes that the CCF analysis proposed by SECY-22-0076 under Points 1 through 3 should determine the need for diverse displays and manual controls and the degree of diversity needed. These design techniques should not be deterministically prescribed regardless of their impact to safety. The industry also believes they are not currently required by IEEE 279 and IEEE 603-1991.

NEI appreciates the effort to modernize the existing CCF policy documented in SRM-SECY-93-087 and the abundance of stakeholder engagement activities regarding this subject to date. In addition, we appreciate your consideration of the comments and recommendations provided herein.

Sincerely,



Jennifer Uhle

cc: Andrea Kock, NRR/NRC
NRC Document Control Desk