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NOTE TO: Gary Park, Chair
Richard Swayne, Vice-Chair
ASME Standards Committee on Nuclear Inservice Inspection
Section XI Executive Committee

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ISSUE: Lack of Definitions of Evaluation; Inappropriate Application of
Code Case N-566-X

SUMMARY: The NRC recently conducted a meeting of the Nondestructive Evaluation (NDE) Technical Advisory Group (TAG). The NDE TAG is comprised of representatives from the Office of Nuclear Reactor Regulation, Office of New Reactors, Office of Nuclear Regulatory Research, and Regions. The purpose of the NDE TAG is to provide a forum to discuss regulatory perspectives, inspector oversight issues, and NDE-related research results. An area of focus is issues related to the effectiveness of NDE and in-service inspections of nuclear power plant components.

An ASME Code-related issue that was raised at the NDE TAG is that licensees are applying varying definitions of “evaluation” or “analytical evaluation” and sometimes using them interchangeably, and the manner in which some licensee’s are defining evaluations affects the implementation of Code Case N-566-2. In addition, while reviewing this issue, regional inspectors have found instances where Code Case N-566-2 is being used inappropriately.

PROPOSAL: That Section XI develop definitions to define the various technical evaluations and consider revisions to IWA-9000 and Code Case N-566-2.

DISCUSSION: The first example is that a licensee found that a bolted connection on a recirculation line in the SIRWT system was leaking. Code Case N-566-2 was applied under the Owner’s boric acid program procedure. The guidance in their procedure duplicates the provisions in Code Case N-566-2 with one addition:

“no immediate action is required when the *evaluation* required by Code Case N-566-2 determines that the leaking condition has not degraded the fasteners or connection, or that the

joint integrity will remain acceptable until corrective action for the leak is completed. However, reasonable attempts shall be made to stop the leakage as appropriate. If the acceptance of the component is by *analytical evaluation*, the evaluation analysis shall be submitted to the NRC in accordance with IWB-3144(b).”

Absent specific definitions, “evaluations” can be very cursory with no documentation.

A second example demonstrates another manner in which this lack of specificity allows inappropriate implementation. Regional inspectors have observed instances where licensees are conducting a boric acid walkdown in Mode 3 at the beginning of an outage and have observed boric acid or evidence of leakage at connections. Some licensees are merely cleaning the area. At the end of the outage, a Section XI leakage test of the reactor coolant system will be performed with application of Code Case N-566-X (bolted connections). If there is a small leakage path, it is unlikely that there will be evidence of leakage during the short duration of the Section XI leakage test. Yet, boric acid or evidence of leakage will be observed in the same location during the walkdown in the next outage, and licensees are repeating the same actions.

The safety concern is that there are connections with carbon steel bolts that are being subjected to boric acid leakage without the specific evaluations required by Code Case N-566-X being applied, and this may ultimately lead to failures. In addition, since Section XI requires some “evaluations” to be submitted to the regulator, the staff is concerned about possible confusion on the part of licensees associated with the required submittal of evaluations to the NRC.

There is a definition for “engineering evaluation” in IWA-9000 [an evaluation of indications that exceed allowable acceptance standards to determine if the margins required by the Design Specifications and Construction Code are maintained]. In addition, the staff is aware of previous actions within Section XI that inserted the use of “analytical evaluation” throughout Section XI. However, as a part of that action, a specific definition of this term was not included in the Section XI Glossary.

The staff continues to collect information with respect to how licensees are conducting leakage tests and applying the various definitions of “evaluation,” “analytical evaluation,” and “engineering evaluation.” It is evident to the staff that licensee’s actions with respect to these terms are inconsistent. As a result, the staff is considering how it will address these issues in the future.

The staff requests that ASME place a high priority on the development of specific definitions for all forms of “evaluations” used in Section XI, and consider revisions to Section XI and Code Case N-566-2 accordingly to address the concerns discussed above. Once such definitions are developed, a review of the current usage of these terms, as currently published throughout Section XI, is recommended in order to ensure that all uses are consistent with the new definitions.

