

NUCLEAR REGULATORY COMMISSION
Notice of Clarification to Steam Generator Tube Integrity Event Reporting Guideline in
NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73"

AGENCY: Nuclear Regulatory Commission

ACTION: Notice of clarification in reporting guideline for steam generator tube integrity event

SUMMARY: The U.S. Nuclear Regulatory Commission has made a clarification in the reporting guideline for serious steam generator tube degradation contained within Revision 2 to NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." The NRC will issue an errata to NUREG-1022, Revision 2. The purpose of this clarification is to ensure that the NRC receives timely notification of serious steam generator tube degradation.

SUPPLEMENTARY INFORMATION: On February 18, 2004, the NRC staff issued a Federal Register notice (69 FR 7661) that requested comments on the staff's intent to issue errata to Revision 2 of NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." The errata would indicate that steam generator tube degradation is considered serious if either of the two criteria specified in Section 3.2.4(A)(3) of NUREG-1022, Revision 2, is not satisfied.

Steam generator tube degradation is currently characterized in Section 3.2.4(A)(3) of NUREG-1022 as being seriously degraded if the tubing fails to meet the following two performance criteria:

(A) Steam generator tubing shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cooldown and all anticipated transients included in the design specification) and design basis accidents. This includes retaining a margin of 3.0 against burst under normal steady state full power operation and a margin of 1.4 against burst under the limiting design basis accident concurrent with a safe shutdown earthquake.

(B) The primary to secondary accident induced leakage rate for the limiting design basis accident, other than a steam generator tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all steam generators and leakage rate for an individual steam generator. The licensing basis accident analyses typically assume a 1 gallon per minute primary to secondary leak rate per steam generator, except for specific types of degradation at specific locations where the tubes are confined, as approved by the NRC and enumerated in conjunction with the list of approved repair criteria in the licensee's design basis documents.

The first performance criterion is commonly referred to as the structural integrity performance criterion and the second criterion is commonly referred to as the accident induced leakage performance criterion. As written, NUREG-1022 could be read to indicate that the principal safety barrier (i.e., the steam generator tubes in this case) would only be considered seriously degraded if it had neither structural nor leakage integrity. Accordingly, if the steam generator tubes lacked only one of structural or leakage integrity, they would not be considered seriously degraded. This is contradictory to existing NRC regulations which require, in part, that the reactor coolant pressure boundary (which includes the steam generator tubes) be designed to permit periodic inspection and testing of important areas and features to assess both their structural and leaktight integrity (refer to General Design Criterion 32 of Appendix A to 10 CFR Part 50) and be designed and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture (refer to General Design Criterion 14 of Appendix A to 10 CFR Part 50). The regulations, therefore, indicate that both structural and leakage integrity criteria must be satisfied, and not meeting either one of the two performance criteria should constitute serious degradation of the principal safety barrier.

In response to the Federal Register notice, one public comment was received from Progress Energy (ML040850494). The comment was that the notice did not indicate whether the new criteria would require the re-evaluation of the reportability of existing steam generator tube degradation that was previously evaluated based on the criteria that were in effect before issuance of the errata. The commenter also indicated that retroactive application of the new event reporting criteria to previously evaluated events would add burden to the licensees but would not provide timely notification to the NRC. Based on this comment and the reasons set forth below, the staff recommends that the errata clarify that retroactive notification is necessary only required if either of the criteria were exceeded during the last steam generator tube inspections.

The errata to NUREG-1022 are intended to clarify existing requirements rather than to establish new requirements or criteria; however, the NRC recognizes that the wording in NUREG-1022 may have resulted in confusion regarding whether a report was required, given the condition of the tubes. As a result, the staff assessed the purpose of the report, other steam generator tube inspection reports received, and the potential value of evaluating previous inspection results. These items are discussed further below.

The main purpose of the event report is to notify the staff, in a timely manner, of significant degradation of the steam generator tubes. This report allows the staff to review the corrective actions taken, to assess the generic implications of the findings, and to take any regulatory action that may be appropriated. From a practical perspective, the staff and public are informed of the results of the steam generator tube inspections following each inspection through reports submitted to the NRC in accordance with technical specification reporting requirements. These reports are typically submitted to the NRC within one year of the inspection. As a result, if a

licensee were to experience significant degradation of the steam generator tubes, the staff and public would have the opportunity to identify this through the review of these reports. In addition, it is highly likely that if significant degradation was observed, it would have been assessed as part of the reactor oversight process. For this reason, retroactive notification of previous occurrences when either criterion was exceeded is not likely to provide any new information. This logic holds for all previous inspections except for the last steam generator tube inspections since these results may not have been reported and/or the NRC may not have completed its review of these reports. As a result, the staff concludes that the last steam generator tube inspection results should be reviewed and if either criterion was exceeded, this should be reported in accordance with 10 CFR 50.72 and 50.73. Given that the industry's steam generator initiative (referred to as NEI 97-06) has essentially the same criteria and all pressurized water reactors have committed to follow this initiative, no significant burden should be imposed on any licensee in assessing whether the criteria were exceeded during the last steam generator tube inspection.

ADDRESS: Submit written comments to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Mail Stop T6-D59, Washington, DC 20555-0001, and cite the publication date and page number of this Federal Register notice. Written comments may also be delivered to NRC Headquarters, 11545 Rockville Pike (Room T6-D59), Rockville, Maryland, between 7:30 am and 4:15 pm on Federal workdays.

FOR FURTHER INFORMATION, CONTACT: Samuel S. Lee at (301) 415-1061 or by E-mail to ssl@nrc.gov, or Kenneth J. Karwoski at (301) 415-2752 or by E-mail to kjk1@nrc.gov.

Dated at Rockville, Maryland, this 27th day of August 2004.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Francis M. Costello, Acting Chief
Reactor Operations Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

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