November 26, 2001

Mr. Ralph E. Beedle
Senior Vice President and Chief Nuclear Officer
Nuclear Generation
Nuclear Energy Institute
1776 I Street, NW., Suite 400
Washington, DC 20006-3708

SUBJECT: NEI STEAM GENERATOR GENERIC CHANGE PACKAGE - INSPECTION INTERVAL ISSUE

Dear Mr. Beedle:

This letter responds to NEI letter dated November 2, 2001[1] concerning inspection interval controls in the NEI Steam Generator Generic Change Package (SG GCP). The NEI letter is in response to NRC staff concerns regarding steam generator inspection intervals which were documented by letter dated August 2, 2001[2] and which were discussed with NEI and industry representatives at a public meeting on August 29, 2001[3]. In its November 2 letter, NEI proposed a revision to the proposed template in the GCP for cover letters to accompany plant specific change packages. Under the revised template, licensees would commit to limiting inspection intervals to "X, Y, or Z" for steam generators with alloy 600 MA, 600 TT, or 690 TT, respectively. The appropriate values for X, Y, and Z are still under evaluation by the industry. Licensees would also commit that should they intend to exceed this interval, they will submit a special report documenting the technical basis for the next inspection interval at least one year prior to exceeding the initial commitment.

The staff finds that this proposal does not adequately address the concerns documented in its August 2, 2001 letter. The staff's concerns relate to the flexibility provided by the GCP to licensees in determining the appropriate intervals for performing SG inspections and condition monitoring. The staff has determined that current industry guidelines such as the SG examination guidelines and the tube integrity assessment guidelines are not sufficiently well developed to support implementation of multi-cycle inspection intervals beyond what is permitted by current technical specifications or alternative criteria which can be justified on the basis of experience and consideration of the improved stress corrosion cracking performance expected with Alloy 600 TT and 690 TT tubing. Current estimates of risk associated with SG operation reflect current industry practice with respect to the frequency and level of inspection industry wide. Longer inspection and condition monitoring intervals may or may not increase risk relative to current levels depending on whether there is an adequate technical basis to conclude that the tube integrity performance criteria will continue to be met throughout the interval.

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[1] NEI letter dated November 2, 2001, "Industry Proposal for Steam Generator Inspection Interval Regulatory Controls" Accession No. ML013110373.

[2] NRC letter dated August 2, 2001, "NEI Steam Generator Generic Change Package" Accession No. ML012200349.

[3] NRC memorandum dated September 21, 2001, "Summary of August 29, 2001 Public Meeting With the Nuclear Energy Institute Regarding NEI 97-06" Accession No. ML012690666.

Proposed technical specifications under the GCP require implementation of an SG program which ensures that SG tube integrity performance criteria are maintained. The contents of the SG program are generally defined in licensee controlled documents not part of the technical specifications. However, the proposed technical specifications would require that condition monitoring assessments be performed at each SG inspection to verify that the performance criteria were in fact met at the conclusion of the last inspection interval. The frequency of SG inspection is not specified in the proposed technical specifications. However, the staff concludes that the frequency of inspection must be such as to meet 10 CFR 50, Appendix B, Criterion 16. Namely, measures (e.g., condition monitoring) shall be established and implemented to ensure that conditions adverse to quality (e.g., conditions not satisfying the performance criteria) are promptly detected and corrected. The staff notes that failure to meet the performance criteria is "tolerable" from a tube integrity or risk standpoint only to the extent that such a condition is promptly detected and corrected.

Predictive methodologies for managing known degradation mechanisms (i.e., operational assessment) and for anticipating the occurrence of new mechanisms (i.e., degradation assessment) need to be strengthened to support implementation of inspection intervals significantly exceeding current regulatory requirements. The NRC staff will continue work with the industry on improvements needed in industry guidelines for performing such analyses in a technically rigorous fashion. In the meantime, inspection intervals should be subject to appropriate limitations, based on experience and with consideration of the improved stress corrosion cracking performance expected with Alloy 600 TT and 690 TT tubing.

Pending development of the needed improvements to the industry guidelines, the staff identified acceptable inspection interval criteria in its August 2, 2001, letter similar to that in current technical specifications. At the August 29, 2001, meeting with the staff, industry representatives described new prescriptive criteria under consideration by the industry for inclusion into the forthcoming Revision 6 of the EPRI SG examination guidelines. The staff commented on this industry proposal in a memorandum dated September 18, 2001[4], which was provided to industry representatives (including NEI) and other external stakeholders. In the memorandum, the staff concluded preliminarily that the industry's proposal at the August 29 meeting should not significantly increase risk (relative to current restrictions on inspection interval) subject to modification of the proposal to incorporate certain additional provisions as identified in the memorandum and subject to receipt of additional information supporting the proposal. The latest industry proposal to commit to inspection intervals not to exceed X, Y, or Z (depending on tube material) is not conducive in resolving the comments in the staff's September 18 memorandum.

Apart from the need for acceptable inspection interval criteria, the staff has concluded that there must be appropriate regulatory controls with respect to inspection intervals to ensure that the performance criteria are maintained, that conditions failing to satisfy these criteria are promptly detected and corrected, and that risk is not increased. In its August 2, 2001 letter, the staff proposed regulatory controls on inspection interval consistent with the controls to be placed on the tube integrity performance criteria, tube repair criteria, and tube repair methods in the GCP. Specifically, the staff proposed that the inspection interval criteria can exist outside of technical

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[4] NRC memorandum dated September 18, 2001, "NRC Staff Comments on Steam Generator Inspection Intervals" Accession No. ML012610664.

specifications. These would be reviewed and approved by the staff when licensees submit their plant-specific change package. In addition, the administrative technical specifications in the GCP would be revised to allow use of alternative criteria if reviewed and approved by the NRC on a plant-specific or generic basis. This approach will allow for a more efficient and flexible process for industry to adopt criteria reviewed and approved generically by the staff than is possible under existing technical specifications.

The NEI proposal for licensees to commit to inspection interval restrictions and to provide the NRC staff with a one year prior notification should the licensee elect to change its commitment is not acceptable to the staff. Inspection intervals are an important parameter affecting tube integrity and risk. The staff needs to be assured that licensees are implementing inspection intervals with an adequate technical basis and for this reason requires direct and enforceable requirements for NRC approval prior to deviating from previously approved inspection interval strategies. The staff makes every effort to assure that licensee approval requests are processed in a timely fashion with a goal of completing 95% of such requests within one year.

The NRC staff remains highly committed to a revised regulatory framework which is more directly focused on maintaining tube integrity while at the same time providing enhanced flexibility to licensees on how this objective is achieved. However, the inspection interval issue is leading to a considerable delay in the schedule for completing the staff review and industry implementation of a revised regulatory framework based on NEI 97-06. No further progress can be made on the NEI SG GCP proposal until the inspection interval issue has been satisfactorily resolved. Therefore, the staff requests that the industry consider the staff comments and proposed resolutions in References 2 and 4 and submit appropriate generic inspection interval criteria and a revised administrative technical specification proposal which ensures that these criteria will be implemented unless otherwise reviewed and approved by the NRC staff. We suggest January 31, 2002 as a target date for submitting the necessary changes to the GCP. The staff is prepared to work with the industry as necessary to reach resolution by this date. This would allow the staff to issue a draft safety evaluation for public comment by April 30, 2002. Unless these issues can be resolved, the staff may need to consider alternative approaches for achieving a revised regulatory framework.

If you have any questions please contact Jack Strosnider of my staff on (301) 415-3298.

Sincerely,

/ra/

Brian W. Sheron, Associate Director
for Project Licensing and Technical Analysis
Office of Nuclear Reactor Regulation

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