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Mr. D. G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Comments on Proposed Steam Generator Generic
Requirements

Dear Sir:

This letter serves to provide the Authority's comments regarding the proposed steam generator generic requirements that were presented to representatives of the Steam Generator Owners Group at a meeting in Bethesda on July 6, 1983. In general, the Authority believes that the requirements must have the flexibility that is necessary to accommodate differences in plant design, operating history and cooling water source. Our specific comments on the proposed generic requirements follow.

I. Visual Inspection of Secondary Side and Improved QA/QC Procedures

- A. A one-time visual inspection of the secondary side of a steam generator through existing access ports is a reasonable method for finding loose parts or foreign objects, providing the following points are recognized.
1. There are differences in steam generator geometry and access; therefore, the scope and type of visual inspection must be tailored to the specific steam generator design.
 2. Inspection should be balanced with awareness of the potential for tube corrosion when a steam generator is drained.

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- B. Subsequent visual inspections of the secondary sides of steam generators should be performed only when the specific situation warrants, e.g., when nondestructive examination suggests the presence of a foreign object or when QA/QC or cleanliness procedures employed during maintenance are judged to have been insufficient. When conducted, such a subsequent inspection should be restricted in scope and duration to the minimum required to resolve the specific question that prompted it.

II. Supplemental Tube Inspections

- A. While a 3% random sample is a reasonable, proven starting point for eddy current inspection of a steam generator, immediate escalation to inspection of all the tubes in the steam generator upon finding a single defective tube (or five percent degraded tubes) is unwarranted and undesirable for the following reasons;
 - 1. The current step-wide progression from 3% to an intermediate sized sample before launching a 100% inspection has ensured that steam generators with higher levels of degradation have been inspected completely, while those with isolated instances of tube degradation have been able to avoid the unnecessary additional costs and radiation exposure associated with 100% inspection.
 - 2. The likelihood of finding a single defective tube increases as the sample size increases. The requirement that all tubes be inspected if one in a sample is found to be defective provides a legalistic and economic incentive to keep the initial sample size small. Under the current requirements provided in the Indian Point 3 Technical Specifications, the Authority has demonstrated a willingness to perform expanded inspections in order to fully assess steam generator tube integrity. There is presently adequate motivation (approximately \$750,000 per day for replacement energy) to locate and repair degraded tubes that are potential leakers during subsequent operating periods.
 - 3. If eddy current inspection requirements are revised in spite of arguments to the contrary, the revised requirements should retain an intermediate step between the initial sample and inspection of 100% of the tubes. Such an intermediate step could consist of defining a subset of susceptible tubes for complete inspection, or, for new phenomena, a 20% random

sample for further inspection. Findings from the intermediate inspection could then be evaluated to determine what further inspections were warranted (e.g., finding 1% of the tubes defective or 10% degraded in a random sample could trigger 100% inspection).

- B. The need to inspect all other uninspected steam generators should be evaluated on a case by case basis. When a mode of tube degradation can be isolated to a single steam generator, costly and lengthy inspections of other steam generators are unnecessary.
- C. The cost estimates used in assessing the impact of the proposed requirements appear to be low and unrealistic. They assume that the inspection can be performed off the critical path with no cost for replacement power. Additional unscheduled inspections will likely be in the critical path and replacement power, at a cost of approximately \$750,000 per day, would be required.
- D. Since inspection requirements and criteria will be defined, prompt notification to the NRC of results should not be required. In any event, it should be clearly stated that NRC review and approval are not required. Such a practice is needed to avoid administrative delays.

III. Full Length Inspections

Inspection of the cold legs of tubes is appropriate since tube degradation has been found in the cold leg sides of steam generators. However, cold leg inspection requirements should be flexible enough to account for differences in hot leg and cold leg degradation.

- A. Types of tube degradation in steam generators are normally associated with specific locations where a type of corrosive environment exists or where mechanical damage may occur. For the most part, pitting at Indian Point 3 is limited to the first 20 inches above the top of the tubesheet within an interior region of each of the outlet legs.
- B. Inspection criteria should be applied separately to the hot leg and cold leg sides of tubes. If tube degradation unique to the hot leg side leads to eddy current inspection of more tubes, inspection of the cold leg side of those tubes, with associated costs and radiation exposure, should not be required.

- C. Reinspection of tubes necessitated by a particular isolated form of damage should not be required to include unaffected portions of the tubes.

IV. Secondary Water Chemistry Program

- A. Steam Generator Owners Group (SGOG) water chemistry guidelines are precisely that: guidelines, prepared by a SGOG committee for the use of SGOG members, not all of whom agree with all sections. Guidelines are based on data where it is available and on judgment where it is not. As the data base expands and operating experience is gained, the guidelines will likely change. Compliance does not guarantee that there will be no tube degradation, nor does exceeding the goals automatically guarantee that there will be tube degradation.
- B. Application of the guidelines must be flexible enough to consider plant specific design features, operating requirements and philosophy and history of steam generator degradation. For example, actual plant experience or need may support different limits or actions than those called for in the guidelines. In addition, alternate methods of chemistry control such as boric acid treatment, which has been implemented at Indian Point 3, may not be provided for in the guidelines. Such exceptions to the guidelines must be allowed.
- C. The guidelines cannot always be implemented quickly by administrative decree. In addition to installing sampling, process, and laboratory equipment, Indian Point 3 and facilities of a similar vintage will have to consider extensive balance of plant modifications in order to meet the guidelines. The replacement of feedwater heaters, MSR's and the main condenser, and the installation of a full-flow condensate polisher, for example, are major projects requiring large capital expenditures and careful evaluations on the part of the utility.

V. Condenser Inservice Inspection Program

A condenser inservice inspection program should not be required as a license condition.

- A. Condenser performance is not a safety issue.

- B. The goal is maintenance of steam generator water chemistry. Depending on plant specific conditions, utilities will determine and perform various forms of condenser inspection and maintenance to support meeting the goal. Controlling both the goal and one step in meeting it is unnecessary and excessive regulation. The Authority has recognized the incentive to perform condenser ISI due to the growing awareness of chemistry's role in steam generator tube degradation and the importance of condenser integrity in maintaining secondary water chemistry control.
- C. The value-impact analysis assumed that a condenser inservice inspection program is essential to a water chemistry control program, then completed analysis to show that both are justified. However, no justification has been provided for the starting assumption.
- D. The value-impact analyses seem very limited since they were apparently based on information obtained from only four units.

The Authority does not believe that the proposed reduction in primary coolant iodine activity limits for plants with low head safety injection pumps is warranted. The proposed reduction reflects concerns regarding reactor coolant pump (RCP) operation during hypothetical steam generator tube rupture (SGTR) events. Such concerns have been addressed by the various vendor-utility groups, including the Westinghouse Owners Group (WOG), of which the Authority is a member. The Authority has committed to incorporate the technical guidelines of the WOG emergency operating procedure guidelines, including revised RCP trip criteria, into the Indian Point 3 procedures.

Should you or your staff have any questions regarding this matter, please contact Mr. P. Kokolakis of my staff.

Very truly yours,



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cc: Resident Inspector's Office
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