

September 26, 1995


Mr. Jerry W. Yelverton  
Vice President, Operations ANO  
Entergy Operations, Inc.  
1448 S. R. 333  
Russellville, AR 72801

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) PERTAINING TO STEAM  
GENERATOR TUBE INSPECTION AMENDMENT REQUEST (TAC NO. M92426)

Dear Mr. Yelverton:

By letter dated May 19, 1995, Entergy Operations, Inc., (the licensee), submitted a technical specification change request for Arkansas Nuclear One, Unit 2 pertaining to steam generator tube inspections. The staff has reviewed the licensee's submittal and has identified areas where additional information is required for the staff to complete its review. The enclosure to this letter details the areas where additional information is required.

Sincerely,

  
George Kalman, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket Nos. 50-313 and 50-368

Enclosure: RAI

cc w/encl: See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

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Sincerely,

A handwritten signature in cursive script, appearing to read "George Kalman".

George Kalman, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket Nos. 50-313 and 50-368

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Mr. Jerry W. Yelverton  
Entergy Operations, Inc.

Arkansas Nuclear One, Units 1 & 2

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County Judge of Pope County  
Pope County Courthouse  
Russellville, AR 72801

## REQUEST FOR ADDITIONAL INFORMATION

Please address the following comments/observations.

1. As noted in the submittal, the staff has permitted, in certain circumstances, defining special interest groups for performing steam generator tube inspections. These special interest groups primarily involve plants with B&W once through steam generators. The criteria in these (B&W plant) technical specifications typically require 100% inspection of the special interest group in both steam generators in order for these tubes to be excluded from the first random sample inspection. Furthermore, no credit is given for these tubes in meeting minimum sample size requirements. The current proposal involves only inspecting 3% of the tubes in a special interest group and a restriction on application of this criteria to inspections conducted per specification 4.4.5.3 is applied.

As noted in the submittal, the current technical specifications require expansion based on the total number of tubes in a steam generator rather than on the number of tubes in the affected area (e.g., number of sleeved tubes). As a result, the current technical specifications could result in more inspections being performed than is currently being proposed which is non-conservative. In addition, the current industry recommendation for initial sample size is much greater than the proposed 3% sample size, which is also non-conservative.

2. The expansion criteria being applied to expansion transition indications is restricted to circumferential cracks. Since other degradation mechanisms may be active (currently or in the future), it appears that the expansion criteria should address all forms of degradation that could occur at the expansion transition region in the sludge pile area. If a mechanism can occur in both the sludge pile and non-sludge pile region, separate expansion criteria may need to be implemented.

In addition, with the currently proposed expansion criteria for expansion transition indications, an indication could be found outside the "sludge pile" region and no additional inspections performed with the exception of providing a buffer region outside this area. This type of expansion criteria ignores the fact that an indication was detected outside the sludge pile region, a region where the degradation mechanism has not been active. As a result, the basis for why this expansion criteria bounds the problem is not evident (i.e., is the problem local or general?). A random sampling strategy outside this region would appear to be more appropriate.

3. It is being proposed that the definition of sludge pile and steam blanket region be included in the Bases section of the technical specifications to facilitate the ability to modify the inspection area under the provisions of 10 CFR 50.59. The current proposal defines the rows and columns for the sludge pile region and steam blanket region; however, how these areas were, and are to be, determined was not provided. A clear definition of the sludge pile region and steam blanket region should

ENCLOSURE

be provided. In addition, a definition for dented regions has not been provided. In addition to these definitions, the bases for these definitions should be provided.

For example, a definition for sludge pile region may need to include items such as:

- a. how the area is determined (e.g., low frequency bobbin coil exam with a specific calibration)
- b. what level of sludge is necessary
- c. qualification data based on pulled tube or other analysis
- d. etc.

A definition for dented region may need to address items such as calibration and sizing, basis for size of dent of concern, etc.

A definition of steam blanket region may need to address the basis for the row and column selection (e.g., thermal hydraulic analyses), etc.

An alternative to providing such definitions may involve defining a region which is clearly distinct from other regions (e.g., sleeved tubes, all hot-leg expansion transition indications, all cold-leg expansion transition indications, etc.).

4. Please clarify if the following interpretation of your proposal is correct. If a tube is inspected as only part of the general tube inspection, and an indication is detected at the expansion transition region in the hot leg sludge pile area, the inspection result would only be included in the categorization of the general tube inspection, but not the special inspection. In addition, if a tube is inspected as part of both the general tube inspection and a special inspection, the inspection result would only count for the special inspection.

If this interpretation is correct, it appears that including the results of an inspection in only the general tube inspection categorization when an indication is detected, when no special inspection is performed may be non-conservative. If a circumferential crack was detected with the bobbin coil (i.e., it opened up enough axially to be detected), it appears that the existing categorization may result in non-expansion of the special interest area, although the potential for other circumferential cracks to be present exists (these circumferential cracks may not be detected with the bobbin coil).